Social and Cultural Dynamics

VOLUME FOUR

Basic Problems, Principles, and Methods

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SOROKIN, SOCIAL AND CULTURAL
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PREFACE

The first three volumes of *Social and Cultural Dynamics* predicted in great detail the twilight of the Sensate phase of Western culture; the transitional period entered into by Western society; the tragedy, wars, revolutions, bloodshed, destruction, cruelty, and other characteristics of such a transition.

Every important aspect of the life, organization, and culture of Western society is included in the crisis. Its body and mind are sick and there is hardly a spot on its body which is not sore, nor any nervous fiber which functions soundly.

We are seemingly between two epochs: the dying Sensate culture of our magnificent yesterday and the coming Ideational culture of the creative tomorrow. We are living, thinking, and acting at the end of a brilliant six-hundred-year-long Sensate day. The oblique rays of the sun still illumine the glory of the passing epoch. But the light is fading, and in the deepening shadows it becomes more and more difficult to see clearly and to orient ourselves safely in the confusions of the twilight. The night of the transitory period begins to loom before us . . . with its nightmares, frightening shadows, and heartrending horrors. Beyond it, however, the dawn of a new great Ideational culture is probably waiting to greet the men of the future.[1]

So runs a summary of these predictions. Some four years have passed since the publication of the first volumes, and some fifteen years since the conception of the main ideas, of *Social and Cultural Dynamics*. What then appeared to many to be impossible is already happening. My predictions, met with sarcasm and hostility by many a critic, are already facts as solid as a fact can be. While the sweet theories of the critics are entirely washed out by the inexorable course of events, my diagnosis and the theory underlying it need no correction. History, so far, has been proceeding along the schedule of *Dynamics*. The great crisis of Sensate culture is here in all its stark reality. Before our very eyes this culture is committing suicide. If it does not die in our lifetime, it can hardly recover from the exhaustion of its creative forces and from the wounds of self-destruction. Half-alive and half-

[1] P Sorokin, *Social and Cultural Dynamics* (New York, 1937), Vol. III, p 535.

dead, it may linger in its agony for decades; but its spring and summer are definitely over.

Under these conditions the great task of our generation and the next consists, not in a hopeless resuscitation of what is already quite hollow, but in a solution of two different problems: first, of making the *dies irae, dies illa* of the transition as painless as possible; second, of laying down constructive plans for the future society and culture. Thousands of Communist, Totalitarian, Socialist, Liberal, Conservative, Republican, Democratic, and other project makers are already busy with the blueprints of the sociocultural reconstruction. Unfortunately, their plans represent but a mere variation of the same dying Sensate culture. Trying to revive what is half-dead, they are too shortsighted and, therefore, are doomed to failure. Any farsighted plan for the future society and culture needs to be much more radical than these variations and must go beyond the "old regime of Sensate culture" toward the new regime of either Ideational or Idealistic culture. Without such a fundamental change no really constructive and creative society is possible in the future. So much about this point. Now of the content and structure of this volume.

The preceding volumes of *Social and Cultural Dynamics* gave a vast mass of the relevant facts concerning sociocultural change. On the basis of this material the groundwork of the theory of sociocultural change was done and a part of its frame was erected. In passing, the leading principles of the theory were mentioned. However, the building was not finished in these volumes. The scaffoldings were not taken away. Nor were the main principles systematically unfolded. These tasks were left to this volume. On the basis of the body of facts given in the preceding volumes and in this one, *the present text offers a systematic theory of sociocultural change in its important aspects and basic problems.* In accordance with this plan it opens with an investigation of the sociocultural system and its properties, sociocultural congeries, and the structure of the total culture of an area. Any thoughtful reader can see for himself that no systematic theory of sociocultural dynamics is possible without a systematic theory of sociocultural systems and congeries. The problem is the central problem of social sciences and needs a careful investigation for its own sake. Hence Part One is devoted to this problem.

Part Two deals with the basic problems of *how culture changes.* Does the total culture of an area change in "togetherness" or independently in its various parts? What uniformities, if any, are given in the

genesis, multiplication, migration, and diffusion of cultural phenomena in social space? Do various cultural phenomena change synchronously or do they change nonsimultaneously? Is there any uniformity of temporal order in sociocultural change in the sense that some compartments of culture regularly lead while the others lag in the change? If such a uniformity of temporal order exists, what is it? Are there in sociocultural change uniformities of rhythms and phases and, if they exist, what are the rhythms and how are they related to one another? Are these rhythms periodical or are they nonperiodical? If periodical, what is the source or reason of the periodicity? Finally, what, if any, uniformities are given in the tempo of the change and what does the tempo, rhythm, periodicity, mean in application to sociocultural processes? Such are some of the basic problems of this part.

Having answered the main problems of how culture changes, we make a further step in our inquiry. Part Three asks and attempts to answer *the Why of the How. Why — for what reasons or causes — does culture change in the ways it does and why are the uniformities of the change such as they are?* An answer to these whys leads to the formulation and unfolding of the principles of immanent change, of limit, of sociocultural causality, and of the integral system of truth and reality — to mention but the main principles. This part lays down some of the referential principles of sociology as distinct from those of the natural sciences.[2] Together with the preceding parts, it answers all the whys raised in the preceding volumes and especially the why of the long-time rhythm of the domination of Sensate, Ideational, and Idealistic forms of culture.

A study of each of the problems of this volume consists in an analysis of its epistemological and methodological implications; in a survey and criticism of the existing theories in the field; and, finally, in a constructive hypothesis that appears to be more adequate than other theories offered. Throughout the whole work the paramount importance of the logico-meaningful method, and of the meaningful aspect of sociocultural phenomena, is shown again and again. It is hoped that no intelligent scholar will fail, after reading this volume, to see the real nature of this method and its paramount importance for the social sciences. The meaningful components of sociocultural phenomena make them fundamentally different from physicochemical and biological phenomena and call for a logico-meaningful method profoundly

[2] A complete framework of the referential principles of the social sciences will be given in a forthcoming monograph *Sociocultural Causality, Space, Time*

different from the pure causal or pure probabilistic method of the natural sciences.

In all these respects this volume is a logical finale, the last movement in a symphony of four movements. However, this fact should not hinder one from reading the volume independently of the other volumes: as does any symphonic movement, it represents a unity in itself.

In conclusion, I want to thank all those — too numerous to be mentioned by name — who found something worthy in *Social and Cultural Dynamics* and expressed in their books, articles, letters, and in other ways their high estimation of it. I am indebted, further, to all the critics of it. I am indebted to Henry Holt and Company, The Macmillan Company, the Oxford University Press, and to other publishers for their kind permission to make quotations from works published by these firms. Finally, I want to thank the Harvard Committee for Research in the Social Sciences for its financial help in the preparation of this volume.

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CONTENTS

PART ONE

THE SOCIOCULTURAL SYSTEM AND ITS PROPERTIES

Chapter One PECULIAR NATURE OF THE EMPIRICAL SOCIOCULTURAL SYSTEM VERSUS PURE CAUSAL AND PURE MEANINGFUL SYSTEMS . . 3

I. Introductory. II. A causal system and its varieties. III. Pure meaningful cultural systems. IV. Pure cultural theory of meanings as a part of cultural sociology. V. Relationship between pure systems of meanings and causal systems Mixed nature of empirical sociocultural systems. VI. Transformation of the natural phenomena through their becoming "vehicles" and transformation of pure meanings by their vehicles and agents.

Chapter Two. EMPIRICAL SOCIOCULTURAL SYSTEMS: THEIR STRUCTURAL AND DYNAMIC PROPERTIES 45

I Fundamental characteristics of the sociocultural systems. II. System of meanings, vehicles, and human agents as components of the empirical sociocultural system. III. General and differential conductivity within the empirical sociocultural system. IV. Three forms of interrelationship of the systems. V. Individuality of empirical sociocultural systems. VI Spatial compatibility of systems. VII. Reality of empirical sociocultural systems. VIII. Phases in emergence of the empirical sociocultural system: conception, objectification, socialization. IX. Three conditions of continuity of existence of changing empirical sociocultural systems. X. Triple aspects of change of the empirical system. XI. The empirical sociocultural system functions and changes in its important parts as a whole, in "togetherness." XII. Self-directing unity. XIII Selectivity of system. XIV Limited possibilities of variation of a system. XV. The conditions of the optimum integration of empirical sociocultural systems XVI. Growth of empirical systems and the forms of the growth. XVII. Decline of the sociocultural systems and the forms of the decline. XVIII. Dissolution of empirical sociocultural systems. XIX. Span of life of empirical sociocultural systems. XX. Resurrection of empirical sociocultural systems. XXI. Conclusion.

Chapter Three. COMPOSITION AND STRUCTURE OF THE TOTAL CULTURE OF AN AREA 97

I. Total culture as a multitude of congeries, systems, and supersystems. II. Criticism of atomistic and completely integralistic conceptions of the

total culture of a given area. III. Main cultural systems. IV. Interrelation of cultural and social systems. V. Quest for a further unification of cultural systems into still vaster supersystems. The place of Ideational, Idealistic, and Sensate supersystems of culture among the supersystems offered. VI. Conclusion.

PART TWO

HOW CULTURE CHANGES

Chapter Four. DOES THE TOTAL CULTURE OF AN AREA CHANGE IN TOGETHERNESS OR INDEPENDENTLY IN ITS VARIOUS PARTS? . 145

I. Propositions concerning change of supersystems, systems, and congeries. II Dichotomic theories of supersystems of F Bacon, K Marx, A. Coste, M. Tugan-Baranovsky, L Weber, T. Veblen, A Weber, R McIver, W. Ogburn, and others. III. Criticism of the dichotomic theories. A. Dichotomy of the material and nonmaterial culture B Dichotomy of the technological *vs* cultural or socioreflective C Dichotomy of civilization *vs* culture; sociality *vs* ideology D Fallacy of the accumulative and nonaccumulative, linear and nonlinear characteristics of each of the dichotomic systems E Universality of diffusion of material culture or civilization and local character of nonmaterial culture diffusion. IV Conclusion

Chapter Five. GENESIS, MULTIPLICATION, MOBILITY, AND DIFFUSION OF SOCIOCULTURAL PHENOMENA IN SPACE 197

I. The problem of uniformities in sociocultural change II Uniformities in mobility, multiplication, displacement, and circulation of cultural phenomena in space. III Routes of travel of cultural objects, phenomena, values. IV. Directions of the streams of the cultural elements. V A lag in the entrance of the finished products into the culture of the lower-rural-less civilized classes. VI. Importers and earliest recipients of a new cultural value. VII Mobility and displacement of cultural elements, congeries, subsystems, and systems, and great creative centers of culture. VIII. Spatial shift of the great creative centers of culture. IX. Transformation of cultural objects and values in the process of migration X. Why do certain cultural systems and values multiply, move, and spread successfully (become "best-sellers") while the others do not spread at all or spread little? XI. Curves of the spread of the value. XII. Which cultural values penetrate and diffuse first. material or nonmaterial? XIII. Conclusion.

Chapter Six. TIME UNIFORMITIES: SYNCHRONICITY AND TEMPORAL ORDER IN SOCIOCULTURAL CHANGE 289

I. The main problems. II. Theories of synchronicity and nonsynchronicity of culture change. III. Theories of nonsynchronous uniform sequences in sociocultural change Sociocultural lag theories IV. Theories of uniform lag of K. Marx, W. Ogburn, T. Veblen, and others. Criticism

Chapter Seven TIME UNIFORMITIES: SYNCHRONICITY AND TEMPORAL ORDER IN SOCIOCULTURAL CHANGE (*Continued*) 323

I Creative pulsation of various subsystems of culture in time II. Conclusions A Accumulative character of historical persons and — by inference — of the achievements in all ten fields of culture in the course of time B. Roughly linear tendency of such an accumulation. C. Similarity of movement of all ten series. D Intermittent and nonlinear direction of the series from period to period. E. Religion and Statesmanship least intermittent, Business most intermittent. F. Religious and Political inventions are earliest, Business inventions latest. G. These two fields yield the greatest share of historical persons. H. Movement of religious leadership and creativeness. I. Opposite movements of creativeness in religion and business J. Relationship of movements of creativeness in religion and statesmanship. K Movements of literature, fine arts, and music L Movements of science-leadership. M Movements of scholarship and philosophy. N. Negative and positive significance of the material given O Into which fields of culture do good brains go and when? P Differential spectra of national cultures III. Constructive hypothesis concerning the temporal order in change of sociocultural phenomena A Temporal uniformities are given only in a change of a system, not in congeries. B All important parts of a system change in togetherness C. Change of a system is mainly an unfolding of its potentialities D Uniformity of the temporal order of phases in the rhythms of a system. E. Variety of rhythms and tempi F. Togetherness of change and synchronicity. G Component of meanings tends to change earlier than component of vehicles H. Embraced rhythms tend to be faster than embracing rhythms I. Varying order of change of subsystems J. Ideational culture changes slower than Idealistic and Sensate.

Chapter Eight UNIFORMITIES OF RHYTHM AND PHASES IN SOCIOCULTURAL CHANGE 389

I. Concept of sociocultural rhythm and its phases. II. Classification of sociocultural rhythms. A. Gradation of short and long-time rhythms. B Embracing and embraced rhythms. III. Classification of rhythms according to the number of their "phases." A Two-phase rhythms. B. Three-phase rhythms C. Four-phase rhythms. D. Five-phase and

still more complex rhythms. IV. Summary of forms of rhythm and of caesura. V. Cognitive value of tidal embracing rhythms and particularly of Ideational-Idealistic-Sensate rhythms. VI. Critical remarks on mechanical and atomistic procedure in the study of sociocultural causal connections. VII. Critical remarks about various theories of the sociocultural rhythms.

Chapter Nine. PROBLEM OF PERIODICITY OF SOCIOCULTURAL RHYTHMS . . 441

I. Main types of theories. II. Metaempirical theories of periodicity. III Cosmic theories of periodical sociocultural rhythms. IV. Geographic branch of cosmic theories of periodicity V. Bio-organismic theories of sociocultural periodicities. VI "Generational" interpretation of social rhythms and periodicities. VII. Mixed theories of periodicity.

Chapter Ten. CRITICISM OF THE METAEMPIRICAL, COSMIC, BIOLOGICAL, AND MIXED THEORIES OF SOCIAL RHYTHMS AND PERIODICITIES. SOCIOLOGISTIC THEORY OF PERIODICITY 531

I. Criticism of the general premises of cosmic and biological theories. A. Dependence of sociocultural processes on cosmic factors is remote. B. Alleged periodicity of certain cosmobiological processes is nonexistent. C. Other cosmobiological rhythms are not reflected in social rhythms. D. Generational periodicity is fictitious. II. Sociologistic theory of periodicities in the sociocultural rhythms. III. Periodicities and averages.

Chapter Eleven. TEMPO AND TEMPO UNIFORMITIES IN SOCIOCULTURAL CHANGE 555

I. The problem of tempo, its application to, and measurement in, sociocultural processes II Survey of tempo uniformities claimed. III. Criticism and constructive hypotheses (1) Acceleration in passage from Ideational to Sensate (2) Fast tempi in super-ripe Sensate phase. (3) Constant tempi of periodic processes. (4) Religious and utilitarian bases of constant tempi. (5) No uniform tempi in congeries (6) Chaotic tempi of the periods of transition (7) Duration of embracing rhythms tends to be longer than that of the embraced rhythms. IV. Conclusion to Part Two.

PART THREE

WHY AND HOW OF SOCIOCULTURAL CHANGE

Chapter Twelve. PRINCIPLE OF IMMANENT CHANGE OF SOCIOCULTURAL SYSTEMS AND CONGERIES 587

I. Three hypotheses on the "why" of sociocultural change. II. Some implications of the principle of immanent change. A. Principle of im-

manent generation of consequences. B. Principle of immanent self-determination of the system's destiny (existence career). C. Immanent self-determinism as synthesis of determinism and indeterminism. D. Principle of differential degrees of self-determination and dependence for various sociocultural systems. E. Factors of self-determination and power of systems. III. Summary.

Chapter Thirteen THE PRINCIPLE OF IMMANENT CHANGE IN THE HISTORY OF SOCIAL THOUGHT AND IN CONTEMPORARY RESEARCH 621

I. Predecessors of the theory of immanent change. II. Main types of theories of immanent change of sociocultural phenomena. III. Conclusion of the survey. IV. The role of immanent and externalistic principles in contemporary scientific specialized research. V Conclusion.

Chapter Fourteen THE "WHY" OF SOCIOCULTURAL RHYTHMS AND SWINGS THE PRINCIPLE OF LIMIT 669

I The second and third "why." II. Criticism of mechanistic theories of sociocultural rhythms and their phases. III Criticism of the principle of equilibrium in its application to the sociocultural phenomena Main Meanings of Equilibrium in the Social Sciences A. Concepts identifying equilibrium with a state of being at rest B Concepts identifying equilibrium with a momentary state of rest, interpreted often in an ethical or evaluative sense C The concept of equilibrium identifying it with mutual limitation or inhibition of two or more social organs functions, agencies, or forces. D. Concepts of equilibrium identifying it with "adaptation," etc , and other normative and evaluative notions E Concepts of equilibrium identifying it with a tendency of a social system, when disturbed, to return to its previous status, or to hold its "normal" trend or level Conclusions IV Tentative hypothesis The principle of limits in reference to causal (functional) relationship, direction of sociocultural change, and the range of possibilities of change of systems. V. Principle of limits and sociocultural rhythms

Chapter Fifteen THE PROBLEMS OF EVER-LINEAR, EVER-NEW, AND STRICTLY CIRCULAR SOCIOCULTURAL CHANGE 715

I. Two important corollaries of the principle of limit II. The problem of linear sociocultural processes. III. The problem of ever-new processes IV. The problem of identically cyclical or circular processes. V Summary.

Chapter Sixteen. THE REASON FOR THE SUPER-RHYTHM OF IDEATIONAL-IDEALISTIC-SENSATE PHASES IN THE GRAECO-ROMAN AND WESTERN SUPERSYSTEMS OF CULTURE 737

I. Principles of immanent change and of limited possibilities as the first reasons. II. Inadequacy of each of the main systems of truth and real-

ity as a reason for the super-rhythm of Ideational-Idealistic-Sensate forms of culture. III. The integral theory of truth and reality. A. Intuitional truth as the ultimate basis of any science, philosophy, religion, ethics, and art. B. Intuition as starter of discoveries, inventions, and creative achievements. IV Return to the argument. V. Why the order of the phases: Ideational, Idealistic, Sensate. VI. The end of the road.

Chapter Seventeen THE TWILIGHT OF OUR SENSATE CULTURE AND BEYOND 775

A. Crisis period and its trends B. Catharsis. C. Charisma and resurrection.

INDEXES 781

INDEX OF NAMES 783

INDEX OF SUBJECTS 794

LIST OF TABLES

Movement of Historical Persons from Earliest Times to 1849 by Periods, Countries, and Fields of Their Activities

1. World. Geometric Averages 328
2. World. Geometric Averages Percentages 330
3. Greece. Geometric Averages 332
4 Greece. Geometric Averages Percentages 333
5. Rome (Italy) Geometric Averages 334
6 Rome (Italy). Geometric Averages Percentages 336
7. France Geometric Averages 338
8. France. Geometric Averages Percentages 340
9 England Geometrical Averages 341
10. England Geometric Averages Percentages 342
11 Germany Geometric Averages 343
12 Germany Geometric Averages Percentages 344
13 Austria, Hungary, Bohemia Geometric Averages 345
14. Austria, Hungary, Bohemia Geometric Averages Percentages . . 346
15 Russia, Poland Geometric Averages 347
16 Russia, Poland Geometric Averages Percentages 348
17 U S A Geometric Averages 349
18 U S A. Geometric Averages. Percentages 350
19 Arabia 352
20. Graeco-Roman and Western World 353
21 Movement of Monasteries and Universities in France and in Europe . 380

LIST OF FIGURES

1 Sociocultural Rhythms 395
2 All-embracing Life-process and Its Rhythms 397

PART ONE

The Sociocultural System and Its Properties

Chapter One

PECULIAR NATURE OF THE EMPIRICAL SOCIOCULTURAL SYSTEM VERSUS PURE CAUSAL AND PURE MEANINGFUL SYSTEMS

I. Introductory

No comprehensible theory of sociocultural change is possible without a clear-cut concept of the sociocultural system and the sociocultural congeries. Convincing evidence of that will be clearly given later. Its validity will appear in the unfolding of our theory of sociocultural change, which we shall start with an analysis of the essential properties of the sociocultural systems and congeries. When this task is accomplished, the sound foundation is laid for the construction of a sound theory of the social and cultural dynamics.

The preliminary analysis of the essential traits and forms of the sociocultural systems; and of their differences from the sociocultural congeries, has been given in Chapter One, Volume One, and in Chapter One, Volume Three, of this work. It has been shown there that theoretically there are two main forms of the sociocultural systems: the causal and the logico-meaningful. All other culture complexes whose elements are not united by either causal or logico-meaningful ties are not systems, but merely congeries. This preliminary analysis now needs to be unfolded and deepened in order that a number of the most important properties of the sociocultural systems and congeries become apparent. In accordance with this purpose, three cardinal problems will be considered in this chapter: (1) What are the essential characteristics of the *pure causal systems* in contradistinction to the *pure causal congeries?* (2) What are the fundamental traits of the pure *logico-meaningful systems* versus the *logico-meaningful congeries?* (3) What is the nature of the *empirically given sociocultural systems?* Are they pure causal systems or pure logico-meaningful systems, or do they represent a *peculiar synthesis of the two* — a synthesis that makes their nature fundamentally different from the causal unities or systems of the natural sciences?

The importance of these problems, especially of the third one, to the theory of the sociocultural change cannot be overemphasized. It suffices to say that the nature of the answer to the third problem determines not only the nature of the theory of sociocultural change but practically the whole character of the social sciences, their bases, their methods, their aims and nature.[1] This is the reason why our systematic theory of the sociocultural change opens with the study of these problems and why the study itself, though concise, cannot be brief.

II. A Causal System and Its Varieties

Any system characterized by the existence of a tangible causal or functional interdependence of its parts upon one another, of the whole upon its parts, and of the parts upon the whole is a causal system, provided this interdependence is viewed as due to the physicochemical or biological properties of the whole and of its parts. This interdependence means that a variation of an important part of the whole results in a certain uniform variation of its other important parts and of the whole, and that the variation of the whole leads to the variation of its parts. This basic characteristic of a causal system is supposed to be equally applicable to any causal system, be it physicochemical, biological, or sociocultural. It is unanimously stressed by practically all the competent investigators of the problem.[2]

[1] Professor G Dykmans excellently understood this and pointedly set forth the problem If we assume that there are only causal sociocultural systems, the whole character of the social sciences becomes identical with that of the natural sciences If we admit that there are logico-meaningful, sociocultural systems, the social sciences become very different from the natural sciences and approach in their nature to philosophy; if, finally, the sociocultural systems represent a combination of the causal with the meaningful unity, the social sciences must proceed along a way of their own, different from that of the natural sciences as well as that of philosophy "Science or philosophy? . . the sociologist must choose; and if he plans to practice both, this (from the standpoint of many) can be done only on quite different planes starting with incommensurable hypotheses. In Sorokin's theory this alternative does not exist logical integration, it also can be investigated scientifically If it is so, then the scientific domain of *how* enriches itself with *why*" From this standpoint, the "publication of the monumental volumes of the *Social and Cultural Dynamics* marks a great turning point in the history of sociological thought" G Dykmans, "Les types d'intégration socio-culturelle selon Pitirim Sorokin," *Revue des sciences économique*, April, 1939, pp. 1–8.

[2] "When we talk of a sand pile, of a pile of wood, of a group of trees, and so on, the spatial adjacency of singular units in a given number and grouping is not determined there by any necessity inherent in them and they have a relationship that may exist between almost any other units" Therefore, such conglomerations are "purely external and incidental." C. Sigwart, *Logik* (Russ. trans, St. Petersburg, 1908), Vol. II, p. 226. Only

Being in agreement on this point, various investigators add, however, to that basic property of a causal system some additional characteristics as supplementary or even necessary. For instance, in treating Gibbs's concept of the chemical system Henderson points out that it is an "isolated material aggregate. It consists of components which are individual substances, like water or alcohol. These substances are found, singly or together, in phases." [3] Others, like A. A. Tschuproff, find that for a real causal system dependence or interdependence of its parts must necessarily be not momentary but *durable*. The causal interdependence of the members of the solar system and the comet that is passing through the solar orbit is not sufficient to include the comet as a part of the solar system.[4] B. Kistiakowski stresses the condition of the *homogencity* of the members of the system in order to make it a real system: the existence of causal interdependence of a driver and his horse does not make of the man, horse,

the existence of causal or functional dependence makes a real unity or system or *Kollektivwesen* Similarly, B Kistiakowski, *Gesellschaft und Einzelwesen* (Berlin, 1899), pp 131 ff "For me there is only one basis which gives to unification of separate elements a relative objectivity, it is interaction of its parts" G Simmel, *Über soziale Differenzierung* (Leipzig, 1890), chap i Similarly, A. A Tschuproff regards such relationship as the necessary (though not always sufficient) basis of any collective unity or system A. A Tschuproff, *Ocherki po teoru statistiki* (Moscow, 1909), pp 77–80 So also Pareto Similar is the situation in chemistry and physics For any physical or chemical system, especially according to W Gibbs's Phase Rule, an interaction or interdependence of the components of the system is a necessary condition See A Findlay, *The Phase Rule and Its Applications* (London, 1904), chaps i, ii, *et passim*. Also L J Henderson, *The Order of Nature* (Harvard University Press, 1917), chaps vii–x "All the factors that characterize the system are seen to be mutually dependent" L. J Henderson, *Pareto's General Sociology* (Harvard University Press, 1935), pp. 12–13.

The logical and epistemological treatises analyze it as a problem of "totality," or "unity," or "coexistencies" They range the relationships between various objects or experiences from purely "chaotic and incidental" to more and more regular, uniform, and permanent The uniform and regular unity of certain elements, manifest in the above interdependence, is usually viewed as a causal unity. See, for instance, J Venn, *The Principles of Empirical and Inductive Logic* (London, 1907), chap iii *et passim*. H Hoffding, *La relativité philosophique. Totalité et relation* (Paris, 1924), pp 13 ff., 44 ff, 62 ff, 123 ff, 163 ff E. Meyerson, *Du cheminement de la pensée* (Paris, 1931), Vol I, pp. 106–193 *et passim* See there a survey of various theories in the field The problem has, of course, a number of implications. They are kept in mind but are not mentioned because their analysis is not urgently necessary for our purposes and because if all the implications were brought out in the subsequent analysis, the whole volume would have to be devoted entirely to that problem By carefully reading the subsequent chapters, the epistemologically minded reader can easily detect the kind of assumptions underlying this or that proposition

[3] L J Henderson, *Pareto's General Sociology*, pp 10 ff.

[4] A A. Tschuproff, *op. cit.*, pp. 77–78.

and buggy a system of collective unity. Many a sociologist adds the existence of *solidarity* and *harmony,* or *consensus,* between the elements of the causal system as the condition of a real society or collectivity or causal unity.[5]

Other theories could be mentioned, but the above examples give an idea of how various investigators of the problem disagree concerning the supplementary characteristics necessary for a number of interdependent parts to become a real causal system or collective unity (*Kollektivwesen*). The disagreement is, however, unessential. Properly understood, the various additional characteristics can be easily reconciled as the characteristics of a species of the causal system, but not as those of the genus.

From this standpoint, causal systems may be subdivided into (1) *durable* and (2) *short-living* as far as the duration of their existence in time is concerned. And, from this standpoint, Tschuproff's solar system containing a comet within its orbit is a real system and the comet is its real member, though for a comparatively short time. A radio network, like the National Broadcasting system or the Columbia system, is a real causal system composed of all the stations hooked up for any given program, though some of these stations may be hooked up for a given program only and do not belong to the system regularly.

Likewise, the causal systems may be (1) *concrete and continuous in space,* isolated as a perceptual body from the rest of the space and bodies, like the chemical system of Gibbs, and (2) *discrete and noncontinuous in space,* like, for instance, the solar system and the majority of the sociocultural systems viewed as causal.[6] Such social sys-

[5] For instance, Auguste Comte *"On peut dire, en effet, que, partout où il y a système quelconque, il doit exister dès-lors une certain solidarité"* Or, *"Le principe scientifique de cette rélation générale consiste essentiellement dans l'évidente harmonie spontanée qui doit toujours tendre à régner entre l'ensemble et les parties du système social, dont les éléments ne sauraient éviter d'être finalement combinés entre eux d'une manière pleinement conforme à leur propre nature"* A Comte, *Cours de philosophie positive* (Paris, 1839), Vol IV, pp 350, 395, and the whole forty-eighth lecture. Also see his *Système de politique positive,* Vol I, chap i, *et passim*

[6] Herbert Spencer pointed out the discreteness of social organisms in contradistinction to concreteness of biological organisms See his *Principles of Sociology* (New York, 1910), Vol. I, pp. 447 ff "When things or attributes are said to coexist, in the logical sense, it does not imply that they stand side by side, or that they must be capable of being grasped in the same act of perception With many attributes this may be so; but we equally class with them attributes which are logically separated by immense distances" J. Venn, *op cit*, p 90

tems as a factory, or a real territorial community, so far as it is a causal system with interdependence of its parts, and even the State, with a continuous territory of its sovereignty, or such cultural systems as the Parthenon, the Cathedral of Chartres, the Empire State Building — these and many other social and cultural systems are each concrete and continuous in space, with definite boundaries separating them from the rest of the systems. On the other hand, such systems as the National Broadcasting Company, the various political parties, the American Sociological Society, the Roman Catholic Church, and thousands of other social and cultural systems are discrete and discontinuous in space. Their members are sometimes scattered over the whole planet; they do not have any continuous spatial territory coterminal with the system; they are not isolated — spatially and perceptually — from the rest of the systems and congeries. Nevertheless, they are thoroughly real systems; any important event in one important part of the Roman Catholic system — say, persecution of the Catholics in Mexico, or in Spain or Soviet Russia, or the death of the pontiff — affects tangibly the rest of the Roman Catholic system.

Spatial or perceptual concreteness and continuity are additional *differentia specifica* of the species of causal systems; otherwise they are neither necessary nor sufficient criteria for a causal system. Causal connection between two or more elements neither requires nor implies in any way spatial adjacency of the elements or material continuum of the system. Two elements like the sun and the earth, or two radio stations of the same network, can be separated from each other by millions or thousands of miles and yet be parts of one causal system. On the other hand, a worn-out shoe with a stone in it may be in the same box with a *Saturday Evening Post* and a bottle of ginger ale; yet stone, shoe, *Post*, and bottle do not make any causal system, in spite of the spatial continuum and adjacency and isolation from the rest of the world. The conglomeration is a mere spatial congeries. Generally, spatial contiguity and continuum are neither necessary nor sufficient characteristics of a causal system.

Likewise, some of the causal systems are made out of *heterogeneous* and others out of *homogeneous* elements. These differentia are the characteristics of the species but not of the genus of causal systems. In chemistry there are equilibrium systems, homogeneous and heterogeneous; the chemical systems, according to the Phase Rule, are of one, two, and three components, made up respectively of the homo-

geneous and heterogeneous components.[7] Any complex organism — biological system — may be regarded as a homogeneous and at the same time as a heterogeneous system, so far as the cells and the organs (subsystems) of which it is made are heterogeneous. Among animal and plant societies we meet the causal social systems made out of the organisms of the same species and also the systems composed of the organisms of different species (phenomena of symbiosis, regular parasitism, etc.). This is still truer in regard to sociocultural systems viewed in their causal aspect. The elements of any society (real, interacting group) are composed not only of the individuals but also of the conductors of interaction, such as sound (speech, music, and other sound conductors through which the action emanating from one individual reaches the others), color-light conductors (books, hieroglyphics, manuscripts, pictures, movies), chemical and physical conductors (electricity, radio, bullets, various chemical and physical agencies — such as drink, food, poison, candy, etc.), and so on, used by one party to influence the behavior and psychology of the other party.[8] These conductors of interaction are an absolutely indispensable element of any social phenomenon of interaction or interdependence. So far as they represent various physicochemical agencies (sound, color-light, electricity, etc.) they are different from human individuals. Thus far, any causal social system is made up of heterogeneous elements.[9] If we use the terms homogeneous and heterogeneous in a more restricted sense — meaning, for instance, homogeneous and heterogeneous human individuals — then again we have causal social systems made up of the relatively more homogeneous and more heterogeneous individuals. There are real social systems made up of the individuals of only one sex (monasteries, various men's and women's clubs and associations) and of both sexes (most of the social systems); of the persons of all age groups and of only one age group (within a certain age, as, for instance, an elementary school, an army, a monastery, and an age subdivision in many a primitive society). There are real social systems made up of the individuals of different races, nationalities, citizenship, political parties, economic and social ranks, sexes, ages, like the Roman Catholic system and most of the various

[7] See A. Findlay, *op cit*, pp 5, 11 ff, *et passim*.

[8] See my *Sistema Sociologii* (St Petersburg, 1920), Vol I, chaps iv and vii, where the theory and analysis of the conductors of interaction are discussed

[9] From this standpoint Kistiakowski's example, man-horse-buggy, is a causal system in which each element influences the behavior and status of the other two, and sometimes very strongly.

international systems; and there are the social systems made up of limited and comparatively homogeneous individuals, like many aristocracies and various "exclusive" societies, clubs, and associations. All this means that the boundary line between the heterogeneity and homogeneity of the elements of social systems is relative, and that even within this relativity we have social systems made up of heterogeneous and homogeneous elements.

The same can be said of the causal cultural systems. In a sense, such systems as the Roman Catholic Church or Harvard University, as cultural systems, are made up of a diverse multitude of heterogeneous elements: physical, chemical, biological, and sociocultural — buildings, libraries, territory, instruments and laboratories, religious relics and objects, and all the various individuals who are participants in such a system. We can distinguish cultural systems more and less heterogeneous in their elements. For instance, the system of automobile transportation is more homogeneous than the system of transportation where automobile, train, steamer, and airplane are linked with one another in as exact a timetable as the system of automobile transportation. Both systems are causal systems, and the second often displays as close interdependence of its heterogeneous links as the elements (busses and cars) of a purely automotive system of transportation. There are specialized (liquor, jewel, bakery) stores, and there are encyclopedic stores — the department stores — that handle most heterogeneous merchandise. Nevertheless, from the standpoint of interdependence of its parts, the department store is often as close an economic system as the specialized store. The same is true of such specialized institutions as a school of theology or music and an encyclopedic university or college. Both types are causal unities from the standpoint of interdependence of their parts. This means that the characteristics of homogeneity and heterogeneity are relative and have some significance for the specification of various species or subtypes of such systems, but they in no way compose the *necessary* trait of the causal cultural systems.

The same can be said of *consensus*, or *solidarity* and *harmony*, of the relationship between the elements of the causal — mechanical, biological, and sociocultural — systems. An automobile remains a causal system when all its parts work "in consensus" and when it has friction: in both cases the interdependence remains. Organism remains a causal unity when all its organs are in consensus and function well, and when there is an "antagonism" between some of its parts result-

ing in sickness or disability. In social life, as has been shown (see Chapters One and Two, Volume Three, of this work), there are solidary and antagonistic social systems. Sing Sing, or any prison, is a system, with a close interdependence of its members, and yet it is far from being solidary in the relationship between the prisoners and the guards. This also applies to the social group made up of the executioners and the condemned, of the conquerors and the conquered. It is true that the harmonious and solidary social systems are, in many respects, more closely integrated in a meaningful sense and often even in a causal sense of interdependence, but that is not always so; that may apply to a special type of the social system, but it is not the *conditio sine qua non* of such a system. Some of the real social systems are solidary while others are antagonistic, though both types are real causal systems in the sense of the above definition.

These remarks are sufficient to indicate that all these additional traits are important in distinguishing various types of the causal systems, but they are not the basic characteristics of such systems generally. The presence of the tangible causal one-sided, or functional two-sided, mutual dependence of its parts upon one another, the parts upon the whole, and the whole upon the parts — that is all that is necessary for such a system.

From this it follows that, first, *there may be causal systems within a system* if the dependence of the parts of a system is closer and more intensive (like that of the earth and the moon within the solar system) than the dependence between these parts and the rest of the system. A department in a university is a system within the system of the whole university, and the university itself may be a system within a still larger system of the universities of a given country, and the whole university system may be a subsystem in the total educational system of the country. In the centralized educational system of the totalitarian states, where the whole educational system is managed by the Government, such a series of subsystems within still larger systems is especially clear.

Second, *within the same population and the same territory or area there may be a multitude of different social and cultural systems.* Within the same population and territory there are different radio systems, telegraph and telephone systems. Likewise, there are different religious, political, educational, economic, and occupational systems, and so on, each of which is different from the other, with its own network of communication and connection, which, like a network of

different wires attached to the same poles, is a closed system functioning as a whole, with all the triple interdependence of its parts upon one another, the parts upon the whole, and the whole upon the parts. Most social and cultural systems are not continuous in space, and even when continuous they do not exclude the possibility of having many a network of different systems attached to the same individuals (poles). Hence such a coexistence of a multitude of social and cultural systems within the same area or population is comprehensible. Within one city there are thousands of different social and cultural systems. In contradistinction to purely material and physical bodies, two of which cannot exist within the same space, a multitude of social and cultural systems can coexist within the same space and area, and within the same individual. Socially, each of us is a pole attached by a multitude of "wires" to several and diverse social and cultural systems, as a member of the State, of a religious organization, of the family, of a political party, of an occupational union, of a certain territorial community (village or city), and of a number of various educational (sport, art, scientific, philanthropic) associations, different from one another. Culturally again, each of us belongs to various cultural systems and is a bearer of their values, like the system of belief of the Roman Catholic religion, of democratic political ideology, of romantic art values, of empiricism in philosophy, of certain value systems in economic or other cultural systems.

III. Pure Meaningful Cultural Systems

In Chapter One, Volume One, of this work it has been stated that the second fundamental type of cultural system is the logico-meaningful system. It has been indicated that in the pure meaningful system the bond between the elements of the system is not a causal relationship or interdependence, but the identity of the fundamental principles and values that permeate all its parts and the consistency of unfolding, or consensus in realization, of these principles, values, and ends throughout the system as a whole and in all its parts. Here also we have an interdependence of the parts of the meaningful system upon one another, the parts upon the whole, and the whole upon the parts; however, the interdependence is not causal but "meaningful." As this type of meaningful system seems to be unfamiliar to many contemporary social and natural scientists and as, because of that, it has provoked some criticism, it is advisable to consider its analysis somewhat more carefully.

In order that this analysis be comprehensible, let the reader be reminded of the elementary and self-evident fact that the cultural phenomena have two aspects: the inner one, or the aspect of "immaterial" (spaceless and timeless) meaning and value, and the external or "material shell," externalizing in the space-time continuum this meaning of "immaterial."[10] That they are two very different aspects follows

[10] See my *Social and Cultural Dynamics,* Vol I, chap ii Some of the critics, like the author of "The Logico-Meaningful Method of P. A Sorokin" (*American Sociological Review,* December, 1937) and some of the contemporary addicts of so-called semantics (behaviorism, logical positivism, etc), raise an objection to the term "meaning," and indicate again and again the vagueness of the *meaning* of the meaning Yet, like all the ultimate terms — such as "consciousness," "mind," "thought" — it cannot be defined more clearly by any other term But its essential meaning is clear to anyone who has mind and thought, while to those who do not possess them it will remain a mystery — just as colors are a mystery to the blind, or love to those who never have been in love. When, however, these critics of the terms "meaning," "mind," "thought," "consciousness" and the like try to replace them by such terms as "verbal reflex," "verbal stimulus-response articulation," "articulated verbal reflex," "symbolic verbal sign," "mind is minding," "science is sciencing," or "logical syntax of language", or when they define thought, meaning, consciousness as "an electron-proton association" (A P Weiss), as "a complex integration and succession of bodily activities . . . closely related to or involving the verbal and gestural mechanisms" (K S Lashley), as "stimulus-response relationship" (W S Hunter, G Lundberg), and so on, they certainly do not improve but enormously aggravate the situation Such supposedly better definitions of "meaning," "mind," or "thought" do not describe them at all, do not touch in any way these phenomena, and do not indicate any of their characteristics. On the other hand, such definitions can be applied to thousands of phenomena having nothing in common with meaning or mind or thought or consciousness As such, these pretentious efforts are excellent examples of the barbarian atrocities of thought and logic See the criticism and literature on them in my *Contemporary Sociological Theories* (New York, 1928), pp 662 ff.

As to the fashionable mode of replacing the terms "meaning," "thought," "mind," "consciousness," by such terms as "verbal sign," "verbal symbol," "symbolic behavior," and the like (R Carnap, A J Ayer, and a crowd of "semanticists" and vulgarizers like S Chase, G Lundberg, and others), and as to their belief that by such a substitution they escape the vagueness of the terms "meaning" or "thought" and improve the meaning of "meaning," the fashion as well as the belief is perfectly childish To be meaningful, the terms "symbol," "sign," "language," presuppose and convey their meaning, while the meaning does not need them It is both primary and ultimate, while "symbol," "sign," or "language" are derivative from meaning and hence secondary "Symbol" symbolizes a meaning different from the symbol's empirical form, "sign" signifies a meaning of which it is the mere "sign" or "substitute" If they did not symbolize or signify meanings, they would not be symbols or signs. Meaning is the *conditio sine qua non* of any symbol or sign or word or language (in contradistinction to meaningless jibbering or noisemaking) "Symbols are worth studying on account of what they symbolize [that is, mean], the cultivation of symbols for their own sake is a philosophical form of worship of the sign instead of the thing signified" D. J. B. Hawkins, *Causality and Implication* (London, 1937), p 69

For these reasons, the criticism of my use of the term "meaning" is superfluous. It displays mainly the deficiency of logic and the baseless pretentiousness of the critics themselves. It certainly is a good example of a definition of *clarum per obscurum.*

from the undeniable fact that *the same meaning or inner aspect of cultural phenomena* — for instance, Plato's *Republic* or Shakespeare's *Macbeth* or Bach's *Passion According to St. John* or the Christian Credo — *can be "materialized," or externalized, in very different material vehicles:* in forms of auditory reading or singing or professing these meanings (through use of the physical medium of sound or air waves), in the form of paper and black characters (manuscripts and books of various forms, colors, sizes, and letters), in the form of phonograph records, in the still more complex form of dramatic action (*Macbeth*) or playing (*Passion According to St. John*), and in other "material" forms. The meaning of all these cultural phenomena, their inner aspect, remains the same, while the material vehicles are changed in the most contrasting way: and vice versa.

The same material shell can serve as a vehicle for externalization of the most different meanings or inner aspects of cultural phenomena. Papers and books are used for the externalization of religious, scientific, philosophic, juridical, down to pornographic and obscene, meanings and values. So the inner meanings of phonograph records of the same make, chemical composition, color, and size may vary tremendously. So sounds may range extensively (for all the variety of meanings conveyed by words, by music, by sound signals). So canvas and paint and brushes, and other chemical, physical, and material object-conductors, may be used. Exactly the same material thing, such as a fifty-dollar bill, may mean now payment for debt, now gratitude for service, now wage, now bribe, now even payment for murder, and have countless other meanings and values.[11] In this respect the avaluable character of money, as a vehicle able to externalize or materialize the widest range of meanings and values, is especially conspicuous. On the other hand, such a meaning as "property" incorporates itself in material things of the most diverse character, from stocks and bonds, money, land, buildings, to even the pound of flesh of the Merchant of Venice. The same is true in the action of time: a given material shell remains but its meaning changes, or the meaning remains the same while the vehicle changes. A building that was a church is now converted, as in Soviet Russia, into a communist clubhouse. Many actions (ceremonies and rituals) that in the past meant one thing now mean something quite different. Cultural anthropology

[11] See especially an analysis of money from this standpoint in G Simmel, *Philosophie des Geldes* (Leipzig, 1900); P Rykatchev, *Vlast Deneg* (Moscow, 1911). See also the details in my *Sistema Sociologii*, Vol. I, chaps. IV and VII.

and history are full of such facts of external shells changing their meaning. On the other hand, the external forms of the same meaning — for instance, politeness — are changing in time and space and expressing themselves now in one kind of extreme manners and actions and now in different ones.

This undeniable identity of the meaning or value articulated by the most different empirical vehicles, and the identity of the material-external-vehicle incorporating most different meanings, is an incontrovertible evidence of the existence of these two aspects in practically all cultural phenomena; of their profound difference; and, what is still more important, of a loose relationship between the inner meaning or aspect of cultural phenomena and their external or material shells.[12]

The last point, the loose relationship between the inner aspect and the external vehicle of cultural phenomena, needs to be stressed particularly. The above analysis shows that these two aspects are not "monogamously" tied together; each of them may marry itself to another partner, the meaning to another vehicle and that vehicle to still another meaning. Such a "polyandry" or "polygamy" is a general rule and often has a wide range. Sometimes the marriage assumes the most striking and unexpected form. A piece of cheap cloth on a stick worth five cents becomes a vehicle of the most complex and greatest value — the sacred flag of the country, for which heads are broken and lives are sacrificed. In these material objects as purely physicochemical or biological things, there is nothing great, impressive, magnificent, appalling, adorable, divine, or sacred. In their inherent (physicochemical or biological) qualities, they are rather ordinary physical objects. And yet they often become the incarnation of the greatest values to a man or group. A study of the material vehicles of so-called "sacred objects," "great things," and "great men" — such as religious sacred objects and relics, state flags and other patriotic symbols, the regiment's colors, family heirlooms, the insignia of court

[12] That is to say that the meaning aspect of the sociocultural phenomena is the meaning different from, independent of, and superimposed upon the meaning of the vehicles as purely physical, chemical, or biological objects or events As material objects they have also meaning; for instance, a stick, a ring, the sun But when a stick becomes a churinga (the most sacred religious object of the Australian bushman), a ring becomes an "engagement ring," the sun becomes the Sun God or symbol of wisdom, joy, and life — these cultural meanings are imposed upon the basic meaning that signifies these material objects as such, with all their chemical, physical, biological properties The sociocultural meaning expressed by the material vehicles is the meaning imposed upon the basic meaning of these vehicles. It is, so to speak, a meaning of the second or third degree imposed upon the natural meaning of these objects as certain material phenomena

and justice, the human persons who function in the role of material vehicles of great value (the saints, the popes, the kings, the men of genius, the dictators, and so on) — reveals the discussed loose relationship between the inner and external aspects of the cultural phenomena with particular clearness. Even in the case of kings and similar incarnations of the great values, the incarnation is not due to some specifically great physical and biological properties of a king, a hero, a pope; often, as organisms or individuals, they do not differ in any special way from the rest of mortals. Their "sacredness," "sacrosanctity," "heroism," "greatness," is due to the fact that they are the incarnation of the great values superimposed upon or imputed to them by a given culture or society.

All this means that as a rule an inner meaning or value for a cultural phenomenon can incarnate itself into almost any form of material vehicle, and vice versa. There is no specified causal relationship between the inherent nature of the external vehicle and the meaning it incorporates; as a rule, the purely physicochemical properties of the vehicle as such do not explain or warrant the fact of its becoming an incarnation of a given meaning, and vice versa. The purely physical properties of the churinga cannot account for its becoming the most sacred object, the more so that there are plenty of similar sticks not endowed with such a value. The same is true of the physical properties of the stick and cloth of the national flag or of those of the chalice or communion cup, some of which are of clay, others of silver or gold or glass — each of a different size, color, shape, and ornamentation. Their value or sacredness is superimposed upon them, and as such is fundamentally different from their inherent (physicochemical and biological) nature.[18]

This understood, a series of important conclusions follows.

A. *Different material objects and phenomena* — for instance, a wooden ikon of Christ, a chalice, and the gesture of the sign of the cross — which by virtue of their inherent (physicochemical or biological)

[18] Durkheim's analysis of the relationship between the "sacred" in religion and the material objects in which it incorporates itself is thus a partial case of a perfectly general relationship between the aspects of the inner meanings or values and those of the external vehicles of cultural phenomena. See E Durkheim, *Les formes élémentaires de la vie religieuse* (Paris, 1912), pp 328 ff *et passim* As a curiosity it is to be noted that some of my critics attacked my logico-meaningful relationships and system, approving at the same time Durkheim's symbolic relationships Such critics seemingly do not see that Durkheim's symbolic relationships are but a partial variety of the much more general cultural relationships which I call logico-meaningful They are present not only in religious but in practically all forms of cultural phenomena.

qualities in no way belong to the same class of phenomena, and cannot, therefore, be considered identical, can and must be put into the same class of *religious cultural phenomena,* because of the identity of the meaning or value they articulate. In other words, *the phenomena which in their material nature are dissimilar or not identical often become similar or identical in their cultural nature.* Visual painting, quantitative colossalism of art objects, rapid increase of scientific discoveries, utilitarian ethics, prevalence of common or pathological types of human beings as the subjects of literature and art, nominalism and individualism — these phenomena are certainly different from one another in their inherent qualities, and from this standpoint they cannot be identified in any way as varieties of the same class of phenomena. And yet, in the preceding volumes, it has been shown that they all belong to the same class of cultural phenomena — namely, to the Sensate type of culture — and are but the articulations of its system of mentality. In other words, they are species of the same genus of cultural phenomena. The same can be said of the manifold articulations of Ideational and Idealistic cultures.

B. *Identical material objects and actions* — for instance, a man carrying a gun — *may be put in quite different classes of cultural phenomena,* now "criminal," now "noncriminal," by virtue of the difference in meaning or value imputed to such objects and actions, though physically the man and the gun and the act of carrying the gun and shooting it are quite identical. The identical walk in a given wood is at one time perfectly legitimate; again, when it is prohibited, it becomes "unlawful," though the walk, the wood, and the walker are inherently the same. A ten-dollar bill now is the "legitimate property" of the possessor; again, it is a "theft." The same sounds — say, "two and two make four" — are strange gibberish to a person who does not understand English, but they make a perfectly comprehensible and meaningful phrase to a person who knows English. Physically, the phenomenon is the same; culturally, it is profoundly different to the persons who know and to those who do not know English. The Australian churinga, a cathedral, a flag, are just a stick, a building, or a piece of cloth on a pole for all those who do not impute to them any meaning other than that given by their physical nature; they are entirely different things to all those who impute to them the sacredness of religion or the honor and dignity of a nation. The same man before his consecration into the dignity of a pope or king is one individual; he becomes — culturally and socially — a different man after

his elevation to either of those positions, though physically, biologically, even psychologically, he remains unchanged.

To sum up: *What is materially or physically identical is often fundamentally different culturally, by virtue of the difference of meaning or value imputed to it. This means that application of the principles of identity and difference culturally, on the basis of the identity or difference of the meanings articulated by the material objects, actions, and phenomena, leads often to results fundamentally different from those arrived at on the basis of the inherent (physicochemical and biological) properties of these objects or phenomena.* What is identical from the standpoint of the inherent properties is often different from the standpoint of the meaning or value they articulate, and what is different from the standpoint of the inherent properties of the objects and phenomena is often identical from the standpoint of the meaning they express.[14]

C. As a mere consequence of these propositions it follows that *a series of very different material things and phenomena that, by virtue of their physicochemical and biological qualities, do not appear to be related to one another causally, nor to belong to the same class, nor to be bound into one unity or system by their intrinsic qualities, can, nevertheless, form an identical class, with quite definite unity, and a well-integrated system if and when all these things and phenomena articulate the same meaning, or value or principle, or the same con-*

[14] In the light of these statements all the toothlessness of such critical biting as the following must be evident "Consider any two traits, for example, the armor and the lance of the mediaeval knight Are the armor and the lance identical? Are they contradictory? Are they consistent? Consistent with what? Again, is a table fork more logically related to, and therefore more consistent with, a spoon than a pitchfork? Objects cannot be identical, contradictory or consistent in themselves Only the statements we make about them in relating them to another principle or proposition can be consistent" R Bierstedt, "The Logico-Meaningful Method of P A Sorokin," *American Sociological Review*, December, 1937, pp 815–816.

Yes, the objects taken by themselves, without the meaning they articulate, are meaningfully neither consistent nor inconsistent As such objects, a fork and pitchfork can be put by my critic on his dinner table side by side If, however, they are taken as articulations of a certain definite meaning — for instance, as "weapon and arms" — then armor and lance belong to the same generic class of weapon and arms, then spoon and fork (but in no way pitchfork) belong to the same class of so-called "silverware" to which, in that case, pitchfork or lance or armor do not belong Classes of meanings — ("weapon" and "silverware") are unrelated in this case, and are neither contradictory nor identical Being unrelated, when taken together they are congeries unless they are made the articulations of some identical or contradictory meanings In that case they respectively will be identical or contradictory The critic seems to have read but missed entirely the whole meaning of what is said in Chapter One, Volume One, about these elementary things.

sistent system. The bond that unites all these external vehicles into one and the same class, or into one real system or unity, is not the identity of their inherent (physicochemical and biological) qualities (which by definition are different), nor spatial adjacency, nor causal connection, but either the identity of the meanings they articulate or the consistent system of meanings and value they incarnate. The number and diversity of various material objects and phenomena that articulate, say, religion or science or law, is unbelievably great, practically infinite, if we consider them from the standpoint of their inherent qualities. And yet they all belong to the same class of cultural phenomena: religion or science, if they are articulations of these. The same is true of the objects and phenomena that articulate a definite system of religion, say, the Roman Catholic. The objects are different and they are scattered over the whole planet; there cannot be any causal relationship between these if we consider *only their intrinsic qualities,* as, for instance, the relationship between water, a chalice, a church building, ceremonial vestments, a cross, a prayer-book, the rosary, fasting, actions of kneeling or intoning certain words, and thousands of other objects that enter into the system of vehicles of the Roman Catholic religion.

A visiting behaviorist from Mars would never have the slightest suspicion that all this heterogeneous conglomeration of material things, overt actions, and physicochemical or biological phenomena could belong to the same cultural class, could have definite ties between them and be a part of one closely integrated system. And yet, for all of us, there is not the slightest doubt that they are all external articulations of the same system of values and meanings — the system of the Roman Catholic religion. As such, they are mere parts of one system of values and meanings; and for this reason, and on its basis, they are tied together, even causally. Here, *their cobelonging to one and the same system of meanings throws over all of them a causal net of interdependence which otherwise would be absent.* If, instead of the Catholic religion, we take, say, Harvard University, as a cultural system, the result is the same. Externally a collection of fantastically numerous and unbelievably heterogeneous objects, persons, actions, phenomena, make up this system — from the variety of its buildings and the enormous diversity of objects in its museums, laboratories, classrooms, offices, and dormitories up to all the various persons connected with it and the manifold activities that go on within its system. What identity can there be between glass flowers in the Peabody

Museum, guinea pigs and corpses (in the Medical School), Egyptian paintings in the Fogg Museum, brooms in the cellars, pipes and cigarettes in the offices, and millions of other odds and ends! What causal connections can exist between such a monstrous diversity of objects, on the basis of their physicochemical and biological inherent qualities? What unity can be expected in such an appalling heterogeneity? None. And yet we know well they are part of one system of meanings and values which they articulate; in this system they all perform certain and definite functions. And, what is more, most of them are even parts of a causal system of the university, with a tangible causal interdependence. This interdependence is due not to their inherent properties but to the fact that they are vehicles or instrumentalities of the same system of meanings and values. Without this meaningful factor, they would not have any causal interdependence. They would be just a mere congeries of various objects. Here again we come to a somewhat paradoxical fact; namely, that *the "immaterial" factor of meaning or value not only makes identical what otherwise is different, and different what otherwise is identical, but often throws a net of causal relationships of empirical interdependence over the phenomena and things which otherwise, on the basis of their inherent qualities only, would be devoid of it.* This last point needs, however, a further analysis, which we will undertake now.

IV. Pure Cultural Theory of Meanings as a Part of Cultural Sociology

In order that the analysis be adequate, we must temporarily make a slight detour and take up the meanings and values in their pure form, divorced from their external shells. Since their marriage is merely a light binding of a given meaning to a given vehicle, or vice versa, an isolation of the meaning from the vehicles is easy. Since the meaning is what culturally decides the identity or difference of their material shells, their unity or disunity, we shall look more attentively at the meanings as such and at the nature of their relationship to one another.[15]

[15] A systematic study of the main classes of meanings or values, and of the main forms of their relationship to one another in their pure forms, divorced from their material vehicles, reveals a pure cultural theory of meanings as one of the most indispensable, important, and intimate parts of cultural sociology. Here, as in other sciences, "the science of fact in the strict sense, the genuinely rational science of nature, has first become possible through the independent elaboration of a 'pure' mathematics of nature. The science of pure possibilities must everywhere precede the science of real facts, and give it

Several sciences — and first of all the science of logic in all its branches, including mathematical and symbolic logic with epistemology involved — deal with pure meanings, their main classes, their systems, and their interrelationships. A mere reference to them is sufficient. What is necessary is to restate a few propositions in regard to meanings that immediately concern us.

Let us remind ourselves, first, that *meanings as pure meanings, or validities or values, are timeless and spaceless, in the sense of physical time and space.*[16] Either "two and two make four" is not here or there or anywhere or it is here and there and everywhere. Its meaning remains identical to itself forever, now, in the past, and in the future. So also practically any meaning, be it scientific proposition, religious belief, a Beethoven symphony, the Ten Commandments, or what not.[17]

Second, we can have an *isolated meaning* and a *group of meanings.* A separate meaning — say, "chair" or "book" — may serve as an example of a single meaning. Any judgment, like "snow is white," with its subject, predicate, and copula, may serve as a conglomeration or group of meanings.

Third, a group or conglomeration of meanings can give a mere *congeries* of meanings unrelated to one another (like "snow," "triangle," "electricity," "music"), or a *system* of meanings related to one another and presenting a certain new unified meaning (like "two and two make four"). The congeries of meanings are given in the form of the congeries of isolated meanings and in that of groups or systems of meanings. The statement "two and two make four" plus "Napoleon lost the battle of Waterloo" plus "J. S. Bach lived before Beethoven" makes a congeries of systems of meanings. Each of the three propositions is unrelated to any of the others in any meaningful way. Likewise, the systems of meanings may be composed of isolated meanings (those of any single proposition) or each system may be composed of several systems of meanings (those of a syllogism: "All men are

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the guidance of its concrete logic" E Husserl, *Ideas, General Introduction to Pure Phenomenology,* trans by W. R Gibson (New York, 1931), p 13 Without a theory of meanings, scientific cultural sociology is not possible, and it is doomed to be incomplete and entirely misleading. See my *Contemporary Sociological Theories,* chap. i and pp 617 ff.

[16] Only by constructing a social time and a social space fundamentally different from those of the physical sciences can we include meanings and values in the time-space category See my forthcoming volume *Sociocultural Causality, Space, Time*

[17] See especially E Husserl, *Logische Untersuchungen,* 3 vols (Halle, 1922); also his *Ideas· General Introduction to Pure Phenomenology,* and N. Lossky, *Perceptional, Intellectual, and Mystic Intuition* (in Russ., Paris, 1938).

mortal," "Socrates is a man," "Socrates is mortal."). Here syllogism is a system of meanings made up of three separate systems. There may be a theory consisting of several unified syllogisms, thus giving a still vaster system of meanings — composed of several subsystems, each of which is made up, in its turn, of several sub-subsystems, and so on.

Newton's *Principia,* Euclid's *Geometry,* Kant's *Critique of Pure Reason,* are systems of meanings (in their greater parts), each composed of many subsystems which, in their turn, are made up of many sub-subsystems — until we come to single propositions, each of which represents a system of isolated meanings.

The same is true of Homer's *Iliad,* Beethoven's *Missa Solemnis,* the Christian Credo, the Civil Code of Napoleon, or a "capitalist" or "feudal" social system, viewed as a pure system of meanings. (For the present it is unessential whether all parts and elements of these systems of meanings make a unified system and are necessary elements of each of these systems. Though some parts or elements of each system are incidental congeries, the rest, as we shall see, compose a system.)

Fourth, our most important problem is: *What is the criterion that makes of a group of meanings either a congeries or a system?* It is evidently not a space or time adjacency, because we have pointed out that meanings are timeless and spaceless. It is also not a causal relationship, because the very conception of cause and effect as an empirical relation presupposes time and space and is inapplicable to them.

The most general criterion of a system of meaning, in contradistinction to a congeries of meanings, is a logical compatibility and specific dependence or interdependence of each meaning-element upon other meanings-elements, of the meanings-elements upon the whole system, and of the system upon the elements. The specific dependence is *logical dependence* or *interdependence* for all the propositions and systems of propositions that have a form of judgment. It is *aesthetic dependence or interdependence* for all the *art meanings or values* expressive of consistency and consensus or harmony — which represents a kind of aesthetic logic different from the logic of verbal propositions.[18] As an enormous part of the meanings and their systems can

[18] The expressive unity or consistency of the fine-arts systems has two main aspects discovered already by Pythagoras and subsequent thinkers. First is the formal order of the aesthetic or beautiful phenomena containing consistent logical or mathematical uniformities and as such expressible in mathematical formulas, as, for instance, in

be reduced to propositions (all the theories of science; all the articulated creeds and beliefs; all the norms of law and ethics, of mores and customs; all the principles of political, economic, and social organization; all the articulated theories and judgments concerning the art values; a large part of ritual and ceremony with their articulated — verbally or through other languages — meanings), the principle of *logical* dependence and interdependence covers an overwhelmingly greater part of the meanings. The rest is covered by the principle of *aesthetic or expressive* dependence and interdependence, a somewhat different branch of the generic logical dependence.

All the groups of meanings that show tangibly these forms of compatible dependence or interdependence are systems of meanings. Those which lack it are congeries.[19]

G Birkhoff's $M = f(O, C)$, where M stands for aesthetic measure, O for order, and C for complexity For this mathematico-logical consistency of the aesthetic phenomena see G. Birkhoff, *Aesthetic Measure* (Harvard University Press, 1933), *passim* The second form of consistency of the fine-arts creations is the harmony, and "unity in diversity" seemingly intuitive in its character. A number of investigators of the phenomena of beauty, like B Croce, regard this harmony and consistency as more primary than those of the purely logical propositions See Birkhoff's work and especially B Croce, *The Essence of Aesthetic* (London, 1921), pp 8–10, 16, 30–33, also the latter's *Aesthetic*, trans by D Ainslie (London, 1922), pp. 123 ff See also E von Hartmann, *Philosophy of the Unconscious* (London, 1931), Vol. I, pp. 269 ff Only persons entirely ignorant of the nature of the aesthetic phenomena can question the existence of aesthetic consistency, harmony, and unity, as a few of my critics did

[19] This concerns equally so-called teleological and normative propositions. Teleological judgments are but a variety of propositions dressed in the form of a teleological syllogism of means and ends. A is value to be achieved, B is the means for the achievement of A; *ergo*, B should be used to achieve A Whether A is health and B is the various means of achieving it, or whether A is salvation of the soul or economic prosperity or what not, all the respective teleological judgments — in medicine, theology, art, technology, ethics, applied art of whatever kind — have this structure. Another term for this kind of judgment is "normative" judgment A is a norm; B is in agreement with it; therefore, B should be followed. Such is the construction of ethics and other normative sciences For the logical structure of such judgments see W Wundt, *Ethik* (Stuttgart, 1903), Vol. I, pp 8 ff ; H Rickert, *Introduction into Transcendental Philosophy* (Russ trans., Kiev, 1904), pp. 242 ff , R Stammler, *Theorie der Rechtswissenschaft* (Halle, 1911), pp. 43 ff. and especially his division of sciences into *Naturwissenschaft und Zweckwissenschaft;* E Husserl, *Logische Untersuchungen* (Halle, 1922), Vol I, chaps. i and ii, also P. Sorokin, *Crime and Punishment* (in Russ , St Petersburg, 1913), Intro. "The course of the mind's activity consists in passing from one idea to another," says Tarde, "and in uniting the two by means of a judgment or volition — a judgment which exhibits the idea of the attribute as implicated in that of the subject, or a volition which regards the idea of the means as implicated in that of the end" G Tarde, *Social Laws* (New York, 1899), p. 181 Whether, with Tarde, Wundt, Natorp, Rickert, and many others, we consider the elements of volition as necessary for normative and teleological judgments or, with E. Husserl, as unnecessary, in either case the teleological and normative propositions, like any other proposition, may be logically either consistent or inconsistent.

Any proposition A is B, or A is non-B, is a system of meanings, because in it the predicate A depends upon B, B depends upon A, and the whole proposition depends upon A and B and the copula; and each part — predicate, subject, and copula — depends upon the whole. If any part is changed in its meaning, the meanings of all the other parts and of the whole change; and so also changes the meaning of any part, if the whole is changed. This is truer of a syllogism — its conclusion, major and minor premises — and still truer of a chain of syllogisms or of a whole theory. By the tie of compatible logical dependence they all are bound together into a unity or system, and aim to give a new unified meaning or system of meanings.

In logical congeries, each meaning or system of meanings is either unrelated to or incompatible with another logically; therefore, neither is dependent or interdependent upon another. From the simple congeries of meanings "table-Stalin-triangle-score(musical)-azalea-vitalism-automobile" I can take any of the meanings and the rest will not be changed in any way. I can add to this "dump" of meanings hundreds of others, and yet, though the "dump" will increase, of course, in its members, no logical change will occur to the given congeries. In it there is neither logical whole or parts nor logical interdependence.

With a corresponding variation, the same criterion is applicable to a somewhat different series of meanings concerning the *ethical and juridical values*. By their nature they do not aim to be true or false (as the purely logical propositions do); they aim to indicate what is right or wrong, what "ought" or "ought not" to be, what is lawful or criminal, what is saintly or sinful, what is sacred or profane. They rather command what one ought or ought not to do than state what is the relationship between the subject and predicate of the proposition. Hence, they often are dressed in the imperative form rather than in the indicative phrasing.[20] Any one of the Ten Commandments is already a system of meanings. All Ten Commandments are a system of systems of meanings, dependent in a very tangible degree upon one another, each Commandment dependent upon the whole and the whole upon the parts. The same is true of any juridical norm or rule, any system of the Civil or Criminal Code, and any ethical system, be it Spinoza's *Ethics*, or Kant's *Critique of Practical Reason*, or

[20] See P. Sorokin, "Sociology and Ethics," in W E. Ogburn and A Goldenweiser, *The Social Sciences and Their Interrelations* (Boston, 1927), chap. xxv; see also the Bibliography there.

J. S. Mill's *Utilitarianism*. It is granted, as we shall see, that not all of them are integrated perfectly; some of them have even an internal conflict or contradiction; all of them contain elements (subpropositions or subtheories or commands) that are logically independent of the rest and, in this sense, heterogeneous bodies in the system. And yet, taken as a whole, they are systems of meanings, because the majority of the important propositions of these systems are logically compatible with and dependent upon one another and upon the whole of these systems of meanings and because the whole is dependent upon its constituent subsystems and sub-subsystems of meanings. The Fourth Commandment is explicitly dependent upon the First; and all the rest of the Commandments depend upon the First implicitly, just as each is related to the other. They all articulate a certain unified type of meanings pertaining to human conduct.

The Civil Code of Napoleon is based upon the meaning or value of private property. Try to replace it by, say, the principle of "communistic property" and most of its detailed and numerous norms-meanings are wiped out as incompatible and "senseless" congeries in such a system. The same interdependence exists between most of its numerous provisions. No less dependent and interdependent are the subsystems of meanings that compose the Christian Credo. If its first system of meaning concerning God and the Trinity is changed, practically all the subsequent articles of the Credo have to be changed. Similarly, if one of these subsequent articles — for instance, the profession of the Crucifixion and the Resurrection — is eliminated, a number of other articles must be changed as incompatible with the modification. And so on.[21]

[21] Most of these systems represent, in G Tarde's terminology, a *teleological* system in contradistinction to the purely logical, in the narrow sense of the term Such a system is, nevertheless, a chain of syllogistic conclusions — quite similar to the ordinary logical syllogism — with the main value-proposition serving as the major premise and with the subordinated value-propositions functioning as the minor premises and conclusions. From Kant's categoric imperative as the major premise, a long series of conclusions (made by him in his *Critique of Practical Reason*) follow. (Any teleological judgment follows these patterns: (1) A is the end to be achieved, (2) B is the means for such an achievement; (3) consequently, B should be used for a realization of A Or, A is the positive value, B is a variety of A; *ergo,* B is a positive value) Any applied science, be it medicine or technology or a political plan of reconstruction, represents a variety of teleological or normative chains of syllogisms and judgments, being, therefore, either logically consistent or inconsistent.

"All the beliefs and desires that exist at a given moment disseminated in thousands of judgments and in thousands of formulated or implicit projects . can be grouped either within the same individual or within the same nation In the first case they are

For the purpose of aesthetic dependence and consistency, Homer's *Iliad,* Dante's *Divine Comedy,* Phidias's Parthenon, the Gregorian Chants, Mozart's *Concerto in D Minor,* Shakespeare's *Hamlet,* or Dürer's *Melancolia* are also systems of aesthetic meanings. It is true that aesthetic or art systems are in some respects more, in some respects less, interdependent than logical systems; nevertheless, these and millions of other aesthetic systems are undoubtedly true systems, taken as a whole. If some details in any of these art systems are amenable to change, they are details only. Any change in any important part of these art systems — for instance, the addition of a few cantos of the *Divine Comedy* to a section of the *Iliad* — would lead to the displacement of a given system by a different one, or to distortion and disruption of the system, but not to a demonstration of a lack of aesthetic logic — a one-sided or mutual dependence of its parts upon one another in their meaningful and expressive purity. It is conceivable that in one building the elements of the Parthenon may be mixed with the Gothic style, that fragments from Rabelais's *Gargantua* may be inserted into Dante's *Divine Comedy,* that part of the second movement in Mozart's *Concerto* may be replaced by a portion of Wagner's *Lohengrin,* that Dürer's design may be enlivened by a cartoon from the *New Yorker* or *Esquire,* or that a bit of peppy jazz may be added to the Agnus Dei of a Gregorian Chant. It is conceivable, just as it is a conceivable proposition that "two and two make a candle." However, such replacements do not demonstrate a lack of interdependence (and of an expressive consistency and identity) in the

the objects of the Individual Logic and Teleology; in the second of the Social Logic and Teleology . These two branches of each of these species are most intimately attached to each other, as two species of the same genus . . Logic tells us what should be done if we do not want to contradict our most sacred principles, be they individual or social, to deny the things we affirm, and to affirm the things we deny. Likewise Ethics tells us what we should do if we do not want to inhibit the realization of our major purpose (be it individual or social) . For such a verification logic gives us an excellent instrument, syllogism, and likewise there is a similar instrument, teleological syllogism, in the disposal of ethics" G Tarde, *La logique sociale* (Paris, 1895), pp 19 and 24 See *passim* through this work for a development of this thesis; also see his *The Laws of Imitation* (New York, 1903), chap. v On the other hand, E Husserl has shown that the normative or imperative judgment (like "a soldier should be or ought to be or must be brave") means an indicative proposition ("only a brave soldier is a good soldier") Converted into this normal form of proposition, all the normative commands and systems become, like any proposition, either consistent or inconsistent with, dependent upon, or indifferent to one another See a more detailed analysis of the nature of normative and teleological judgments in my *Crime and Punishment* (cited) and especially in E Husserl, *Logische Untersuchungen,* Vol. I

art systems; they produce, instead, a mere destruction of the given art system and its replacement by another.

Within this criterion all the groups of meanings are systems; but some of them are fairly loose, differing only slightly from congeries, while others, like a syllogism or mathematical equation, are very closely integrated or interdependent.

The closely integrated or interdependent systems of meanings are of two different varieties and have respectively two characteristics derivative from the general characteristics of systems: first, *identity of the meaning or value articulated in all its rich multiplicity by the elements and subsystems of the system;* second, *logico-aesthetic co-ordination of all the meanings in such a way that they aim to give and do give, through their co-operation, a new unified meaning or value.* A system of the first type is closest unity, because all its propositions or systems of propositions are in a sense identical; they all articulate the same meaning in its manifold variations; they all say "the same," but each in its own way. All parts are "identities" and "the same" — and there cannot be any unity more united than identity.[22]

A system of the second type is a closest unity, because it is *plures in unum,* many in one; each meaning-part contributes its share to the creation of a new unity, a new grand system, which incorporates and absorbs in itself all the separateness of the parts and makes them inseparable from, and indispensable to, the whole; inseparable from, and indispensable to, one another.

The first type of unities, with the identity articulated by all the members of the system, is represented by all the propositions and systems of propositions which Kant called the *analytical judgments and the synthetic judgments a priori.* By analytical judgments he meant those where the predicate is implicitly contained in the subject and does not add anything to it; therefore, the subject and predicate are identical, and the judgment is tautological. The proposition "All bodies are extended" is an example of such an analytical system of meanings, because, according to Kant, extension is already implied in "body."[23] Mathematical propositions are samples of the synthetic judgments a priori which also articulate identity but are imposed by our mind, not implicitly contained in the subject of the mathematical proposition.

[22] "In that case we have a perfect identity: A = B = C = D. . . . There is given, as Leibnitz saw it first, the basis and, at the same time, the ideal of all the rational thought Such a unity presents the most perfect opposition to the series of chaotic differences" H. Höffding, *op cit*, p 17

[23] See I. Kant, *Critique of Pure Reason* (2d ed), introd , secs iv and v

Whether we accept or reject Kant's division of propositions,[24] it is unimportant for the purposes here. I mention it in order to convey briefly the point that a vast part of propositions and systems of propositions is but the articulation of an identity that unites all their parts into perfect unity, into a unity of the same meaning unfolded in its manifold aspects.

Such are all the syllogistic judgments; such are all the formal and deductive propositions and inferences. Such are in a considerable

[24] As is known, Kant's theory is accepted by many logicians, like the Neo-Kantians, and by many positivists up to the recent positivists of the Vienna circle. "The truths of logic and mathematics are analytic propositions or tautologies," though not devoid of some cognitive value. A. J. Ayer, *Language, Truth and Logic* (London, 1936), p 100 and chap iii, R Carnap, *The Logical Syntax of Language* (New York, 1937), pp xiv ff On the other hand, a series of logicians definitely reject Kant's theory and assert that all judgments are synthetic See, for instance, N. Lossky, *Logika* (Berlin, 1923), Vol I, pp 31 ff. and 47 ff Kant's analytical judgments are given only in the form of perfectly sterile tautologies, like pure A is A. All other judgments (even his "bodies are extended"), all the mathematical propositions, all the syllogisms and deductions, in a sense may be also styled tautologies, but tautologies that give a new knowledge and for whose discovery the work sometimes of many generations of thinkers is necessary Such identities, or "most fruitful tautologies," compose the most certain and the most valuable part of human knowledge and science Such "tautologies" are fundamentally different from the above purely analytical, sterile tautologies.

In a sense, the conclusion of a syllogism is implicitly contained in its premises ("Socrates is mortal," "All men are mortal," "Socrates is a man"), and for this reason "the statement is frequently made that no new truth is ever reached by reasoning, and that every syllogism is a *petitio principii*. In any intelligible sense of the words, the statement seems palpably absurd De Morgan (*Formal Logic*, p 45) meets it in his usual happy style by the reply that 'persons not spoiled by sophistry will smile when they are told that knowing two straight lines cannot enclose a space, the whole is greater than its parts, etc, they as good as knew that the three intersections of opposite sides of a hexagon inscribed in a circle must be in the same straight line Many of my readers will learn this now for the first time. it will comfort them much to be assured, on many high authorities, that they virtually knew it ever since their childhood' . . What is intended by those who use such an objection [that reasoning and syllogisms do not give any new knowledge] is probably this They mean that the conclusion is, so to say, *in the facts*, equally with the premises, being indeed nothing else than those very premises, or a portion of them, differently worded. . . . Given better powers of comprehension or intuition, we might directly perceive the conclusion in the premises . . . This is certainly true; but then, in this sense, *all* knowledge [including causal and other factual knowledge] is lying there before us in the facts The riddle of the world in general, along with minor puzzles, is there sure enough, only unfortunately we cannot make the virtual knowledge serve the purpose of knowledge that is real." J Venn, *op cit*, pp 25–26

This had to be admitted by even Vienna positivists, who regard all logical and mathematical truths as analytic or tautological judgments. "A being whose intellect was infinitely powerful would take no interest in logic and mathematics For he would be able to see at a glance everything that his definition implied But our intellects are not of this order. . . . Even so simple a tautology as $91 \times 79 = 7189$ is beyond the

degree mathematical propositions, from $2 + 2 = 4$ — which is $4 = 2 + 2$, or $4 - 2 = 2$, or $1 + 1 + 1 + 1 = 4$ — up to the most complex systems of meanings given by the systems of arithmetic, algebra, geometry, and calculus. They are in a sense all identities articulated by the propositions and equations. They are "fruitful tautologies" in the above sense.[25] More than that. All the causal formulas and laws in the real and profound sense of Leibnitz's principle of sufficient reason are also propositions of identity between cause and effect.[26] From this standpoint E. Meyerson is not far from the truth in reducing the very nature of knowledge and science to an establishment of an identity between values that appear to be different and in viewing all the fundamental principles and laws of the natural sciences (with the exception of the principle of Carnot) — like those of causality, preservation of energy and matter, inertia, mechanism, and so on — as the propositions of identity or, if one prefers, as fruitful tautologies that become identity and tautology only after the identification of the perceptually different is established.[27] For us, it is unnecessary to

scope of our immediate apprehension" Hence the discovery and novelty in mathematical and logical reasoning, in spite of the allegedly tautological character of their propositions. A J Ayer, *op cit*, pp 116–117 See also Hans Hahn, "Logik, Mathematik und Naturerkennen," *Einheitswissenschaft*, Heft II, p 18

It may be added, however, that for a being with an infinitely powerful intellect all the causal and purely factual relationships would also be laid open, therefore, he cannot learn anything from all the factual and empirical sciences This means that the sharp cleavage which such positivists draw between analytic and nonanalytic statements, between the formal linguistic and empirical factual propositions, is overdrawn and cannot be accepted The moral of this long footnote is that in a sense all scientific statements are tautologies; but in contrast to the pure tautologies of the type A is A, they are tautologies of the type A is B Like any causal law (which is also tautology, as the law of sufficient reason) they have to be discovered, and their discovery is exceedingly difficult.

[25] In regard to syllogism this is true In regard to the nature of mathematical inference and reasoning this is also true, whether we consider mathematical propositions as analytic, synthetic a priori, or some special form of mathematical induction suggested, for instance, by H Poincaré. For the nature of mathematical propositions, see H Poincaré, *La science et l'hypothèse* (Paris, 1908), pt I, chap I, and pp 135 ff and 169 ff, also G. Birkhoff, "Intuition, Reason and Faith in Science," *Science*, December 30, 1938, pp 601–609 A survey of the theories about the nature of the mathematical reasoning of B Russell, A Whitehead, P Painlevé, A S Eddington, A Einstein, H Weyl, J Dewey, M Hibbert, R Dedekind, A Fraenkel, E Goblot, F. Gonseth, J S Mill, and others is given in E. Meyerson, *Du cheminement de la pensée* (Paris, 1931), Vol II, livre III See also A. S Eddington, *The Philosophy of Physical Science* (New York, 1939), pp 137 ff.

[26] See especially E Meyerson, *Identité et réalité* (Paris, 1912), chap I *et passim*

[27] "*La science s'applique donc, en l'espèce, à rendre identiques, pour la pensée des choses qui ont tout d'abord paru différentes à la perception*" Such a search for, and imposition of, identities is, according to Meyerson, a fundamental property of the rational reason. E. Meyerson, *Du cheminement de la pensée* (Paris, 1931), Vol I, pp

accept a number of Meyerson's conclusions; but this particular point, that most of the propositions, principles, and laws of the natural sciences are but identification of what appears (especially perceptually) different, he has proved beyond a serious doubt.

These remarks clarify the above additional criteria of the closely integrated (identified) systems of meanings. They also show that an enormous part of the scientific and other theories and sciences represent such "identified" systems.[28]

The same is true of the systems of meanings in the fields of religion, law, philosophy, and art. *The meaning of God is the all-pervading identity and value of all the well-integrated systems of religious values and meanings:* God is the Alpha and Omega, the beginning and the end, of all the values and meanings. Beginning with the Credo system and ending with the smallest meaning or value in religion, they all articulate this supreme, this first and last identity.

So also in regard to an enormous part of the *meanings and subsystems of ethical and juridical systems of meanings or values.* Any well-integrated system of ethics or law articulates the same identity in all its parts: *the identity of the summum bonum,* assumed in the system. The consistent system of ethics and law is, in a sense, a system of propositions or logical deductions which establish identity of any subordinated value with the supreme value postulated. They all form a long chain of syllogistic propositions, starting with the major premise A is supreme value, *summum bonum,* and then trying to show that B is A, C is A, D is A . . . N is A; therefore, they all are positive values or manifold varieties of the same A.

Such are also most of the *philosophical systems of meanings and values.* In different form, such are also an enormous part of *art*

49–50 *et passim* throughout all three volumes of this work; see also his *Identité et réalité* (Paris, 1912), *passim.* The same conception is given by Sir Arthur Eddington in his *Philosophy of Physical Science,* cited, chaps. ii, vii, and pp. 112, 188, 217, *et passim.* See also J Venn, *op. cit*, p 6.

[28] H. Hoffding rightly says "The terms concept, judgment, and syllogism signify different forms and different degrees of logical unity-totality It appears in the most significant manner in a syllogism There each member is bound to others in the most intimate manner, namely, through the identity of one common concept. . . . All the unified premises contain in advance the conclusion, and each premise, taken separately, has importance only in connection with the other premises Such an inner unity of thought in which each thought bears upon the others and is borne by the others constitutes the grand ideal of philosophical unity . . . The task of science consists in a reduction of all the experiences to one grand coherent system [ensemble] modeled according to the unity [totality] of thought that makes our concepts, judgments, and conclusions" Hoffding, *op. cit.,* pp 62–64.

meanings and values. We have seen that Ideational art is but a system of different visual symbols that are united by the identity of the Ideational meaning or value they express, whether this value is God and his kingdom or Satan and his kingdom. Likewise, a considerable part of Sensate art is an artistic articulation of a certain *unity of meaning or value* dressed in a consistent *unity of style.* In any great art creation (be it painting, sculpture, architecture, music, literature) there is always evident a certain theme, subject, topic, meaning (be it an idea, a person, a landscape, a scene), clothed in a unity of style. Through all its sometimes numerous and various figures or parts, the real artistic creation conveys one and the same idea or meaning or value — and conveys it in a consistent, expressive style.

Another form of the unity of the systems of meanings is, as mentioned, a *co-ordination of a plurality into one new unity or system of meanings* (the *many united in the one* instead of the above, *one in many*). The triangle made up of three lines is a new unity with several specific characteristics not contained in these lines when separately taken. Such is any chemical compound made up of two or more chemical elements, for instance, H_2SO_4 or H_2O. Such is the meaning of an automobile. Such is also the concept of a causal system, be it physical (like the solar system), biological (like a complex organism), or social (like a real social group).

This is especially true of many systems of artistic meanings and values. Any picture is a co-ordination of many meanings: all the separate facial traits in a portrait; the several figures, with the many other objects, in a genre or historical picture; trees, mountains, sea, land, in a *paysage;* and so on. They are not there by chance, but as parts of one united meaning obtained through their co-ordination The same is true of the meanings created by literature, by architecture, by drama, and especially by music. The great masters in all fields of art use highly selected and highly co-ordinated meanings and subsystems of meanings in order to express, by these means, a united new meaning. This new meaning plays in regard to all its constituent meanings the same role as a complex organism in regard to its cells and organs.

To sum up: *The most general criterion of a system of meanings in contradistinction to a congeries of meanings is the logical or aesthetic dependence of its parts upon one another, the parts upon the whole, and the whole upon the parts. Additional characteristics of the two main types of the more closely integrated systems of meanings are: the*

identity of the meaning permeating all its parts — one in many — and the most harmonious and logico-aesthetically necessary co-ordination of the meanings and subsystems of meanings in one new seamless unity. Where these criteria are absent, we have congeries. Where there is an inner conflict or logico-aesthetic contradiction, we have congeries of meanings — because the split, the incompatibility, the contradiction, is the opposite of oneness or unity. Finally, it should be added that in the given conglomerations of meanings the transition from a pure congeries to the most highly unified systems of meanings is gradual: there are groups of meanings which in part are a system, in part a congeries. Even in the highly integrated and complex systems of meanings, there almost always are some elements that are congeries; and in many a congeries there are some elements united into a system.[29]

The reason is that among the complex systems of meanings (consisting of many meanings, propositions, subsystems) it is a very rare phenomenon when they do not have some congeries in the form of either some minor contradiction or incidental admixture of some elements. Many mathematicians say that even among mathematical systems there is hardly any single system that is free from either contradiction or congeries. So it is also among the logical systems. On the other hand, in many a pseudo system of meanings there are some subsystems that are real systems, because, for those who aim to give a system of meanings, to be absolutely illogical or nonlogical is about as difficult as to be absolutely logical. Hence the presence of systems, even in many congeries.

V. Relationship between Pure Systems of Meanings and Causal Systems. Mixed Nature of Empirical Sociocultural Systems

From a pure theory of meanings we can return now to the empirically given social and cultural systems, with their external vehicles that express respective meanings, their systems, and their congeries. Pure systems of meanings may exist in the mind without any definite "externalization" or objectivization in external vehicles. *But as soon as it is to be transmitted to other persons* (intentionally or unintentionally done, it does not matter here), *as soon as it begins to be*

[29] Later we shall touch the Hegelian conception of the identity of the opposites and of the implicit contradiction of any meaning or system of meanings. But, even in the Hegelian system, implicit contradiction is not identical with the explicit.

socialized, it must be clothed with some sort of external vehicle, because without wrapping it in some sort of vehicle that serves as a conductor the meaning cannot be transmitted and socialized[30] *and, therefore, cannot become an empirical social or cultural system.*

Hence the following inferences.

(1) Any assortment of external vehicles, no matter what they are in their intrinsic properties, is a meaningful system, given actually in the empirical sociocultural reality, if the assortment externalizes a system of meanings in the above sense.

(2) If it externalizes a congeries of meanings in the above sense, such an assortment is a meaningful congeries.

(3) If the assortment expresses a highly integrated system of meanings of the "identical" type, it will be an "identical" type of sociocultural system.

(4) If it externalizes the co-ordinated type of the system of meanings, it will give a co-ordinated type of meaningful empirical system.[31]

[30] Only the extrasensory perception may be an exception to this rule. But even if such extrasensory communication is possible, it has been playing an absolutely negligible role in transmission, communication, and socialization of meanings. They always have been "socialized" through some sort of conductors or vehicles as their external forms The general formula of the socialization or communication of meaning from mind to mind has always been as follows A thinks of some proposition, then externalizes it in words (sound conductors) or in light-color signs (writing, pictures, signs, hieroglyphics — color conductors) or in some gesture (movement conductors) or in some objects (object conductors, like money, engagement ring, etc), and so on Respective material vehicles-conductors (sounds, writing, pictures, money, etc) reach B and are perceived by him through his organs of perception, if he, having perceived them, is capable of transforming the vehicles back into meanings, such a transformation takes place in his mind Hence the inevitability of "materialization" of meanings if and when they become accessible to other men, or when they become social and cultural realities See the details of this process in my *Sistema Sociologii*, Vol I, chap iv

[31] In the light of the preceding analysis, all the naiveté of the criticisms of my meaningful cultural system must be palpably evident

As though foreseeing R. Bierstedt's criticism (*op cit.*, p 815), G Tarde rightly says: "The history of societies is a series of a simultaneous occurrence of logical duels" and logical reconciliations (adaptations and adjustments) "In the elementary linguistic duel, the established term *affirms* and the new term *denies*. In the religious duel, the orthodox dogma affirms, the heterodox denies. . . . Judicial contests are of two kinds . . . The legislator must always choose between the adoption or the rejection of the proposed law, *i e.*, between its affirmation or its negation As for the judge, in every suit that is brought before him there is always a *plaintiff* who affirms something and a *defendant* who denies it," and so on Likewise, the sociocultural life presents an incessant series of reconciliation of what was contradictory, establishment of a logico-teleological consistency between what was inconsistent Facts of duels mean the presence of contradiction of the meanings and vehicles involved (Tarde's hopes and desires);

This gives a definite answer to the problem of what cultural phenomena are meaningful systems and what are congeries. We see again that the decisive criterion is whether the meanings represent a system; if they do, no matter what are the empirical, "space-time" vehicles the system incorporates, they will give an empirical, meaningful system.[32] We have seen in the preceding volumes that a system of Ideational or Sensate mentality incorporates itself in an unbelievably heterogeneous assortment of vehicles, in each and all the main compartments of sociocultural phenomena. And yet, in spite of that, a sufficient body of evidence has been produced to prove that such systems have, indeed, been given and that they have been real systems.

There remain, however, two other problems that should be clarified. First, is there any difference between the fictitious and the real meaningful system as actually given and functioning in empirical, sociocultural reality? Second, what is the relationship between the meaningful and the causal sociocultural systems, if any? The problems are obviously related. As to the first question, it is framed in the wrong terms. There is no such thing as a fictitious meaningful system; such a system would be a mere congeries of meanings, but not a system in the above sense. But there is a difference between a *pure system of meanings,* not externalized, not socialized, or not grounded and, therefore, not existing in the empirical sociocultural reality as an empirically given sociocultural phenomenon, and a *system of meanings grounded in such a reality,* externalized by and incorporated in a certain assortment of space-time objects and phenomena and functioning there as a system.

facts of adjustment and adaptation mean the consistent relationship between the elements, meanings, and vehicles adapted, adjusted, made identical or mutually supplementing See G. Tarde, *The Laws of Imitation,* cited, pp 154–159 *et passim* in chap v. See also his *La logique sociale,* cited, chap. i *et passim.*

When any elementary text in sociology tells of "isolation-conflict-adaptation" relationship between various social and cultural phenomena, it implies that some of these phenomena are congeries in relation to one another (isolated, indifferent, or conflicting), while some others (the adapted, accommodated, and adjusted) are in the relationship of the consistent systems. Cf. H Freyer, *Theorie des objectiven Geistes* (Berlin, 1928), W Malgaud, *Le problème logique de la société* (Paris, 1922), E de Roberty, *Sociologie de l'action* (Paris, 1908).

[32] It is worth noting that many authors who seem to pay little attention to the meaningful aspect of the social and cultural dependence inadvertently have to recognize it For instance, according to A G Keller, the derivative mores have to harmonize with the maintenance mores because of a "strain towards consistency." *Societal Evolution* (New York, 1931), pp. 246 ff A similar statement is made by W F Ogburn in *Social Change.* We may ask· What consistency? In what sense? Outside of relationship of meanings, there is no consistency or inconsistency.

There is a pure system of Euclid's *Geometry* or Newton's *Principia* or Beethoven's *Eroica*. But in a society and culture of children, among many grown-up people ignorant of these systems, and in all societies and cultures that existed before the discovery and socialization of these systems, they were not grounded empirically in any culture, in any society. Therefore, they were nonexisting as empirical, sociocultural systems (of science or art). Calculus, Christianity, capitalist or communist systems of social organization, are all either very closely integrated (calculus) or less closely united systems of meanings, but they are still systems. However, in many societies and cultures they have not been realized up to the present time and certainly were not realized before their discovery or creation. Any of these systems, like all pure systems of meanings, may potentially exist in the world of meanings as pure meanings (timeless and spaceless). As empirical time-space realities, they exist only where and when they are externalized in a time-space sociocultural phenomenon and manifest themselves in vehicles and come into use or are known by human beings. Until then, they do not exist as empirical sociocultural systems.

Hence, *as soon as a system of meanings is "objectified" and "socialized" or "grounded" in the empirical sociocultural reality, it turns into a causal system as well.* When a system of meanings, say Harvard University, is objectified in vehicles and socialized in human agents, its main vehicles and human agents become tied to one another as articulations or instrumentalities of the meaningful system of Harvard University. They begin to function as its instrumentalities and, as such, since the system is a whole, become parts of the whole regardless of the inherent — physical, chemical, and biological — properties of the vehicles and human agents. By these material properties only, all the heterogeneous physical objects and agents that make up Harvard University are not tied together and cannot have causal interdependence upon one another — for instance, glass flowers, corpses, books, professors, and religious objects in the chapel. But because of the fact that they become instrumentalities of the same system of meanings, all its main vehicles and agents become dependent and interdependent upon one another in their relationships, functionings, and changes. A change of the administration affects tangibly all main vehicles and agents; increase or decrease of funds (vehicles) affects the rest of the vehicles (library, laboratories, museums) and agents; change of the important agents (professors and students) affects the vehicles and other agents; and so on. This is the *peculiar nature of the socio-*

cultural "causality," and it is *fundamentally different from that of the causality of the natural phenomena.* The latter is based on inherent — physical, chemical, and biological — qualities of the objects or variables. The sociocultural causality of sociocultural systems (but not congeries) is practically always mixed: *meaningful plus causal interdependence. Interdependence there is grounded not in the physicochemical or biological properties of the vehicles or persons but in their being the vehicles and agents of the same system of meanings.* Causal interdependence in empirical cultural systems is due to the interdependence of the meanings of the system that stands behind the vehicles and agents and unites them into one interdependent whole.

This fundamental fact is not realized at all by many social scientists And yet it is undeniable and, factually, is employed (though badly) by all the scientists who are talking of and studying causal dependence and interdependence in sociocultural phenomena, including those who will rebel against these statements and who talk of causal relationships in sociocultural phenomena as identical with those in natural phenomena [1]

Indeed, among what variables or factors or phenomena have the social scientists been trying to find the causal relationships? Is it not between *Science and Religion, Science and Art, Science and Economic Phenomena; Religion and Law, Religion and Political Phenomena; Economics and Politics, Economics and Philosophy or Religion; Protestantism and Capitalism; Economic Factors and Music; Ethical System and Literature; Technology and Economics; Crime and Economic, Political, Educational Factors; Educational System and Democracy; War and Revolution, War and Economic Factors;* and so on, ad infinitum, with thousands of narrower problems and variables of the same kind?

What are these variables: Science, Religion, Law, Ethics, Crime, Revolution, Painting, Music, Philosophy, Economic and Political classes of phenomena? Is each of these classes or variables or factors — for instance, Religion, or Economics, or Art, or Revolution, or Capitalism — a mere causal class in the sense of the natural sciences, composed of objects and phenomena with the same physical, chemical, or biological properties and, therefore, by virtue of these properties, belonging to the same species and manifesting causal dependence? Emphatically not. Religion or Economics, Protestantism or Capital-

[1] A recent example of this is given by G Lundberg, *Foundations of Sociology* (New York, 1939). See my criticism of this book in *American Journal of Sociology,* March 1940

ism, Law or Music, each of these — and all the other "variables" — is, from the standpoint of the material character of the objects from which it is made up, an infinitely heterogeneous collection of objects, persons, events, and phenomena, with the most diverse and varying physical, chemical, or biological properties, as has been shown above. "Religion" or "Religious Variable" consists (behavioristically) of buildings different in size, color, style, material; of the most varied sculptures, ikons, and other symbols made of most different materials and including the most diverse cups, banners, books, ornaments, dishes, lamps, candles, benches, tables, water, wine, ointments, even brooms and vacuum cleaners, electricity and radio, organ and pulpit, and all the various other objects found in churches. It also includes the most fantastic diversity of actions (behavioristically considered): kneeling, making the sign of the cross, prostrating, standing, sitting, praying, preaching, confessing, walking, blessing — by single individuals and by groups, with all the paraphernalia of processions and ceremonies and rituals. Then comes the still more heterogeneous aggregation of persons: pope, bishop, priest, parishioner, and so on, with all the imaginable interindividual and intergroup biological differences.

All these and thousands of other objects, actions, events, and persons enter into and make up the class or variable or factor of *Religion.* Axiomatically, such an odd and unbelievably heterogeneous mass of objects and persons cannot make and does not make at all the same class, from the standpoint of physics, chemistry, or biology. The physical, chemical, or biological properties of all these "material components of religion" are different, incomparable, completely heterogeneous. What unity can there be in such a motley? What uniformities, causal relationships, can be expected in it? In brief, Religion as a class, as a factor, as a causal system, as a variable, does not exist at all as a unity of natural physicochemical and biological objects and events. Not existing, it cannot be taken as such a unity; therefore, not as a variable, or factor, or cause and effect, or class. And yet all the investigators have so taken it, and treated it as a factor, variable, cause — as a unity or class. The only ground for such a procedure is *Religion as a unified system of meanings,* and there is no other ground; certainly there is no ground for its unity or system in the physical or chemical or biological properties of the objects that comprise it. This means that all these scholars, including those who contend they do not recognize any meaningful unities, have been deal-

ing with Religion as a system of meanings, objectified in the empirical sociocultural reality. They have been talking "logico-meaningful prose," not being aware of it, and pretending that they were talking "natural-science poetry."

What is said of Religion is exactly applicable to Economics, Banking, Art, Ethics, Law, Government, Communism, Capitalism, Romanticism, Classicism, Revolution, War, Crime, and any class of sociocultural phenomena. From the standpoint of the physical, chemical, or biological properties of the objects and phenomena that make up each of these classes, each of them represents the most fantastic motley of immensely diversified objects and events which do not possess, as such, any unity, any uniformity, any common characteristic, and do not even have any causal relationship. As such, they are neither unity, system, nor class, and therefore cannot be taken and treated as unity, as factor, as variable, as class, or as system.

If, nevertheless, they have been taken and treated as unity, factor, variable, class, or system, the only ground for that usage consists in the unity of the system of meanings that make Economic, Political, Religious, Artistic, Scientific, Juridical, Ethical, and other phenomena classes, unities, and systems. Only as grounded, meaningful systems do they exist as unities, and become a unified class or system; therefore, only as such can they be taken as a causal unity, as a causal factor, as a causal variable. Otherwise, not in physics or in chemistry or in biology or in any other natural science can one find "physics of Religion," or "chemistry of Classicism," or "biological species of Civil Law," or any other of these classes mentioned as a physical or chemical class or biological species. As a matter of fact, none of them is mentioned at all in whatever form in these sciences. This means, then, that each of them is already a meaningful class and only as such can be thought of, treated, and dealt with. The same applies to any subsubsystem in each of these classes.[34]

[34] Hence the humorous aspects of all the noisy claims of many social scientists who declare they are strictly applying the causality of the natural sciences, regard as metaphysical any meaningful unities — and then proceed to study a causal relationship between Crime and Education, Crime and Religion, Religion and Capitalism, Propaganda and War, and so on One can hardly find more humorous self-contradiction.

A recent example of this is given in N L Sims, *The Problem of Social Change* (New York, 1939), pp 231 ff He duly registers his loyalty to the causal method and bonds of sociocultural unities, ascribes to me the opposition of causal to meaningful ties in sociocultural systems, and then dogmatically makes some critical remarks concerning my conception. Contrary to his ascription, I do not oppose causal and meaningful ties (and methods) but indicate that all cultural systems are mixed in the nature of their

Likewise, such unities and classes as the *Family, State, Church, Political Association, University, Academy of Science, Labor Union, and any real social group are not pure causal unities at all.* No chemist, physicist, or biologist can give a physical, chemical, or biological formula of any of these social systems, and especially of their differences. There is no "Family chemical element" or "State chemical compound," no "physics" of University or Labor Union (like the physics of sound, heat, light), no "biological" constitution or species of Universitas Harvardiana or U. S. Steel Corporation or Horticultural Society. These social systems are but objectified or socialized systems of meanings, with their vehicles and agents. As such, they are different from one another; as such, each of them is a causal unity; as such, they are sociocultural realities. Who says Family or State or Roman Catholic Church talks in meaningful language first, and then in causal. As pure causal systems, none of these has existed, does exist, or ever will exist.

Still more conspicuous is the role of the meaningful system "married to the empirical vehicles" and by that marriage becoming also a causal system in the study of human interrelationships. From the standpoint of strictly physical, chemical, or biological qualities, no investigator

unity and rarely, if ever give a purely causal tie due to the physicochemical and biological properties of the vehicles. That my standpoint is valid is well demonstrated by Sims himself. He not only talks of the causal relationship between Economic, Religious, Political, and other phenomena — which at the start is a contradiction to his "pure causal loyalty" — but, in discussing sociocultural integration, he states that its factors are "interaction," "organization," "valuation," and 'ideational' phenomena, thoughts, beliefs, mythologies, theologies, laws, ethical codes, etc. Besides the most clumsy setting of the problem of integration, where 'ideational" and "organizational" factors are taken for an explanation of 'organization" and 'integration" themselves (which means a tautology), his "ideational factors" are accredited with an effective power in the integration of sociocultural phenomena. Granting this, we may ask to what is due this "integrating power" of the ideational factors? If it is due to their meaningfulness, then this is recognition of my standpoint. If it is due to their physicochemical and biological properties, the statement becomes nonsense. We can hardly talk of the physics of Christianity or the chemistry of Liberalism, or the biological properties of Romanticism, or the biochemistry of the Gothic style in architecture. Thoughts, mythologies, theologies, moral codes, or art styles hardly have specific chemical, physical, or biological properties. At least, in none of the existing treatises on these sciences is there to be found the chemical analysis of Buddhism or Communism, the physics of Kant's or of Epicurus's system of ethics, the biological species of Republicanism and Monarchy, Religion and Law. Since Sims could not mean such an absurdity, the conclusion is that his "ideational factors" exert their integrative effects as a variety of systems of meanings. If so, Sims's "causal factors" are at the same time meaningful, *quod erat demonstrandum*. As for the rest, his whole traditional setting of the problem is fallacious, as will be shown in subsequent chapters.

can explain why sometimes millions of human beings show an enthusiastic reverence, admiration, respect, and obedience to some individual — be he George Washington, Napoleon, Stalin, Hitler, the Pope, or some hero — and do not show these emotions in regard to other individuals; why some individuals — as certain kings, dictators, presidents, popes, generals, or captains of industry — exert a powerful influence, even decide the fate of millions in questions of war or peace, while other persons do not exert even a small fraction of such an influence. In all such cases the difference in power and prestige between the great leader and the average man is so great that no physicochemical or biological differences between them can account for it. The more so that in many cases the kings, presidents, popes, dictators, do not display any notable deviation in their inherent biological properties from common mortals, and often are in themselves mediocrities. The enormous contrast between common mortals and these executives of history as causative agents is due to the systems of meanings of which they are instrumentalities or agents — as the heads of the State, or the Church, or the Army, or the Big Business Corporation, or other meaningful systems.

Only as an incarnation of such systems of meanings, as their central vehicles, do they possess this relatively enormous power as causative agents If they are divested of this role of instrumentality of the meanings, they lose their power and become common mortals — as the cases of deposed kings, popes, dictators, etc., evidence, though biologically and physically they remain unchanged. This demonstrates again that when objectified the system of meaning becomes a power even in a purely empirical sense [35]

The above shows that *among cultural phenomena there hardly exists any pure causal relationship or any pure causal system "unmarried" to the meaningful relationships and systems and based entirely upon inherent — physical, chemical, and biological — properties of the vehicles. Any sociocultural system is at the same time meaningful, and its "causativeness" is based upon the system of meanings it incorporates The pure causal relationships between the physical or chemical objects exist, of course;* for instance, H_2 and O give water (H_2O); iron rusts under certain conditions; ignited gas explodes;

[35] If one likes the language of energetics, one can talk of logico-aesthetic energy of meanings, quite powerful and quite different from other forms of energy This energy seems to control in the sociocultural world the other forms of energies to a considerable extent I prefer, however, not to use this language, as inadequate in many respects.

the volume of gas is in inverse ratio to the pressure; and so on, concerning all the uniformities of physics, chemistry, or biology. They all work in a cultural setting just as they work outside of it. However, *these natural causal relationships as such are not sociocultural phenomena; they are purely physical, chemical, or biological and are studied by these sciences.* So far as they do not function as vehicles of meaning, and do function at, so to speak, their face value, they do not make an element of culture and are not studied by sociology or by any of the social and humanistic sciences.

VI. Transformation of the Natural Phenomena through Their Becoming "Vehicles" and Transformation of Pure Meanings by Their Vehicles and Agents

When natural phenomena become a part of culture, they turn into vehicles of meanings or values — as a flag, a religious relic, a book on philosophy or chemistry, a record of a Beethoven sonata, an automobile, a spade, a radio station, a locomotive, even a sun-god or a thunder-god. *When they become vehicles, their natural properties and relationships are driven backstage, and to the front come the properties imputed to, or superimposed upon, them by the systems of meanings whose external agencies they have become.* Under such conditions, as we have seen, space-time objects, different inherently, become identical; those identical become different; those existing naturally without any causal connections become interdependent parts of one system; those naturally united become disjointed, devoid of any particular power. For instance, a mere paper (appointing A to be commander in chief) and an insignificant insigne confer upon an individual a tremendous power; a mere stick with a piece of cloth (flag or regimental banner) becomes an object for whose possession hundreds of lives are broken; a physically and biologically powerful person becomes entirely subordinated to, and ruled by, individuals sometimes very weak physically (millions of strong soldiers by their commander in chief); harmless energies — for instance, sound and noise (diplomatic exchange of words and disagreements) — produce the devastations of war; a little term, the famous Christian "filioque," split the whole Christian world into the Eastern and Western Christianity; a tiny black figure — for instance, the sign of the swastika or of the hammer and sickle of the Soviets — becomes the most stimulating irritant or vitalizer for large mobs or masses of people.

In brief, *when an assortment of natural objects and phenomena be-*

comes married to a system of meanings — becomes its vehicle — their natural properties become quite tangibly modified. Through such a marriage they lose some of their natural qualities and acquire new ones. The system of meaning that marries them becomes to a tangible degree their ruler and this ruler plays havoc with their natural properties,[36] including their natural causal relationship.

On the other hand, even in the most autocratic marriages, the ruler is not entirely free from the influence of the controlled mate. Some adjustment, some accommodation, and some concession has to be made to the weaker party. The same is true of the marriage of a system of meanings to its external vehicles. *If the former controls them and plays havoc with their natural properties and relationships, the vehicles also impose some concessions, limitations, and modifications upon the pure system of meanings after it marries them and grounds itself as a causal system in the empirical sociocultural world.* Due to the inadequacy of the language vehicle (oral, written, and other) many complex systems of meanings cannot express themselves adequately, in all their impeccable purity, in the language vehicle (sound conductor). As a result, they become infected by congeries, misunderstandings, contradictions, and other "sins" and imperfections. This is particularly true of the most complex and most delicate systems of meanings,[37] scientific, artistic, philosophical, religious, juridical, and others. Many systems of meanings appearing most faultless in their pure being — for instance, Democracy, Socialism, Communism, the Epicurean or Stoic systems of ethics, or the utilitarian system of the

[36] This fundamental fact of the transformation of natural properties (physical, chemical, biological) and natural causal relationships through the "marriage" of the "time-space objects" to a system of meanings has been hardly noticed, and inadequately studied. It may sound to many "natural-science-minded persons" puzzling, strange, paradoxical, even mysterious. Nevertheless, the fact of such a transformation is reasonably certain and is observed at every step If this is so, the hopeless futility of endless efforts to study sociocultural phenomena from the standpoint of a natural-science causality must be evident Shall we wonder that such attempts have hardly ever been carried through to a logical conclusion and, in fact, have always been studies of the mixed meaningful plus the causal relationships, as has been shown above When in a few cases such purely causal studies have been attempted, they have turned into nothing but distorted physics, chemistry, or biology, without any real study of sociocultural phenomena

[37] In this respect Plato's statement (quoted in *Social and Cultural Dynamics,* Vol II, p 63) that his philosophy "cannot possibly be put into words as other sciences can," is reiterated by many a mystic who claims that his experience and supreme knowledge cannot be expressed in words (for instance, the mystics' true reality, called often by the term "Divine Nothing," is an illustration to the point). "The tyranny of words" and their inadequacy is another case

maximum of happiness for the maximum of human beings, or the moral of the categoric imperative — are transformed after their marriage to the vehicles into something very different from their pure perfection. They invariably become infested by various congeries and mutilations to such an extent that they often lose their identity with their pure system and degenerate into something quite different, under the influence of the natural properties and relationship of their vehicles — including imperfect human beings.

After grounding in the empirical world, many a sublime and utopian ideal turns into something flat and prosaic. When such sublime systems of meanings as Christianity, Hinduism, and Buddhism became socialized causal systems, a great deal of the purity of the systems was lost; vulgarized and distorted, it became only an imperfect reflection of its pure meaningful form. When such a system of meanings as the Darwinian theory of evolution became socialized among large masses of the population, it was reduced to a mere statement: "Man descended from a monkey." And so with almost any complex and delicate system of meanings when it passes from pure being into the empirical world of culture and becomes married to external vehicles, be these mere objects or empirical human beings.[38]

Practically all of them, when socialized, lose something of their pure traits and acquire various congeries dissimilar to their pure form. There are even cases where some systems of meanings (be they eternal

[38] In Chapter Five it will be shown that no meaning, however simple, can pass from man to man, or from a culture to a culture, without a change, and that *the greater the difference between the individuals or cultures the greater the modification it undergoes* When the systems of meanings are complex and delicate, many of them cannot be socialized at all within large masses of the population as vehicles They are transmissible only with an enormous simplification, vulgarization, and distortion Arithmetic as a system of meanings is relatively simple and can be "married" to a large mass of the people as its agents Algebra can be married to smaller masses, calculus to still smaller Finally, the most complex mathematical problems can be married, without a distortion to only a few great mathematicians Not without reason do they say that mathematical theories like relativity are understood properly by only a few mathematicians in the whole world. With proper modification, this can be said of any complex system of meanings. All the attempts at popularization of the complex systems of meanings have always been and will always be either a complete failure or, perhaps, what is still worse, a distortion of the system of meanings the popularizers are trying to socialize *Other conditions being equal, the more complex and delicate the system of meanings the greater the failure or the distortion.* All such phenomena of broadcasting a system of meanings among persons and groups are but the phenomena of passage of the system from its pure being to the stage of its grounding in the empirical cultural reality Grounding itself in this reality, it experiences these transformations; hence the relevancy of the above facts to the problem discussed

peace or universal brotherhood or a crimeless, just, and wise society) have not been realizable to any tangible degree. Otherwise, we would not have any utopia; that is, a system of meanings that cannot find its "causal" bride for its marriage. Space-time vehicles, including human agents, have their own natural (physicochemical and biological) properties and relationships; and these properties and relationships, though transformed and often neutralized by the system of meanings, rarely are obliterated entirely. By virtue of these properties and relationships, the vehicles have their own "natural or immanent course"; when married, their natural properties tend to persist; persisting, they press upon the meanings; pressing, they now inhibit them from full realization, now annul some of their important elements, now infest them with some congeries, now break or distort them into something very different.

Concrete methods of this process are numerous; but the fact of limitation and modification of the pure systems of meanings by the vehicles and human agents is, to a greater or lesser degree, a general rule.[39] Thus, if the systems of meanings when socialized transform the properties of their vehicles and human agents (and rule them), the vehicles, in their turn, inhibit, modify, distort, and change the systems of meanings when they become empirically grounded systems. The in-

[39] See details, facts, and forms of this retroactive influence of the vehicles (conductors) upon the meanings in my *Sistema Sociologii*, pp 176–193 One of the forms of this distortion of the system of meaning by the vehicles is the phenomenon of *fetishism* or *idolatry* It consists in the usurpation of the place of the meaning by its vehicle that of God by His idol, that of a value by its sign, that of meaning by its word In its general (not only religious) form, fetishism or idolatry is a universal social phenomenon A vehicle functioning as a vehicle for some time assumes the value of the meaning, and begins to be viewed as such The flag, money, swastika, idol, king, dictator, or other vehicle, comes to be considered as value per se flag as flag begins to be treated as equivalent with the nation dollar bills as real wealth, idol as god, dictator as nation

A number of scholars in various terms and forms have indicated the phenomenon of the limitation and distortion of the systems of meanings by their vehicles. Pareto's non-logical actions, when translated from Pareto's psychological terms into objective sociological language, mean exactly the phenomenon of discrepancy between the pure systems of meanings and their causal socialized realization W Wundt's heterogeny of purposes, through which he explains the discrepancy between the objective course of sociocultural processes and the subjective aims of their members, points to the same phenomenon G Simmel's conception of the "tragedy of culture" — as a discrepancy between the aspirations of human beings and the objective course of sociocultural processes caused by the fact that "objects [vehicles] are not entirely obedient to our own purposes and once created [married to the meanings] have their own logic . different from the subjective logic of the human soul [or that of meanings]" — refers to the same phenomenon. So also E Durkheim's similar contention that the logic of the social processes differs from the pure logic of individuals.

fluence is thus mutual. As to which of these two parties influences the other the more, no general answer can be given. The situation varies, depending upon the system of meaning and the nature of the vehicles.

Summing up the above analysis, we see that:

(1) There are pure causal and pure meaningful systems, pure causal and pure meaningful congeries.

(2) The pure causal systems, without being at the same time meaningful systems, hardly exist at all among the sociocultural phenomena, as sociocultural phenomena.

(3) All empirical or grounded sociocultural systems are meaningful and causal at the same time.

(4) The linkage of these two systems to each other leads to a transformation of the natural properties of the vehicles and agents and of their natural relationships; on the other hand, it leads to a modification and transformation of the pure systems of meanings by their vehicles and agents.

Now we can proceed to a concise analysis of the empirical (the meaningful plus the causal) sociocultural system and its properties.

Chapter Two

EMPIRICAL SOCIOCULTURAL SYSTEMS: THEIR STRUCTURAL AND DYNAMIC PROPERTIES

We have seen that all the empirical sociocultural systems are mixed in their nature; they are simultaneously meaningful and causal. The aim of this chapter is to indicate the essential properties of such empirical sociocultural systems. For the sake of economy, let us agree on the terms. By an *empirical* sociocultural system is meant a system that is already grounded in the empirical sociocultural world and consists of: (1) the system of meanings, (2) the causal system of vehicles, and (3) its human agents.

I. Fundamental Characteristic of the Sociocultural System

Mixed — meaningful plus causal — dependence or interdependence of its parts upon one another, parts upon the whole, and the whole upon its parts — such is the first property of the system to be studied. By "mixed" is stressed here the fact that any sociocultural system is simultaneously and inseparably meaningful and causal, in contradistinction to purely meaningful (which means that the system of meanings is not grounded as yet in empirical sociocultural reality) and distinctive from purely causal (which means that such a system is not a sociocultural system at all, but merely physical, or chemical, or biological). When an investigator deals with such empirical cultural systems (as this or that Religion, Science, Philosophy, Law, Ethics, Art, Economics, Politics, etc.) or with this or that social system (such as the Family, State, Scientific Society, Labor Union, Business Firm, and so on) he deals with neither a purely causal nor a purely meaningful system, but with the mixed systems.

Such a *mixed nature of the empirical sociocultural systems is their specific peculiarity absent in the purely causal (physicochemical or biological) systems and in the pure meaningful unities.* It introduces a form of interdependence unknown to the systems of the natural

sciences. It stamps all the other essential characteristics of the sociocultural system as well as the modes of its emergence, continuity of existence, change, and dissolution. Let us glance at these characteristics and modes.

II. System of Meanings, Vehicles, and Human Agents as Components of the Empirical Sociocultural System

Analyzing the above mixed interdependence further, in any empirical sociocultural system we find three components: its system of meanings, its vehicles, and — as a special factor — the human individuals who accept and use the system of meanings through the medium of the vehicles. Whether we take the Roman Catholic system, the scientific system of physics, the United States of America, or any other empirical system fully grounded in the sociocultural empirical reality, we always find in it: first, a system of meanings (Roman Catholic religion, or the Constitution and basic laws of the United States, or the system of principles of physics); second, a system of empirical vehicles that objectify these meanings, beginning with the conductors used to express and convey these meanings to others, such as sound conductors (speech, music, and hundreds of mechanical devices like a bell, a factory whistle, an automobile horn, etc.), color-light conductors (writing in all its forms of manuscripts, books, hieroglyphics, signs, painting, colored signals like the green and red lights on our streets, etc.), pantomimic conductors (mimes, gestures, rituals, ceremonies, parades, silent movies, and millions of other movements), object conductors (like an engagement ring, money, a relic, a cross, a building, etc.); lastly, a series of chemical, physical, mechanical, electric, and radio conductors.[1] In one form or another, some or all of these conductors of interaction are present in any system of meanings grounded in empirical reality. Without them no meaning can be made transsubjective and conveyed from mind to mind, from person to person. Such conductors are the first — and absolutely unavoidable — species of the vehicles in various forms given in any system. Besides the conductors, the vehicles of the system of meanings are made up of all the buildings, utensils, instruments, material property, and of all the empirical objects and phenomena that incarnate the meanings and directly or indirectly serve as their instrumentalities. Their concrete variety and forms are truly enormous in any empirical,

[1] See a systematic and developed theory of the conductors in my *Sistema Sozиologii* (St Petersburg, 1920), Vol. I, chap iv.

sociocultural system. In order to realize that, let one survey all the infinite variety of vehicles in the system of the Roman Catholic religion: the wide variety of its buildings; all the immense range of crosses, images, statues, books, inscriptions, relics, chalices, candelabra, candles, economic funds, property, rituals, ceremonies, and so on and so forth, that are possessed and used by the Roman Catholic religion as its instrumentalities and vehicles. A mere enumeration of these objects would fill hundreds of pages. The same can be said, with a respective modification, of any other empirical system. In some form they all have the component of the vehicles as an unavoidable part of the system.

Finally, in any *living* empirical system there are always its human members as the active agents who bear the system of meanings, who actualize it and realize it through the media of the vehicles and, in this sense, keep it functioning and living in the empirical sociocultural world. Without human instrumentalities a system of meanings with its vehicles would be a kind of fossilized mummy, like many of the great cultural systems of ancient Egypt or Babylonia excavated by archaeologists. We know, more or less, many of the Egyptian, Babylonian, Sumerian, Hittite, Hellenic, Inca, systems of meanings: their religious, aesthetic, juridical, political, and economic systems.[2] Archaeologists have uncovered a considerable number of the vehicles of these systems of meanings. And yet as empirical systems they are dead mummies, because for centuries there have been no human agents who have used these systems and made them function. When they were lost, either because a part of them died or, as is the general rule, because the posterity of the ancient Egyptians or Babylonians or Sumerians ceased to bear, to use, or to keep these systems functioning, the systems died and turned into fossilized mummies.[3]

On the other hand, the mere presence of human individuals is not sufficient to create a grounded and living empirical sociocultural system. Without vehicles and conductors, no system of meanings can be socialized — no matter how many individuals are present in a given territory. In that case they will remind us of Leibnitz's monads, who do not have any open window through which to communicate with one another. With no communication or transmission, no exchange of

[2] See, for instance, P Carleton, *Buried Empires* (New York, 1939); A. Toynbee, *A Study of History* (Oxford University Press, 1934–1939), 6 vols., *passim*.

[3] Of course, some of these systems — those which still have human agents; for instance, some of the Egyptian art styles — are alive today.

meanings between such individuals, no system of meanings can be socialized and made common to all the individuals. Therefore, because it is not grounded among them, no cultural empirical system is possible among such individuals. They will be a mere collection of biological organisms, or a collection of individuals, each having some meaning to himself, and in his own mind only, but not externalizing the meaning in any way and, therefore, not influencing others in a cultural manner at all. This does not hinder such organisms from influencing one another in physicochemical and biological ways; but such influencing will be an ordinary physical, chemical, biological phenomenon studied by these respective sciences, and not a cultural phenomenon.

Likewise, if a given set of meanings is not a system but a congeries the presence of interacting individuals who have such meanings and exchange them makes of such individuals, not a sociocultural system, but a sociocultural congeries. Ten individuals in the same room may laboriously interact with one another, each pounding furiously upon his piano; yet the result will be a "cultural noise," and not a system of music.

The same group of individuals may shout at one another hundreds of meanings, like "Love your neighbor," "Two and two make four," "Chevrolet is a good car to buy," "Apple pie is delicious," "Nice weather," "America must stay out of the war," "Napoleon was a great man," and so on. The total sum of these meanings does not make any system of meanings; therefore, the group is not the bearer of a cultural system, but a mere "cultural dumping place" or a bearer of congeries of meanings.[4]

The proposition concerning these three components of any empirical sociocultural system is so evident that there is no need to dwell upon it further. In some form they will be found in any living empirical sociocultural system.

[4] This has to be pointed out because many think that the mere presence of interaction between individuals is equivalent to their being a cultural system. See, for instance, N. L. Sims, *The Problem of Social Change* (New York, 1939), pp. 236 ff. There is plenty of interaction given in the above example of ten individuals pounding their pianos with all their might, and yet even Sims can hardly say the result is music. A meeting of the patients of an insane asylum can furnish plenty of interaction in the shouting of hundreds of incoherent remarks, unrelated to one another, and yet the result is Bedlam, not an articulation of a system of meanings. And so on. The group is there, interaction is there, vehicles are there; but the result is an empirical phenomenon of cultural congeries, and not an empirical culture system. For this, the presence of a system of meanings enunciated by interacting human beings is necessary.

III. General and Differential Conductivity within the Empirical Sociocultural System

The tangible interdependence of the parts of the system upon one another, of the parts upon the whole, and of the whole upon the parts means that, in contradistinction to a congeries, the sociocultural system possesses conductivity within itself. By virtue of this, any important change in the whole is diffused over all the important parts, and any important change in a part affects the rest of the parts and the whole. If a conglomeration of meanings, vehicles, and persons does not have this general interdependence and conductivity, it is not a system at all.

This, however, does not mean that all parts of the system are equally dependent upon one another, or that the whole depends equally upon each of its parts, or that all parts depend equally upon the whole. *The presence of general interdependence or general conductivity in the system does not preclude a differential interdependence or conductivity between different parts and between the parts and the whole.* This fact of differential conductivity or interdependence is important generally, and in application to the differential interdependence of the three main components of the system particularly.

Even in the purely causal biological system of an organism, some of its parts (*e.g.*, the heart or lungs) are very important; some others (hair, for instance) are less important. An important change in the heart or other vital organs decisively affects the rest of the parts, while the cutting of the hair or nails affects them much less and not decisively. Similarly, the change in the whole organism — its aging, for instance — does not make all its parts change equally at the same time. So also in mechanical causal systems: in an automobile, a change of upholstery, or of the color of the car, has much less effect than changing the engine.

Likewise, in a purely logical system not all its propositions are of equal importance. A drastic change in the major premises affects most of the other parts of the meaningful system, and more decisively than a change in some "peripheral" proposition. The initial axiom of Euclid's geometry or Kant's critical philosophy once changed, the rest of the system has to be altered; but some detailed proposition may be modified, even added or omitted, without very great change in the rest of the system. So also in an aesthetic system: a change of some "bridges" in a musical composition does not much affect the rest, while the substitution of the main themes does. Some detail in any

great picture — the background of the figures, the colors, some other features — can be changed without a radical effect on the rest. The same cannot be done with the main subject.

So also in the empirical sociocultural systems. They have more or less important parts, and neither are these equally tied with one another nor is a change in the less important parts equally effective with one in the most important parts. In replacing the Christian Credo by something else, one replaces the Christian religion by a different one. By substituting a new prayer for a traditional one, one changes only a detail in such a system. The replacement of a Republican mayor by a Communist one, in a village or town, does not change greatly the system of the United States of America; a similar replacement of the Federal Government means a radical change of the whole system of the United States. And so on. Which parts are central and which are "peripheral" in each system is a *questio facti*. But the difference between such parts should be stressed and kept in mind.

This becomes still more important when we consider the intensity of interdependence or conductivity in the three components of the system: in its meanings, its vehicles, and its members or bearers. Other conditions being equal, the *differential interdependence or conductivity seems to be most intensive in the system of the meanings and less intensive in the other components of the system: in its vehicles and human agents*. In most of the well-integrated meaningful systems — for instance, in Euclid's geometrical system — one cannot change the meaning of practically any theorem without changing the meaning of the rest of the theorems, or of the geometrical system as a whole.

When one of the theorems, and especially the fundamental postulate, is changed, the whole system is transformed into a new system, like that of Lobatchevsky or Riemann. The same can be said, in varying degrees, about the philosophical system of Plato or Aristotle or Kant; of a religious system, like that of Hinduism or Christianity or Judaism; of any scientific system, like mathematics, physics, chemistry, and other sciences; of any consistent social and humanistic theory. A change in the most important principles of the system changes meaningfully the whole system and gives instead of Christianity, say, some other system of religion, no matter whether it is still styled Christianity or not.[5] A replacement of the principles of Newtonian mechanics by

[5] It is enough to remember (see Chapter One) that a mere change of one word-concept (filioque) led to a split of Christianity into its Western and Eastern branches. Similarly, what seem, at the first glance, quite insignificant changes in the religious systems of

the relativity principles leads to a re-examination and modification of practically the whole system of mechanics and physics.

So it is with the social and humanistic theories, if and when they are logically consistent. The situation with art systems is no different. One can hardly insert into one of Beethoven's great compositions some excerpts of, say, Debussy or Stravinsky without breaking the expressional consistency of Beethoven's creation. Likewise, one cannot add the elements of the Gothic to the Parthenon without breaking the expressional unity of either style, or paint a part of Monet's *paysage* with the technique of Picasso or Lorrain, or write a section of Homer's *Iliad* in the style of Shakespeare or Dante. All such attempts would inevitably result in a disfigurement of the expressional unity of any of these art systems.

These observations and considerations show that, when the system of meanings is well integrated and consistent, this component of the empirical system displays a greater interdependence than that of the elements of the vehicles and that of the human agents of the system. It is also higher than the interdependence of the meanings and vehicles, the meanings and the human agents, and the vehicles and the human agents. The reasons are as follows.

A. *Interdependence of the Vehicles of the System.* In the preceding chapter it has been shown that the totality of the vehicles of any system of meanings is a most heterogeneous conglomeration of diverse objects and empirical phenomena which, as such, do not have any causal or functional relationship between themselves. If they were not united by the tie of being vehicles of the same system of meanings, they would be total strangers to one another. This means that only as articulations of the system of meaning can they have interdependence or conductivity. The same conclusion follows from the fact that the same physicochemical phenomenon functions often as a vehicle for quite different systems of meanings. For instance, the same radio network serves as a vehicle now for the "Catholic Hour," now for "Amos and Andy," now for the Philharmonic concert, now for business advertising. It is used as a vehicle by the most different systems of meanings. For these reasons, motley vehicles of each system can hardly be so closely interdependent upon one another as to be affected by any change that happens to one of them. It is highly improbable

meanings, introduced by various persons and groups, become "heresies," "schisms" (Arianism, monophysitic heresy, etc), and lead to the expulsion of the innovators or to the split of the Christian system.

— and hardly happens factually — that any change that occurs in, say, one of the corpses of the Medical School, or to the books or brooms or chairs or electric lamps, or even to the smaller buildings, of Harvard University must and does affect tangibly all the other material vehicles of this university. If some effects do occur, they are so infinitesimal that they are unobservable and amount to nothing. Only when one of the most important vehicles — say, the main library of Harvard or one of its most important buildings — perishes, does such a change affect tangibly the rest of its important vehicles — if in no other than a financial way, by a reduction of the expenses for other vehicles in order to accumulate funds to build a new library or building. In such cases, the interdependence is obvious; but in most other less important changes in this or that vehicle, the phenomenon of interdependence is slight and loose — often nonexistent. This explains why a portion of the vehicles of a system can be changed, or replaced by others, without a serious disturbance of the rest of the vehicles. The intervehicle conductivity of a system is not very intense and appears only in the event that the most important vehicles undergo a basic change.

B. *Interdependence of the Human Agents of the System.* For the same reasons, a similar loose interdependence is to be expected among the human agents of the system. Like the vehicles of a vast system, they also are tied together, not by special causal ties inherent in their organisms, but only by the tie of being agents or bearers or users of the same system of meaning: members of the Republican party, of the Roman Catholic Church, of the American Sociological Society, of this or that religious, artistic, political, or ethical system. Physicochemically and biologically, the members of the same system do not ordinarily possess any special characteristic that makes them at all similar to one another and different from all the nonmembers of the system. On the other hand, the same individual is an agent not only of one system but of many diverse systems. Each of us is a member of a certain family, a certain religious faith, a certain political party, and often of scientific, philosophic, business, artistic, or other systems. This means that members of the same system are tied together only by the fact of being the instrumentality of the system, and by hardly anything else. In addition, the given system does not possess us monopolistically but has to share the individual with many other systems that use him as their agent. Under such circumstances it is improbable that everything that happens to one of the members of the system always tangibly affects the rest of the members. At any given

moment hundreds of citizens of the United States die and hundreds are born, thousands are hurt or healed, and yet, unless the number is enormous, these decisive changes to some of the citizens hardly affect tangibly the rest of them. Only when a large proportion of the members is involved, or the key-position men in the system change (the Pope, the President, the King, the great leader of the system) — only in such cases does the interdependence of the human agents of the system become tangible and real. Otherwise, like the vehicles, the interdependence-conductivity within the human agents of the system is less close than that within the meanings.

C. *Interdependence of the System of Meanings, the Vehicles, and the Human Agents.* Since the marriage between the system of meanings and its vehicles is "polygamic" and loose (see Chapter One); since the same is true of the relationship between the system of meanings and its human agents, and between the vehicles and human agents; and since the same system of vehicles and human agents can, and often does, serve quite different systems of meanings — for these reasons the conductivity-interdependence between these components of the empirical sociocultural system cannot be expected to be too intense or close. There is no doubt that any serious change in the system of meanings would be reflected tangibly in the vehicles and human agents; and, vice versa, any serious change in the vehicles or human agents would affect in many ways the system of meanings. But small changes in some of the meanings or in some of the vehicles or in some of the human agents can occur without tangibly affecting the other two components. A new prayer or a slight change in the system of meanings of a given religion does not affect tangibly the totality of its vehicles or human agents; and, vice versa, a new building or new music for the Mass, or new chalice added to the vehicles of a given religion, does not change its system of meanings or its human agents. Finally, an addition or decrease or replacement of a few of the multitude of members of a given religion does not affect tangibly either its system of vehicles or its system of meanings. The same can be said, with a proper modification, of any system. Only when a change in the system of meanings is radical does such a change affect the vehicles as well as the human agents of the system. Such changes as the Arian, Albigensian, and other important heresies, or the change brought about by the Reformation, were important changes in the system of meanings of the Christian religion; therefore, they enormously affected the system of vehicles of the religion, split the Christians into inimical camps,

led to wars and to other great changes in the vehicles and human agents of the Christian religious system. The same is true of a fundamental change in the constitution of a state, of a university, of any other social and cultural system. An enormous change either in the vehicles or in the human agents of the system affects in many ways its system of meanings.

The crucial evidence of this is found when a given system of meanings loses all its vehicles or all its human agents. In both such cases, this loss means the dissolution of the system as an empirical system and its return to the realm of pure meanings or to the state of a mummy. In a lesser degree, the system of meanings changes when the number and quality of its human agents undergo a considerable change, or when its vehicles experience a deep quantitative and qualitative modification. This is especially true in regard to complex and delicate systems of meanings. If in the realm of pure meaning they theoretically remain pure and unchangeable, in the actual empirical world any complex system of meanings experiences a great deal of modification with a notable change of its bearers. It depends a good deal upon the kind of professor who teaches, say, a system of Kantian philosophy, or upon the preacher who unfolds the system of Christianity or Hinduism, as to what he actually makes of such systems of meanings. In the hands of a poor professor or poor preacher, such a delicate system of meanings undergoes a definite change and often appears vulgarized and distorted — even to such an extent that it turns out to be notably different from what it actually is, or appears to be, in the exposition of great professors or preachers. The same is true of any other complex system of meanings. In Chapter Five we shall see that any system of meanings actually changes with a passage from one social group of its agents to another, different one; and changes the more as the groups become more widely different. The Christianity of Christian theologians, of Catholics, of liberal Christian ministers, of newly converted Chinese or Hindu Christians, is a species of widely different systems of meanings, often having nothing in common but the name of Christianity. Sociology or Physics or Chemistry or Philosophy, as systems of meanings, are different systems in the hands of the greatest leaders in these fields and in those of the half-trained popularizers.

The situation is similar with the change of the vehicles. If a system loses all its vehicles, it ceases to exist as an empirical system. If its vehicles change notably, the system of meanings is also affected tangibly. The most common evidence of this phenomenon is shown

by the effects of a notable increase or decrease in the financial funds of the system. We all know that a considerable change in the funds notably affects the system of meanings, whether in its quantitative diffusion and success or in its curtailment, whether in modification of its peripheral meanings or even in that of some of its central meanings. The history of the Christian Church provides an example of that. Parallel with an increase of its wealth in the centuries from the first to the ninth, when it became the richest landowner, several doctrines of the Church concerning private property, wealth, secular power, and other principles changed notably in the direction of a weakening of the "communist" trends of early Christianity to a more and more positive attitude toward wealth and property and secular power, to a less and less apocalyptic interpretation of the end of the world, and in many other ways. The funds are only one of many vehicles possessed by the systems. What is said of them is still more applicable to other vehicles in their respective influence upon the system of meanings. With the change in the vehicles of Russian Communism, its system of meanings was changed enormously; the Communism of Lenin of 1916 and that of Stalin of 1941 are widely different systems of meanings.

In some of the systems the retroactive influence of the vehicles and human agents upon the system of meanings seems to be less intense than in others. All in all, it is particularly strong in art systems. There, especially in music, the system of meanings of a given symphony depends strongly upon the quality of the instruments and the competence of the players. The same musical composition sounds different when played by a poor orchestra with poor instruments and when played by a first-class orchestra. Not infrequently a poor orchestra or poor singers distort the composition through mistakes, incompetency, and like deficiencies. The same can be said of other art systems. With poor paints, canvas, and brushes, even a good artist cannot satisfactorily execute his conceived plan. With a lack of proper material and competent workers, a good architect cannot adequately materialize his system of building. Likewise, in science many a system conceived cannot be adequately tested and elaborated when there are no needed instruments, laboratory, and other vehicles. With incompetent human agents, many a perfect system — religious, economic, political, juridical, artistic, philosophical, scientific, organizational — cannot be realized, and as a result has to undergo certain modifications in the very system of its meanings to be adaptable to the existing set of vehicles and human agents.

The above gives an idea of the differential interdependence of the elements of each of three components of the empirical system as well as of the components themselves. Being present and tangible in the relationship of the important changes of the important elements and components of the system, the interdependence and conductivity have various degrees of intensity in the elements of each of the three components as well as in the components themselves. All in all, the elements of the systems of meanings in a well-integrated system seem to show greater conductivity than the elements of other components (vehicles and human agents).

Viewed from this standpoint, the empirical sociocultural systems vary a great deal. Some have a quite consistent system of meanings but a fairly loose connection with the vehicles and human agents and within each of these components. Some have a less consistent system of meanings but closer interdependence of their vehicles and human agents. Some have an all-around loose interdependence. In brief, there is a great deal of variation in this respect from system to system and from period to period within the same system. Whether there may be some kind of uniformity somewhat analogous to W. Gibbs's formula of freedom remains unknown.[6]

The above makes clear, however, the peculiar structure of the empirical sociocultural systems, quite different from the physicochemical and biological systems. We see that the systems are living unities animated by their system of meanings articulating itself through the vehicles and human agents.

IV. Three Forms of Interrelationship of the Systems

As mentioned before, sociocultural systems in regard to one another may be in the relationships of: (1) *congeries*, when two or more systems are meaningfully plus causally either contradictory to or independent of one another; (2) *subordination*, when a given system is a subsystem in another embracing system, and this a subsystem in a still larger system, and so on; (3) *co-ordination*, when two or more systems are dependent upon one another, but as "partners" without subordination of one to the other. For instance, in the empirical sociocultural world coextensive with the territory of the United States, empirically the given science of physics or chemistry or biology is a cultural system, meaningful and causal. Each of these systems is

[6] Generally this basic problem of conductivity among the three components of the sociocultural systems has been studied very little; therefore, very little is known about it

subordinated, however, to a larger system of the natural sciences, of which it is a subsystem. Any important change in the system of meanings of each of these sciences influences the others, meaningfully and causally. The recent role of the principle of relativity in physics led to a revision of several points in the chemical and biological theories. The introduction of the principle of evolution in biology likewise changed several points in the physical and chemical theories. Finally, the system of the natural sciences in several respects seems to be a system in the larger, though much looser, system of science generally, because again there is a quite tangible, though looser, interdependence not only of the natural sciences but also of the natural, social, and humanistic ones. The prevalent negative philosophy of Greece or of the Middle Ages toward mechanical arts and technique inhibited greatly the development of mechanical inventions and physicochemical sciences then and there.[7]

In his formulation of the theory of evolution, Darwin was influenced by the work of Malthus; the Marxian theory has tangibly conditioned the natural and humanistic sciences in several points, not only in Soviet Russia — where all the natural sciences tend to be "materialistically dialectical" — but in other countries also. On the other hand, the impact of Darwinism and evolution on the social and humanistic sciences has been terrific, at one time threatening to reduce all social science to a mere theory of social evolution and progress. Quite tangible also has been the influence of the relativity principle, or of a physicist's "operational method," on the social sciences.

Thus we have a subordinated hierarchy of systems, beginning with a separate system of the natural or social or humanistic sciences; then come at least two larger systems — natural and sociohumanistic sciences — each of which is a system embracing all the natural and all the social and humanistic sciences. These two systems, in their turn, enter as subsystems into a still vaster system of science generally. *It is probable that ordinarily, as we pass from the smallest subsystem to the largest, the integration decreases, while the part of the congeries in them increases:* the system of science generally is probably looser, and has many more congeries, than the system of the natural or social sciences; the system of either the natural or the social sciences is probably looser, and has more congeries, than the system of any scientific

[7] See *Social and Cultural Dynamics*, Vol II, chap iii; P. M Schuhl, *Machinisme et philosophie* (Paris, 1938). See, further, chaps. iv, v, *et passim* of this volume of *Dynamics*.

discipline like chemistry or physics or history; the system of each of these sciences is probably looser than the system of most of the separate parts of such a science (for instance, the system of the theory of light in physics or the system of inorganic chemistry in chemistry). And so on.[8]

If we take, for instance, chemistry and physics, neither of them is subordinated to the other. They are *co-ordinated, interdependent systems* with an inevitable content of congeries. So are also, for instance, economics and sociology, history and political science, and so on. Finally, two or more systems may be in the relationship of independent or contradictory *congeries* without any tangible interdependence. Such seems to be the case with the system of the Republican party and that of dominant music; for instance, classical or romantic music. Their systems of meanings do not touch each other directly; each moves in its own sphere; the Republican party does not contain anything about music, and the system of music does not profess anything about political parties.

Such are the main forms of relationships between the systems themselves. From this standpoint, the total sociocultural world appears as an enormous arena of millions of systems, now subordinated to one another and yielding sometimes the vastest supersystems; now coordinated with one another; now being independent congeries in regard to one another. Side by side with this multitude of systems exists an infinite number of single or isolated congeries that, like single "points" or unicellular organisms, exist with the multitude of systems, often infiltrate into them as their heterogeneous bodies, and live and function among them without being a meaningful-causal part of them.

V. Individuality of Empirical Sociocultural Systems

The dependence and the interdependence of the parts and the whole of any sociocultural system mean that it is a *unity or individuality, distinct from the rest of the world and from other systems and congeries.* This is but a mere consequence of the preceding character-

[8] "There is generally more logic in a phrase than in a discourse, and more logic in a single discourse than in a succession or group of discourses, there is more in one special rite than in a whole religion, in one point of law than in a whole legal code, in one particular scientific theory than in the whole body of science, and there is more in a single piece of work executed by one workman than in the sum total of his performances." G Tarde, *Social Laws* (New York, 1899), pp 162 f Tarde indicates further that there are, however, great systems which are more logical in their whole than in some of their parts

istics. If the system is integrated closely (in its meaningful and causal aspects), its distinctness from the rest of the world is more tangible than in the case of the looser systems. As has been pointed out, the distinctness here does not necessarily mean a spatial or concrete bodily isolation from the rest of the world.

Some sociocultural systems — like the Parthenon, Raphael's picture, a factory, an automobile — may have such a distinctness. But a greater part of the sociocultural systems are discrete perceptually and do not have any continuous spatial body of vehicles and agents clearly isolated from the rest of the world. The distinctness or individuality of a sociocultural system means, therefore, not a bodily or spatial distinctness, but the individuality of its *system of meanings;* and, secondarily, the distinctness of all its vehicles and human agents united in causal unity by the system of meanings. The Newtonian system of mechanics, the Darwinian theory of evolution, the Ideational or Polyphonic system of music, an Idealistic system of philosophy, a Totalitarian political regime, a Capitalist system of economy, the Episcopal or Roman Catholic system of religion, Parliamentarianism, even the system of football playing — these and millions of other empirical sociocultural systems are practically all discrete and do not have any distinct spatial continuum of their body or vehicles; they are scattered in space and often move from place to place And yet each of these systems, either in its generic meaning ("football system" or "university") or in its individualized meaning (Yale football team, Princeton University), is a system with a quite definite individuality which makes clearly different the football system from the grocery-store system, the university from Congress, the capitalist system of economy from the Gothic system of architecture. The distinctness is posited primarily on the system of meanings (including the space and period specification for the individual systems) and secondarily in its vehicles and bearers. Its vehicles can accentuate the individuality and indicate its external manifestations, their nature, their spatial and time distribution, and so on; but they do not create it, nor can they, by themselves, give to it individuality. This shows with particular clearness in the cases when practically the same system of vehicles — for instance, radio — or the same group of individuals is used by many different systems as one of its instrumentalities. When we switch from a New York Philharmonic concert to the "Catholic Hour" and from that to a Hollywood drama, we do not have the slightest uncertainty as to the difference of the systems using the same radio, nor

as to the nature of the system if we know its system of meanings. Likewise, when the same group of individuals attends a church service and, at another time, functions as a board of directors of a business firm, we clearly see them as instrumentalities of different systems — religious and economic. The vehicles and agents are the same but the systems that use them are different.

VI. Spatial Compatibility of Systems

Further, *in contradistinction to the physicochemical and biological systems, two or more different sociocultural systems can include the same set of empirical vehicles or human agents and in this sense be compatible in space.* The above examples of radio and the same group of human individuals illustrate this. The same radio network is used by an enormous number of sociocultural systems as a vehicle for their articulation and functioning. The same building serves now for a business meeting, now for a political rally, now as a concert hall. Each of us is a bearer and instrumentality of a large number of different systems: religious, scientific, economic, political, and others.

VII. Reality of Empirical Sociocultural Systems

If any empirical system has individuality distinct from the rest of the empirical world; if it has tangible interdependence of its elements and components; if it lives, functions, and changes (as we shall see) as one unified system — then, evidently, it is neither a mere fiction nor a mere word covering a multitude of singular objects, persons, and meanings; it is an *empirical reality* different from that of its elements, yet as real as any singular empirical object no matter what valid criteria of reality are used.

As has been shown, the answers to this problem fall into three classes: (1) *sociological realism,* that asserts the reality of a social and cultural system; (2) *sociological nominalism,* that asserts the reality of the singular individuals and elements only and denies any superindividual and supersingular reality of sociocultural systems; (3) *sociological conceptualism* intermediary between these two.[9]

Which of these answers is valid? When properly formulated, the answer of sociological, or cultural, realism appears to be the most valid. It can be formulated as follows: from the standpoint of any adequate

[9] See *Social and Cultural Dynamics,* Vol II, chaps vi, vii, viii. See in Appendixes to these chapters the names of the representatives of each of these solutions, and the rise and decline of realism, nominalism, and conceptualism.

criteria of empirical reality, both the elements of a sociocultural system, as well as the system as a whole, are real, but the elements have the *reality of the parts, while the system has a reality of the whole.*[10] The properties of the reality of the parts, meanings, vehicles, and agents, when unintegrated and when integrated, are profoundly different; and so are the properties of the whole. In sociocultural systems, the individuals and vehicles that compose it are certainly real. Likewise, the sociocultural system as a whole is real. But the system's reality, properties, and functions are those of the whole, while the reality, properties, and functions of the individuals, meanings, and vehicles are the different reality of the parts or elements of the system. Both are real, but each represents a reality of a different kind. In a mechanical system, like an automobile, there is the reality of its parts and that of the automobile as a system. In an organic system, like the human body, there is the reality of its constituent cells, of the subsystems (the main organs), and finally of the organism as a whole.

Likewise, in an empirical sociocultural system — for instance, Harvard University — its constituent parts (administration, professors, students, buildings, laboratories, etc.) all are real, as parts of the system. At the same time, Harvard University, as a cultural system, is no less real, though its reality is different from that of any of its constituent parts. It is simultaneously a meaningful reality — Harvard University (not church, nor U. S. Steel Corporation, nor General Motors) — and the reality of a causal system in which its parts depend upon other parts, its parts depend upon the whole, and its whole depends upon the parts. As such a reality, it has an individuality with a definite structure and organization, specific functions, and a certain togetherness of life and change. In the Euclidian system of geometry, each theorem is a real proposition; and no less real is the whole system of geometry. In a Beethoven symphony, any single note is real; and no less real is each measure, phrase, theme, movement; so, finally, the whole symphony.

[10] Even in application to human agents as the components of a system, Thomas Aquinas rightly says "Man naturally is part of some group . . And, therefore, a part of this whole can have an activity which is not the activity of the whole. *This whole has, nevertheless, some activities which are not proper to any of the parts but to the whole.*" *Decem libros ethicorum*, Bk I, sect i "The common good of the realm and the particular good of the individual differ not only in respect to the many and few but also under a formal aspect. For the aspect of the common good differs from the aspect of the individual good, even as the aspect of the whole differs from the aspect of the part." *Summa theologica*, IIa, IIae, q 58 and q. 47, 11. The same is no less true of the vehicles of the system.

When it is stated that the reality of the whole system is in no way inferior to that of the parts, it is meant that an investigator can apply to the whole any criteria of reality he applies to the parts and he will find that it applies to the system no less than to the parts. If for a reality it is necessary to have an individuality and a structure, any sociocultural system has these — often very clear, systematic, and elaborate. If for a reality it is necessary for the subject to have definite functions, any system has these. The same is true in regard to unity: systems have it by definition and in fact. Such seems to be the only valid answer to the problem. It means that neither pure sociological nominalists nor pure sociological conceptualists (with their fiction theory of the "*als ob*," or "as if") are right in the matter.[11]

VIII. Phases in Emergence of the Empirical Sociocultural System: Conception, Objectification, Socialization

The process of emergence of any new sociocultural system (new for mankind or for given persons) consists always of three main phases, which may or may not be synchronous in time: (1) *mental integration* of two or more meanings, hitherto unintegrated, into one consistent system; (2) *empirical objectification* of the system of meanings into empirical vehicles through which it can be perceived by, conveyed to, and apprehended by, others; (3) *socialization*, the process by which the system finds its human agents and is accepted, used, and operated by others. The phase of the mental integration is similar to the *con-*

[11] As a curiosity, it can be mentioned that there are many social scientists who think that only the purely nominalistic position is scientific They base their claim upon an assumption that the natural sciences are nominalistic and do not recognize any reality of systems. Respectively, they style all the realistic theories in terms of "mythology" and "mysticism" Thurman Arnold's recent *Folklore of Capitalism* (New Haven, 1937) is one of the recent and semivulgar samples of such a nominalism It can be pointed out that their position as well as their assumption of the nominalism of the natural sciences is wrong That biologists regard an organism as a system and do not for a moment question its reality is evident That the concept of system is the central idea in chemistry, physics, or astrophysics is also unquestionable William Gibbs's Phase Rule not only demonstrates the existence of the system but shows its profound difference from a mere conglomeration of its isolated components. Such formulas as $P + F = C + 2$ concern not the elements but the system as such. See besides Gibbs's work, A. Findlay, *The Phase Rule and Its Applications* (London, 1904), chaps i, ii, *et passim*; H Poincaré, *Science et méthode* (Paris, 1908), chaps i–ii, L du Noüy, *Biological Time* (London, 1936), pp 31 ff ; L J. Henderson, *The Order of Nature* (Harvard University Press, 1917), chaps vii–x Our nominalists are victims of their own mythology, misinformation, and mythological pseudo thinking They forget H. Poincaré's witty statement: "Would a naturalist who had studied an elephant only through the microscope believe that he had a thorough knowledge of this animal?"

ception of a new human organism; the phase of objectification, to the *birth* of the organism into the empirical world; the process of socialization, to that of the introduction of the newly born into the *society* of other human beings. The first phase of mental conception is the logical and factual precondition of the second and third phases: of the grounding of the pure system of meanings in the world of empirical cultural realities. A few comments on each of these phases of the birth of an empirical system are in order.

A. *Mental Integration.* The integration of two or more meanings into one system is an act of creation occurring in the human mind. Whether such a conception of a new system is "two and two make four"; or a syllogism; or an idea for a poem, picture, sculpture, or song; or a unification of two or more technical ideas into a new invention; or a synthesis of two or more meanings and systems of meanings into the complex system of a scientific theory, religious creed, code of law, artistic creation or into an economic, a political, or an organizational system — such an integration of meanings is always the first logical phase of an emergence of any new sociocultural system. For our purposes it is unessential whether it is done deliberately by the given individual or without any preconceived intention; whether it evolves through a long series of efforts, experiments, calculations, deductions, or spontaneously, in the twinkling of an eye, through a momentary intuition — sometimes even in a dream or ecstasy, or in any other way.[12] Likewise, it is unessential for our purposes whether such a synthesis is produced in one or in many minds, suggested by a fortunate combination of external circumstances, or started by some need or curiosity felt by the integrating person. What is important is the act of integration itself, which evolves a system of meanings (however simple) out of what was before disjointed congeries of meanings. When such an integration is created for the first time in the history of mankind, it is an absolutely new integration. When an existing integration of meanings is learned by a given individual or group — for instance, by a pupil who learns the multiplication table — it is new to such a person or group.

To sum up: The mental integration of meanings is the first step in the emergence of any — absolutely or relatively — new system.

[12] The history of science, religion, philosophy, ethics, law, art, technological inventions, testifies that the discoveries, inventions, or creations of new systems in all these fields have occurred in all these ways, including dreams, visions, momentary inspirations, and the like. See my forthcoming volume *Sociocultural Causality, Space, Time* and Chapter XVI of this volume.

B. *Empirical Objectification.* The second stage consists in finding the external vehicles for grounding the system in the socioempirical reality. If it remains in the mind of the person or persons only, it is only conceived but not yet born as a real empirical system. To become a real empirical system it has to incarnate itself into a set of empirical vehicles through which it can be conveyed to others. If Newton's *Principia* had been thought through by Newton but never told to others, or written and published, his system of physics would not have been born as an empirical sociocultural system: it would have remained in the realm of pure meanings. Empirically it would have died at the stage of conception. When it was written and published — that is, incarnated into a set of material (color-light) conductors (manuscript or book) — it took the second step in the process of transition from the realm of pure meanings into that of empirical sociocultural reality. When other persons read and accepted it, it took a next step in its grounding.

C. *Socialization.* At this stage Newton's *Principia* became grounded in empirical sociocultural reality and emerged as a real empirical sociocultural system. The same applies to the emergence of any empirical sociocultural system. A system incarnated into a set of vehicles sometimes does not find other individuals as its recipients, users, and bearers. In that case it is stillborn, empirically dead at the moment of its birth. Thousands of poems, novels, songs, pictures, sculptures, and political, religious, scientific, or philosophical systems are conceived and then printed, told, broadcast, objectified through many empirical vehicles. And yet most of them never succeed in socializing themselves, in being accepted and used by anybody except their authors. Such systems die at the moment of their birth into the empirical reality. Here again are different degrees of grounding. Some systems spread and are accepted by large masses of people, some by only a few persons. Some enter into a close alliance with other existing systems; some remain comparatively isolated. The differences are many. But all systems that are born alive, and live for some time after the second phase, have to pass through the above three phases. As mentioned, sometimes these phases are telescoped in time — they follow one another almost instantaneously; conception is immediately followed by objectification and then by socialization. Other systems come into being more slowly: some scientific or artistic or religious or other systems are conceived by their creators years and years before they reach the second phase of objectification: publication, broad-

casting, execution in the shape of a picture or sculpture, or some other form.[18] Kant published his *Critique of Pure Reason* in his sixties, after having been pregnant with it for many years. The stage of objectification sometimes is delayed for years, even decades, before the system reaches its phase of socialization. For instance, G. Vico's system of philosophy of history found a very slight success during Vico's life and became successfully socialized (among the specialists only) more than a hundred years later.

The three phases are but a mere consequence of the fact that every empirical system consists of three components. The phases are a processual unification of these components into a full-blooded system.

IX. Three Conditions of Continuity of Existence of Changing Empirical Sociocultural Systems

Having emerged as a full-blooded unity of three components, a sociocultural system begins to live and function as an empirical individuality among the other systems and single elements of an empirical sociocultural world. In order to be able to live and function, it must perform an exceedingly difficult task: *to preserve its identity in its incessant change. If it loses its identity, individuality, or sameness, and becomes unrecognizable, it ceases to exist.* An incessant change tends to undermine unceasingly this identity, or sameness, and menaces the system's existence. Hence the problem: *How can a system preserve its identity amidst its incessant change?* Such is our first problem.

As long as the system of meanings (1) *remains identical to itself, and* (2) *has some vehicles, and* (3) *has human agents, the empirical system continues to live, no matter what changes may occur in the secondary — peripheral — elements of the meanings and in its vehicles and human agents. Such is the general answer to the problem.*

We have seen that the individuality of the empirical system is posited mainly in its *system of meanings.* If it loses this, it loses its individuality and ceases to exist as a living system. On the other hand, small peripheral changes in the secondary elements of the system of meaning do not destroy its identity. Even with a change in a number of its secondary principles in Arianism, in its Eastern and Western branches,

[18] In the field of scientific systems, W. Ostwald's "romantic" scientists quickly conceive, publish, and socialize their discovery, while Ostwald's "classical" scientists give an example of creation of systems nearer to this second type. See W. Ostwald, *Grosse Männer* (Leipzig, 1909).

in Protestantism, Christianity still remains Christianity in all these branches, still identifiable with its generic self. With all the amendments, the Constitution of the United States still remains identical to itself in the most important principles; is identifiable as such; and, therefore, continues to exist. And this is true in regard to any system.

Still truer is this in regard to the change of vehicles and human agents. As a matter of fact, they change incessantly in any system. But so long as a given system of meanings has some vehicles and human agents, it continues to exist even if in altered form. Any system displays a selectivity in what it accepts and does not accept (see the thirteenth section of this chapter). Such changes do not put an end to the existence of the system. Only when either the system of meanings is entirely changed or it loses all its vehicles and all its human agents — only such a transformation means the death of a given empirical system. It becomes voiceless, memberless, vehicleless. As such, it ceases to articulate in the empirical world: either it disintegrates or becomes a fossil or it passes into a realm of pure meanings.[14]

The above explains why, in spite of incessant change, Christianity, the United States of America, Harvard University, continue to live and function, though they are today very different from what they were at the moment of their emergence as systems. The same is true of any other system.

X. Triple Aspects of Change of the Empirical System

The preceding analysis makes clear that a change of an empirical sociocultural system may concern its system of meanings or its vehicles or its human agents, or two or all of these components. When the system experiences an important change, it is diffused over all the components by virtue of their interdependence. When a change is comparatively slight, it may localize itself in only one of the components — not spreading over the whole system. As we shall see, the change (small or great) may be initiated now in the meanings-components, now in the vehicles, now in the human agents (see the 16th to 19th sections of this chapter and Chapters Twelve and Thirteen). Most of the systems of meanings (even mathematical ones) are rarely free from

[14] This formulation is definitely better than the fashionable theory of so-called equilibrium: as long as the system keeps its equilibrium, it exists; as soon as it loses this, it disintegrates. As is shown later (see Chapter Fourteen), the term and the formula of equilibrium are mostly meaningless in application to sociocultural systems; they do not add anything to our formulation and are rather a liability than an asset. Generally they are misnomers in application to our problem.

some congeries and some inner — small or great — contradiction and inconsistency.[15] For the time being, such congeries or inconsistencies may pass unnoticed. But sooner or later they are uncovered and start a gradual process of elimination, through new efforts to make the system consistent. In this way, the change begins somewhere in the system of meanings and leads, if important, to a change of the vehicles and human agents. In other cases, the change starts in the vehicles-components, due to their physicochemical and biological properties (fire, earthquake, inundation, epidemics, etc.) or because of the pressure of external factors upon the vehicles. Sometimes it starts with the component of human agents and from there is diffused through the other components.

For instance, a change in the governing personnel of the Roman Catholic See or of the United States of America or of Harvard University often leads to a tangible change in the system of meanings and vehicles of these systems. This is still more evident when, as for instance in the Black Plague, the change in the membership of the systems is sudden and enormous. We know how great changes occur in the systems of meanings, and in the vehicles of a great many empirical systems of Europe, through such a sudden and enormous decrease or increase of their human agents.

This triple form of dependence or interdependence in functioning and change of the systems enormously complicates the task of the social scientist in his study of the sociocultural systems — in comparison with that of the natural scientist, who has to deal with and study only one (the causal) aspect of his phenomena, and with that of a pure

[15] From the deepest standpoint of the metaphysics of J. Scotus Erigena and Nicolaus Cusanus, the true reality is infinitely manifold and inexhaustible; it is a veritable *coincidentia oppositorum*. Therefore, any logical, consistent meaning gives, at the best, only one — rational — aspect of this reality. As such, any meaning or theory always contains in itself a potential limitation or tension — and, when developed fully, a contradiction. Hegel, with his "identity of the opposites," made this an explicit cornerstone of his dialectics and metaphysics Erigena's, Cusanus's, and Hegel's conceptions make such an *inconsistency* of any logical system unexceptional and explain why any system bears in itself the seed of its own negation and contradiction. Therefore, tension, eventual split, and change. This conflict and split immanently present in any system sooner or later lead it to change. In more empirical, though more superficial, form this tension or *Spannung*, as an immanent element of problematical meanings, has been ably analyzed by Max Weber, Max Scheler, and especially by E. Barthel in his *Die Welt als Spannung und Rhythmus* (Leipzig, 1928). A good outline of Weber-Scheler's *Spannung* concept is given in R. H. Williams's unpublished thesis *The Expression of Common Value Attitudes* (Harvard University, 1938), chaps. iii and iv. In subsequent chapters of this work (Chapters Twelve to Sixteen) this principle will be more fully developed.

philosopher, who deals only with the realm of the pure meanings. They are obliged to watch, so to speak, only one aspect, while the social scientist, when he understands what he is doing, has continuously to watch three aspects of his changing systems. If he fails to do so, he is doomed to make a series of the crudest blunders. If, like many pseudo behaviorists and empiricists, *he pays attention only to the causal aspect (vehicles and human agents as material phenomena), and considers it as equivalent to the causal in the natural sciences, he misses the changes introduced through the avenue of meanings and ascribes to the vehicles purely causal relationships they do not possess by virtue of their inherent properties. If he watches only "the avenue of meanings," he misses the changes introduced through the avenue of the vehicles and human agents, ascribes to the pure meanings the properties of the vehicles and human agents, and commits a series of other errors.* Farther on we shall see that these blunders are not imagined but real, especially in the field of the problems of sociocultural change generally.

XI. The Empirical Sociocultural System Functions and Changes in its Important Parts as a Whole, in "Togetherness"

This characteristic is a mere consequence of the preceding characteristics: interdependence, conductivity, and individuality. It is implied in them. The proposition means that, in the empirical sociocultural system, parts and the whole function and undergo any important change together. Congeries are not obliged to so act, nor do they. For the sake of clarity, we must look for a moment at the ambiguous terms "together" and "togetherness."

"Togetherness" of change and functioning of various parts of a system or its different "variables" may mean: first, *synchronicity of change of the parts or variables in time or adjacency of change in space;* second, *a change of the parts or variables due to the existence of causal or meaningful or mixed ties among them.* Since they are bound by these ties into one whole, they must change together, interdependently, regardless of whether the change of various parts is synchronous in time or contiguous in space.

We use the term "togetherness of change and functioning" in the second sense. Synchronicity or nonsynchronicity of change of the parts or variables in time and of adjacency or nonadjacency in space are not and cannot be real criteria of the change in togetherness. The

only criterion for that is the presence of causal or meaningful (or mixed) relationship between the parts or the variables. When this is found, the change and functioning are in "togetherness"; when such ties are absent, the change becomes independent in the variables — whether or not it is synchronous in time and adjacent in space.

Such a statement may appear striking to many social scientists who — explicitly or implicitly — take time-synchronicity or space-adjacency in change as a criterion of a change in togetherness, and as an evidence of the existence of causal connection between the synchronously changing variables. Indeed, when they supposedly apply the rule of induction and especially that of the concomitant variation; or when, in the time series, they patiently compute the coefficient of the correlation in the movement of the variables, and find they vary synchronously or with a regular lag, they usually conclude that such a synchronicity (in concomitant variation or in statistical time series) is a strong evidence of a causal association of the variables. On the other hand, when they do not find a synchronicity or regular lag in the change (or adjacency of the change in space), they usually view such a situation as an evidence of a causal unrelatedness of the variables. All this means that a great many investigators take the time-synchronicity or space-adjacency of the change as practically the only and the main criterion of the change in togetherness.

Such an interpretation of the change in togetherness has some practical applications, as a symptom of the existence of the causal or meaningful connection between the variables. Taken as a whole and systematically, it is grossly misleading and inadequate for the following reasons.

First, because of the perfect relativity and indefiniteness of time-simultaneity (or space-adjacency), so far as we use astronomical time or geometrical space. Does simultaneity mean that the variables studied must change in the same one-tenth of a second; or in the same minute, or hour; or in the same day, or week, or month, or year; or in the same decade, or century, or thousand years, or tens of thousands of years? The selection of any of these time-units as the criterion of simultaneity is perfectly arbitrary. If too short a time-unit is taken, say one-millionth part of one second, then factually all the sociocultural changes will be nonsynchronous. If a sufficiently large unit is taken, say one thousand years, then all sociocultural changes will be simultaneous. This means that astronomical time per se cannot give any nonarbitrary criteria as to whether or not the

change of two or more variables is simultaneous and, therefore, whether or not they change "together" as causal or meaningful parts of the same system.[28]

Second, even within an arbitrarily set time-unit, there are always simultaneous changes of two or more phenomena unrelated to one another either causally or meaningfully. Any newspaper brings to us an enormous variety of changes that happen within the same twelve or twenty-four hours. News about murders, divorces, wars, sermons, political moves, votes of Congress, the President's message, movies, music, poetry, football, suicide, gardening, accidents, and so on — an enormous assortment of numerous and most diverse events that occur within the same day, or even hour. Nevertheless, no sane man concludes from that that they all occur together as causally or meaningfully related parts of the same system. The synchronicity of these events means a mere adjacency in time or in space, and does not imply the existence of any causal or logical interdependence between them.

Two or more parts of the same causal or meaningful system may change nonsimultaneously within our arbitrary time-unit of simultaneity, and yet they may change "together" in a causal and meaningful sense as elements of the same causal or meaningful or mixed system.

In empirical sociocultural reality the change in one part of the system of meanings or vehicles or human agents is not always followed instantaneously by a change in other parts (conductivity is not instantaneous). Likewise, the causal consequences of a certain physicochemical or biological phenomenon do not always occur immediately with the cause: the birth of a child follows nine months after its conception, though two phenomena are bound together causally. Similarly, a change in a part of a sociocultural system diffuses throughout the other parts only after the lapse of some time, in some cases quite a long period when measured in the terms of the astronomical time-unit. In addition, due to a margin of autonomy possessed by any subsystem, the change in various parts of the system may occur at different moments. The consequences of the Darwinian theory of evolution or of the principle of relativity have taken years before they were diffused over all the parts of biology or physics or mechanics; before they produced a respective readjustment of various specific

[28] For togetherness of change of pure logico-meaningful systems, astronomical time becomes perfectly irrelevant — because pure meanings are timeless. See my forthcoming *Sociocultural Causality, Space, Time.*

parts of these scientific systems and, again, produced them at different moments in their different parts. Only after several years or decades did the change in geometry introduced by Lobachevsky's or Riemann's systems fully penetrate the mathematical and physicochemical sciences in all their essential parts. It required several decades before many of the doctrines of St. Thomas Aquinas were officially incorporated into the theological and philosophical system of Catholicism and led to the revisions and readjustments of various parts of that system, made at different moments. Several decades had to elapse before the change introduced by, say, Marxianism, spread over all the main theories of economics, political science, psychology, anthropology, sociology, and philosophy, with the revision of the respective parts concerned in these systems. And so on. Delays of this kind in the diffusion of a change introduced in a part of a sociocultural system are quite common phenomena in science and philosophy, religion and ethics, law and art, and practically all empirical sociocultural systems. Their conductivity is by no means always instantaneous.

Nevertheless, there is little doubt that the respective revisions and readjustments of other parts of these systems in all such cases are due to the change introduced in one of their parts. This change is the reason or the cause of the subsequent change of, and diffusion of the change over, the other parts of the system. The change in different parts, though not simultaneous, nevertheless is change in logical (or causal) or mixed togetherness. It is "caused" or "grounded" in the first change and is a necessary logical (or causal) consequence of it (according to Leibnitz's "law of sufficient reason" as the cause), whether it proceeds simultaneously or with a lag of one minute or a hundred years in various parts of the system. Like conception and birth, these changes are tied together by meaningful, or causal, or mixed necessity. Hence their "togetherness," regardless of the moments of the astronomical time at which they happen.

In the light of these statements it must be clear why, in the preceding volumes of *Social and Cultural Dynamics*, shifts from Ideational to Sensate forms (or from Sensate to Ideational) in painting, sculpture, architecture, music, literature, system of truth, first principles, law, and ethics have been considered to have occurred in togetherness, though they happened to be far from synchronous; in some fields the change preceded or lagged sometimes by as many as a hundred and twenty-five years. The reason for the togetherness is that they all changed in the same direction, as the consequence of the transforma-

tion of the whole culture mentality from Ideational to Sensate, or vice versa. In other words, respective changes, though not synchronous from the standpoint of a short time-unit, have been the results of the same cause or reason — the articulation of the shift of the supersystem in a certain direction.

Even in purely causal phenomena — physical, chemical, and biological — the effect of a certain cause often actualizes some days, months, or years after the cause takes place. Birth is delayed for some nine months after conception. A shell or mine planted during the World War of 1914–1918 explodes and kills in 1939, as several cases of this kind prove. Light radiated by a very remote star reaches us several millions of years after its emanation.[17] The cause and the effect phenomena of this kind are certainly connected causally but they are separated by a long period of time. The phenomena of the delayed effect of a certain cause are quite common in the field of physicochemical and biological connections. No less common are they in the field of sociocultural phenomena, as has been shown.[18]

Still more evident is *irrelevancy of the adjacency of space for togetherness of change*. In the same street may appear a funeral cortege and a procession celebrating the Fourth of July. In the same apartment house, simultaneously, a tenant shoots himself, a child is born, a detective arrests a criminal. Simultaneity in time and adjacency in space of these changes do not warrant, however, that they happen "together," if no mixed or causal or logical dependence of these changes is shown.

[17] "For example, nightly . . . we photograph galaxies [of the Milky Way] in light that is a cool million centuries old. . . . When that radiance left the distant stellar surfaces, terrestrial mammalia were getting started in the late Mesozoic times." H. Shapley, "On the Lifetime of a Galaxy," *Time and Its Mysteries* (New York University Press, 1936), p. 46.

[18] To many a naïve critic of my work who objected to my nonsynchronicity of change of supposedly connected cultural phenomena, still more "objectionable" will appear such statements as the following. The cause of the disintegration of Hellenic society — "the mortal blow was delivered at least six hundred years earlier" (to its end). Likewise, in the decay of Sumeric society, "we shall detect the fatal strokes in certain events that had occurred some nine hundred years earlier." Similarly, "the breakdown of the Minoan Civilization must be dated at least 500 years . . . before the Achaeans and Dorians appeared upon the scene" So also with the Sinic and other societies. A. J. Toynbee, *A Study of History* (Oxford University Press, 1939), Vol. IV, pp. 63 ff. Whether or not Toynbee's statements are correct, factually the possibility of the postponement of the effects of certain events or causes for a period of several decades and even centuries is reasonably certain in many sociocultural processes. This answers such criticisms as A. Goldenweiser's and H. Becker's, in H. E. Barnes and H. Becker, *Contemporary Social Theory* (New York, 1940), pp. 533 ff.

These considerations will be developed further in Chapters Twelve, Thirteen, *et passim.* For the present they are sufficient to show that change "together" does not mean either simultaneity of change in time or adjacency of it in space; it means a change in togetherness, due to the existence of causal or meaningful or mixed ties between the parts of the system. When such bonds are given, the parts or variables change together — whether or not they change synchronously in time or adjacently in space (though when such causal and logical ties are given, they naturally tend to change more or less synchronously in time provided the time-unit of synchronicity is chosen adequately long). If such connections between the parts-variables are not given, their change is not in togetherness, even if it occurs synchronously in time and adjacently in space. Congeries cannot and do not change together, even when they change synchronously in time and adjacently in space.

XII. Self-Directing Unity

From the moment of its emergence, any empirical sociocultural system is a self-changing and self-directing unity that bears in itself the reason for its change, the nature of its functions, the phases of its unfolding, and the essentials of its destiny. As such, it has always a margin of autonomy from all the forces external to it. In other words, from the moment of its emergence, it is not a merely passive object entirely dependent upon, and molded by, external forces; it is an active agent that by itself determines the essential forms and phases of its destiny. The external forces play a part, certainly, but this part consists mainly in facilitation or hindering, acceleration or retardation, overdevelopment or underdevelopment, of the immanent potentialities of the system. In extreme cases the external forces can greatly disturb or even destroy the system, but they cannot change the normal course of the system determined by its own potentialities; for instance, produce a cow from an acorn. From an acorn can come only an oak — such is its destiny and phases. External forces may crush the acorn, in which case no oak will grow; they can hinder and retard it, and make it an extremely poorly or richly developed oak. But from an acorn, as the emerged system, only an oak develops, and nothing else.

The principle is too important and appears too paradoxical to the contemporary "externalists." Therefore, it needs the much more substantial analysis given in Chapters Twelve and Thirteen. For the

present it is enough to put it on record here, and to mention that it is a mere consequence of the interdependence and individuality and togetherness of the change indicated above. Any distinctness of a system from the rest of the world implies that it is, to some degree, independent of external forces; otherwise, it would not be an individuality or it would change together or have interdependence of parts.

XIII. Selectivity of System

Any empirical sociocultural system is selective in the sense that it tends to "take in" only the elements congenial to and consistent with it and to reject all that are inconsistent (logically or expressively) with or uncongenial to it. And the more integrated the system the more "exclusive" it is in its selectivity. Viewed from the intersystem standpoint, the same principle means that any sociocultural system is *congenial* to some other sociocultural systems and elements, *uncongenial* or *opposed* or *indifferent* to others. This characteristic is again a mere consequence of the preceding one. The selectivity concerns, first, the meanings; second, to a lesser degree, the vehicles and human agents. If any meaningful system is a roughly consistent (logically and expressively) unity, and remains so, it cannot admit the elements that make it inconsistent and break its unity. If it does so, it loses its identity and turns into congeries. It may admit more easily the indifferent elements that can remain in it as harmless congeries. As a matter of fact, in almost all sociocultural large systems there always are some indifferent congeries. Almost always there are also some contradictions; but they either concern the system's secondary parts or are so veiled for the time being that they remain unnoticed, implicit rather than explicit. If an implicit contradiction or inconsistency concerns the major premises of the system, sooner or later it becomes explicit and then leads to either a split or a modification of the system of the meanings.[19]

It has been shown that vehicles or human agents, per se, are neither consistent nor inconsistent until they become vehicles or agents of a

[19] If we accept the Hegelian principle of the dialectic with its "identity of the opposites," then any empirical as well as a pure meaningful system has always an implicit contradiction which leads necessarily (sooner or later in time) to its split and passage to a new synthesis, in which the previous individuality of the system disappears (Hegelian: Being-Nothing-Becoming). Our statement stands (slightly modified) in the case of acceptance as well as rejection of Hegelian logic. The significance of Hegel's dialectic principle in the conception and change of a system is treated further in Chapter Thirteen.

system of meanings. But as the ties between the meanings and vehicles and agents are rarely very close and monogamic, their consistency or inconsistency, selectivity or nonselectivity, is rarely as strict as those of the meanings.[20]

In the empirical sociocultural reality, the principle of selectivity of the systems (and nonselectivity of the congeries) arises in a study of many problems. In investigating the phenomena of travel and migration of cultural traits and systems from society to society, from culture area to culture area, we see that a given cultural element or subsystem passes easily from group A to group B and infiltrates into such and such systems — while it does not pass at all, or passes with much greater difficulty, into other culture areas or systems. In many cases the explanation lies in the respective congeniality and selectivity of the cultures of infiltration. Sex novels could not and did not become best sellers in medieval monastic society, and their authors could not become Nobel or Pulitzer Prize winners. They do that in contemporary Sensate society. If the *Divine Comedy* were written today, it could hardly become one of the greatest literary works of the present-day Sensate society, and in all probability would have little chance of becoming a best seller. So also with millions of other empirical cultural traits and systems (see Chapter Five).

The selectivity appears also in practically any phenomenon of change of the cultural systems and congeries. As mentioned before, any cultural system changes in the course of time in its empirical manifestations (preserving its identity in the change). If there were no

[20] Here is an important problem: Why do certain meanings choose certain space-time objects as their vehicles? Why, for instance, is the meaning "the sun" clothed in the complex of sounds s-u-n in English, s-o-l-e-i-l in French, s-o-l-n-t-z-e in Russian? Why is meaning expressed in this combination of sounds but not in others? Why does the Sacred incarnate itself now in a churinga, now in the chalice, now in something else? Why is the State's system expressed in a flag, but not in, say, a box or lamp or any one of thousands of other objects? In brief, there is a little-studied problem of the relationship between the meanings and the nature of their vehicles. The same problem confronts the specialists in linguistics. Why is each given meaning expressed in a given combination of sounds? As is known, the problem is not solved there. All the considerations of the role of association by similarity or adjacency, or by imitation of noises — *e.g.*, cuckoo, bang, pop, etc. (the "bow-wow" and "pooh-pooh" theories of the origin of language) — do not explain the matter. "It may be safely said that the meaning of 99 per cent of every language is . . . not due to any essential significance of sounds." A. C. Woolner, *Languages in History and Politics* (Oxford University Press, 1938), p. 7. The problem in linguistics is but a special phase of the problem of the relationship between the meanings and their vehicles. See the analysis and some consideration of it in my *Sistema Sociologii*, Vol. I, pp. 148–192. The problem is too big to be analyzed in this work. Since its solution is not necessary to our analysis, we leave it at that.

selectivity, the system might absorb anything that came in contact with it and, in so doing, it soon would lose its consistency and identity and cease to exist. We know, however, that with an enormous number of systems the situation is different: though changing, they preserve their identity for centuries and even for thousands of years. Such a result is evidently possible only if and when the system selects what is compatible and rejects what is inconsistent with it. And that is the factual situation with small and large sociocultural empirical systems. Even in regard to the vehicles and agents of the system the selectivity operates but, for the reason mentioned, not so strictly. Congeries, by definition and by fact, are devoid of this selectivity. They admit everything that comes into contact with them, that is dumped into the conglomeration.

XIV. Limited Possibilities of Variation of a System

The system of meanings can remain identical amidst variations in its secondary meanings. But it cannot do so if the variation undermines its identity. In regard to the system of its vehicles and human agents, the possibilities of variation are much larger, as we have seen. But even in regard to them, there are probably some limits beyond which the variation of the vehicles and human agents cannot go without contradicting the identity of the given system of meanings. Hence, the limited possibilities of variation of the system in its meanings and agents and in its vehicles.

The republican form of government may have a series of variations as a system of meanings. So also the Christian religion. So also language or the Gothic style. But the variations in all cases cannot go so far as to ascribe to the republican form the essential properties of the monarchical regime, or to the Christian religious system the meanings that replace its Credo by the Credo of Mohammedanism or Confucianism. In both cases, such a variation would mean a cessation of the existence of both systems and their replacement by something else. *In all these cases single elements of the system — for instance, a number of prayers or myths concerning the saints of the religion — can change, increase, or decrease indefinitely without changing the system of meanings of Christianity. But the totality of its basic dogmas cannot deviate without losing the identity of the religion. The number of words in a language may increase or decrease or change indefinitely, but the basic norms of its grammar and syntax and the basic roots of most of its words cannot do so. Otherwise, the language will*

be replaced by another. Likewise, the Gothic may assume the simple, the flamboyant, and other variations of style. The number of statues and ornaments, the size of the buildings, and many other of its elements may vary almost limitlessly. But the essential principles of Gothic style — like the vertical direction, the flying buttresses, and the like — cannot vary beyond a certain limit. This limit passed, the Gothic disappears.

The system of vehicles and human agents of the Christian religion is made up of a multitude of persons, objects, and actions. But if it varies so much that instead of churches it begins to be incorporated in purely commercial firms and their buildings; in houses of ill fame; in actions of prostitution, robbery, sport, murder, and so on; and in respective persons such as prostitutes, murderers, robbers, cheats, etc., such a system of vehicles and agents undermines and contradicts its system of meanings. Therefore, if the variation of the vehicles goes so far, we have either a disintegration of the Christian religious system or its acutest crisis. As a matter of fact, the periods of crisis in the Roman Catholic religious system at the end of the Middle Ages represented exactly an approach to such a contradictory variation of its vehicles and agents, manifested in the licentious popes and clerics (the Borgias and others) and in the pagan and perfectly Sensate assortment of its vehicles. The same is true of other systems.

Vehicles and agents of a business system cannot consist of objects and actions and persons identical with those of a religious monastery: in such a case the business will be ruined and the business firm will be turned into a monastic system. Vehicles and agents of an army cannot consist of those of a university; a football system, of those of the Salvation Army. And so on. Under the penalty of death, each of the empirical sociocultural systems has a limit in the variation of its components and elements. When the limit is passed, the system ceases to exist and is replaced by a different one — whether it bears another or the same name. In Chapter Fourteen we shall unfold this principle of limit more fully.

It is to be noted that this principle of the limited possibility of the variation of the system is but an aspect of the principle of individuality and selectivity of the system. Any individuality implies the limit in its variation: anything that can become anything is not individuality; it is denial of it. Anything that is selective in accepting only the congenial elements implies also a limit in its variation. Otherwise it would not be selective.

XV. The Conditions of the Optimum Integration of Empirical Sociocultural Systems

The preceding paragraphs show that the degree of the integration of a system varies from the hardly perceptible and loose to the perfectly integrated system in all its components and the elements within each component. Under what conditions can the system be regarded at its optimum point of integration, and what conditions favor or disfavor its integration generally?

Other conditions being equal, and assuming the systems to be of the same kind, the system that exhibits perfect consistency in its system of meanings, and the greatest conductivity or interdependence of its three components and the elements of each component, is evidently more integrated than the systems which are less consistent in their system of meanings and in the interdependence of their components and the elements of each component.

In the first case the whole system is the most interdependent whole, in which every change in the components and their elements reacts upon all other elements and components. The assumed perfect consistency of its system of meanings, and its freedom from congeries and contradictions, prevents any split and disintegration of the system. The assumed perfect interdependence of the components means the existence of the strongest and most effective connections or ties between the components and their elements, which bind them together in the most intense way. In the systems which are looser in all these respects, the situation is different and the integration less perfect. They are liable to begin to disintegrate, first, because of the presence of congeries and conflicts in their system of meanings; so also they are menaced by the loose connection and interdependence of their components and the elements within each component. The first type of system is similar to a well-built engine; the second, to a loose and rattling engine. In the light of this proposition, the following conditions favoring and disfavoring the integration of the system can be mentioned.

A. *Its System of Meanings.* The more consistent it is, and the freer from congeries and inner conflicts, the better the integration of the system. Respectively, the chances are better for keeping the identity and individuality of the system. The systems of meanings with congeries and conflicts are bound to split and become houses divided against themselves; they are still more liable to be changed

to such an extent that there often remains only the name of the system, with a content quite different from that of its earliest stages. Such vagueness and change amount factually to the cessation of the system of meanings and to its replacement by quite different systems.

It is to be noted that here we speak of the *optimum integration of the system* but *not of its external apparent success, apparent extension, or apparent survival.* These have nothing to do with the better and poorer integration we discuss. Not infrequently, vague and poorly integrated systems of meanings, sometimes even congeries, may have and, indeed, do have much better external success of expansion or apparent survival than the perfectly integrated systems of meanings. Tarde puts the matter aptly, stating:

> In the matter of political organizations, it has frequently been observed that the most self-consistent — those that are most logically deduced . . . are least adapted to meet the requirements of their inherited and natural environment; and, conversely, that the most practical are the least logical. . . . The same remark applies to grammars, religions, the fine arts, etc.; thus the one perfect grammar, the only one whose rules are quite without exception is the grammar of — Volapük! It applies to organisms as well; there are some that are so perfect as to be almost incapable of living, and that would be better fitted for life if they were less perfect; for perfectness of accommodation may detract from suppleness.[21]

Too rigid and too consistent political dogma or religious creed, or scientific theory, or pattern of art, can appeal only to the few, because it has to be accepted or rejected *in toto,* while vaguer and less definite systems are possible of interpretation by many in whatever way they like and, therefore, are bound to be accepted, because of their very vagueness and suppleness, by much larger groups. But their vagueness is exactly their Nemesis. A large political party or a religious creed accepted by millions is practically a series of parties and creeds, differing from one another, and not one party or creed. They diffuse themselves and survive by, so to speak, their incessant death and replacement in time and space of one short-living system of meanings by another partly similar to it, partly dissimilar, but adjacent in time and vehicles and preserving the same name. The Republican party of the time of Lincoln or Coolidge or Hoover represents very different parties, though covered by the same name. The Communist party before the Russian revolution and that of Stalin in 1941 are quite dif-

[21] G. Tarde, *Social Laws,* cited, p. 150.

ferent parties covered by the same name. And so on. These remarks show the difference between the optimum integration and the external expansion, success, and even survival of a system. Here we deal with integration and not with the apparent successes and expansions of the system. These successes and expansions, when properly analyzed, will be found to be fairly apparent: they are bought at the cost of an incessant disintegration of the systems and their serial replacement by ever new systems, notably different from their predecessors. Such eclectic systems — in science, philosophy, religion, ethics, art — rarely live for a long time, in spite of their temporary success. On the other hand, most of the scientific, philosophic, religious, ethical, and other systems of meanings that are preserved in history and make the history of science, philosophy, ethics, art, and so on, are exactly the original systems — more consistent, less eclectic, less supple, in spite of the fact that many of these hardly had a great temporary success, as many eclectic systems had. Being better integrated, they stand more successfully the acid test of time.[22]

B. *Its System of Vehicles.* If without vehicles a system of meanings cannot exist as an empirical system, a too vast and loose and unwieldy mass of vehicles is not necessarily the best condition for the optimum integration of the system. It may be too massive to be a sensitive medium for the articulation of its system of meanings. As a result, with an increase in the mass of the vehicles and in their autonomy from the system of meanings, this latter can be objectified less and less adequately and mistranslated more frequently and grossly. This suggests that in each system there is possibly some optimum mass of vehicles beyond which the integration decreases instead of increasing. This does not mean that the influence of the external weight of the system necessarily decreases with a great increase of the mass of its vehicles. It means that the adequacy of the articulation of the system of meanings may decrease, with such an overoptimum increase of the mass of the vehicles.

[22] To some extent there is an element of truth in A. J. Toynbee's statement that the growth of civilization and its geographic expansion are negatively correlated, and that the expansion of a given "civilization" is typical of its phase of disintegration rather than of the phase of its growth. Unfortunately, Toynbee's "civilization" is not a system, but a congeries, and his conceptions of genesis, growth, expansion, and disintegration of his "civilizations" are rather poorly defined; therefore, inaccurate in many ways. See A. J. Toynbee, *op. cit.*, Vol. III, pp. 128 ff.; Vol. IV, pp. 39 ff. For the defects and value of Toynbee's theory, see my "A. J. Toynbee's Philosophy of History," *Journal of Modern History*, September, 1940.

Besides the quantity of the vehicles, their *quality* is even more important. It has to be adapted to the system of meanings. However loose the relationship between the system of meanings and the nature of its vehicles may be, there are some limits to the nature of the vehicles as articulators of the system of meanings. That limit passed, the vehicles may rather hurt and disfigure the meanings than serve as their mouthpieces. Too much wealth accumulated by the Christian Church from the ninth to the sixteenth century robbed it greatly of the spirit and meaning of Christianity and made it "worldly" and "half-pagan." Too much money for scientific research likewise often hurts rather than helps the development of the true creative scientific thought and replaces it with expensive "research projects" measured by "the more expensive the better." Too much territory and other vehicles of an expanding nationalist state often facilitate a disintegration of the system of meanings of such a state and make it "protoplasmic" and "skeletonless" as to its system of meanings.[23] Too much publication and advertising of some scientific or religious or artistic or other systems of meanings often harm these meanings rather than help their elucidation and continuity. And so on. In brief, there seems to be an optimum point of integration in quantity as well as in quality of the vehicles. Deviation from it in either direction is unfavorable to the integration of the empirical system. Where lies the optimum point for each given organization is a matter of fact: it is to be found by special factual investigation of each case.

C. *Its Human Agents.* All that has been said of the vehicles can be repeated, with still greater reason, of its human agents. That each system requires for its realization persons capable of carrying it on and of putting it into action is axiomatic. Stupid persons cannot be successful agents of scientific or philosophical systems of meanings, nor profligate sinners of an ascetic religion, nor principleless cynicists of justice, nor the musically deaf of musical art, and so on. The better the persons fit the given system of meanings, the better it is integrated as a whole and in this empirical component.

Besides quality, the quantity of human agents has also its optimum point from the standpoint of integration. With too great an increase in the agents, the given system of meanings finds a progressively increasing difficulty of adequate realization and articulation. If all the human beings were identical, the situation would be different. But they are not, and they become more and more heterogeneous as

[23] See A. J. Toynbee, *op. cit.*, Vol. III, pp. 128 ff.; Vol. IV, pp. 39 ff.

their number increases. When Confucianism or Christianity or the theory of evolution had a small group of well-versed agents, each of these systems of meanings very well articulated itself. When their agents increased to millions, with stupid and wise, literate and illiterate, persons of various levels of intelligence and of various classes, nationalities, races, ages, sex, and so on, each of these systems began to articulate itself less and less adequately and became more and more vulgarized, disfigured, and distorted. As a result, the systems of meanings as they were empirically embodied in the minds of these agents underwent an enormous disfiguration and distortion. In other words, their integration greatly decreased. Later, in Chapter Five, we shall find detailed corroboration of this statement. For the present we can formulate the issue in the following proposition: *The purity and real meaning of any system of meanings tends to disintegrate and be disfigured in direct proportion to an overoptimum increase of its human agents.* Quantitative success of almost any system of meanings is bought at the cost of its identity, purity, and adequacy. Christianity, the Republican or Democratic party, Communism, the theory of evolution, when they acquired millions of followers, became practically mere names with quite different meanings among these followers. That is the Nemesis of overexpansion, in human agents, of any system of meanings.

These considerations are sufficient for the present to give an idea of the optimum point in each of the three components of a system and of the optimum integration of the system itself.

XVI. Growth of Empirical Systems and the Forms of the Growth

In the process of change, the systems often exhibit a form of change which is styled by the terms "growth" and "decline." The expressions are used often, but the real meaning of the terms and what they stand for in application to sociocultural systems is rarely elucidated. Hence the advisability of some concise analysis of the variety of change covered by these terms. We begin with growth and its equivalents: improvement, progress, and the like. Growth of a sociocultural empirical system may mean either its quantitative growth or its qualitative improvement (progress, integration, etc.). It may mean these things in application either to the whole system or to one of its compartments.

A. Quantitative Growth. This form of change signifies mainly a quantitative increase of either the vehicles or the human agents, or

both. The Christian religion grew greatly during the first ten centuries of its existence. Its vehicles — beginning with wealth; ending with buildings, churches, monasteries, and all that they contain — greatly increased. The same is true of its human agents. From a handful, at its inception, they increased to millions, embracing almost all the population of Europe and parts of other continents. The same can be said of any quantitative growth of any sociocultural system. Usually, these two processes — *increase of the vehicles* and *increase of the agents* (or their decrease) — *run parallel, hand in hand.* Increase of agents leads to an increase of the vehicles; increase of the vehicles, to an increase of the followers. The same is true of their parallel decrease. Sometimes the agents lead in the increase, sometimes the vehicles.

About the quantitative growth of the system of meanings we can hardly comment: the system of meanings can be unfolded and what is implicit in it can be made explicit, but such an unfolding is not a quantitative growth. If anything, it is a qualitative improvement.

B. *Qualitative Growth.* This change, improvement of the system, *may mean improvement and perfection of* (1) *its system of meanings,* (2) *its vehicles,* (3) *its human agents, or* (4) *all these components.* In other words, it is identical with what we styled above as the movement toward the optimum integration of the system. Improvement of the system of meanings means either its unfolding or the elimination of congeries from it; that is, its refinement and purification. Improvement of its vehicles and agents means a more adequate articulation of the system by these instrumentalities. When they express more and more clearly a given scientific or religious or artistic system — when, say, an orchestra plays Beethoven or Bach better and better, when preachers preach and live their religious system more and more truly, when professors teach their sciences better and better (more accurately, thoughtfully, competently) and when their laboratories and instruments help in that purpose and in research to a greater and greater extent — we have a qualitative growth or perfection or progress of the systems they articulate.

Here again, in many new systems, *improvement of the vehicles and of the human agents* (for instance, in science) *runs parallel. And so does their deterioration.* The better the laboratories and instruments and libraries, the better the teaching and research. However, this association is not so general as the parallel quantitative growth and decrease of the vehicles and agents discussed above. Here seem to be

found more exceptions to the rule. We often observe nowadays an increase of beautiful church buildings, but a deterioration of religion and a decrease of great preachers and religious leaders; a great increase and improvement of paints and canvases and brushes, and a decreasing number of great artist-painters and great pictures. There is a vast improvement in instruments and orchestras, but a scarcity of great musicians and composers and of great compositions; also a great improvement of scientific instrumentalities and vehicles, but hardly a proportional increase and improvement of great scientists and great scientific creations. And so on. Such a nonparallelism of agents and vehicles is possibly an exception; nevertheless, such exceptions are not rare and are more frequent in qualitative than in quantitative growth.

C. *Relationship of the Types.* If we compare the quantitative growth of the system with its qualitative improvement, we find that there is hardly any uniformity; up to a certain point, for some of the systems — mostly of a less fine and a simpler type — these two processes go hand in hand. Beyond this point — as a rule, in particularly delicate and fine and complex systems of meanings — they are related negatively or indifferently, rather than positively. We saw in the preceding volumes of *Social and Cultural Dynamics* that quantitative colossalism is a sign of qualitative deterioration rather than of qualitative improvement.[24] We shall see it further, in Chapter Five and elsewhere in this volume. Qualitatively the greatest religious, philosophical, ethical, scientific, or artistic systems are at their best and purest when their followers are limited to a small group of faithful, competent, and understanding apostles. When they are diffused among vast millions, their purity, verity, adequacy, is lost, disfigured, and vulgarized. When everyone talks of the theory of relativity, this is evidence that in the minds of these thousands there is not a theory of relativity but some vulgar concoction having nothing in common with it. When everyone begins to be educated in art appreciation, this is a sure sign that the great art creations will suffer — directly through their misvaluation and indirectly through vulgar standards of art which these masses always employ. Quantity replaces quality. The best seller ousts the classic; the jazz band, Beethoven. When millions of people of all races become Christians, only the name of Christianity remains of the religion. And so on. A limited group of the elite may possibly continue to preserve the

[24] See *Dynamics*, Vol. I, pp. 304 ff., 366, 515 f., 525, 527, 541 ff., 560 ff., 582 f., 659, 666 f

purity, but it is a small group. The rest of the human agents of the system are rather its vulgarizers, disintegrators, and distorters, but not agents of perfection and preservers of the authenticity of the system of meanings. From this standpoint, the quantitative growth and the qualitative purity of the system are rather negatively associated. In simpler and more primitive systems, such a negative relationship is not so often found. The simpler systems: rudimentary arithmetic, rudimentary religion, rudimentary art, rudimentary ethics, rudimentary standardized machinery — these can be handled, understood, and voiced by large masses of people more or less adequately. In more complex systems, the situation is reversed.

Such are the meanings of the growth of systems, the forms of the growth, and some of the relationships between these forms.

XVII. Decline of Sociocultural Systems and the Forms of the Decline

A change of a system opposite to its growth is often called its decline. The term is used quite often, especially nowadays, but in most of the cases its users do not clarify what they mean by it. Just now almost every newspaper mentions a possibility of the decline of Western culture-civilization, but very rarely does it specify what such a decline may mean. From the standpoint of our theory, it is easy to define what a decline of a system means and what are its main forms.

Like its growth, the decline of a given sociocultural system may mean either its quantitative decline or its qualitative deterioration and disintegration.

A. *Quantitative Decline.* This type of change in a system ***means a decrease of either its vehicles or its human agents, or both.*** If the funds, factories, offices, property, and other vehicles of a given firm decrease, it is declining quantitatively. If the number of its employees and officers also decreases, it again declines quantitatively. The same can be said of any system in its quantitative decline. If the total sum of the vehicles and members of a given university, or religion, or political party, or art style, or philosophical school, or any other organization, decreases, they all decline quantitatively. ***The quantitative decline of the vehicles and human agents goes, as a rule, hand in hand, parallelly, just as their quantitative growth proceeds parallelly.*** Sometimes the decline starts with human agents; sometimes (by bankruptcy, exploitation, expropriation, impoverishment)

with decrease of the vehicles, beginning with the property of the system; sometimes both decreases start more or less simultaneously. But as a rule they go together.

B. *Qualitative Decline.* In this form, the change *manifests itself either in the deterioration and disintegration of its system of meanings or in disintegration of the interdependence of the system of meanings and its vehicles, the system of meanings and its human agents, or the connection between the three components of the empirical system.*

When a given system of meanings, be it a religious credo, a scientific theory, an ethical system, an art system, a political philosophy, or any other system of meanings, begins to be infested more and more by various congeries that break up its inner consistency and erase its individuality, or when the system begins to lose some of its vital parts or splits into pieces, or when some hidden contradiction becomes explicit, the system undergoes deterioration and disintegration. If in the Christian Credo are inserted some principles taken from, say, Mohammedan dogma, or if some of its articles are dropped; when bars from Stravinsky or Gershwin are inserted in a Beethoven symphony, or when some part of Raphael's picture is painted in the style of Renoir — in all such cases we have a deterioration and disintegration of the systems of meanings. Such is one form of the qualitative decline of the system.

Another form consists in a weakening of the connection between the system of meanings and its vehicles and agents. The weakening leads to a progressive deterioration of the articulation of the system of meanings through its vehicles or human agents. In other words, to the qualitative disintegration of the system. When an orchestra, through the deterioration of its instruments and the incompetence of its musicians, plays ever more poorly the great musical compositions (systems), we have deterioration and disintegration of the connection between the system of meanings (music) and its vehicles and agents. When a scientific theory is presented less and less adequately by its expositors, we have the same phenomenon of its deterioration through its human agents. When a given system of ethics or law is more and more abused by the judges, who distort it continually, we have the same deterioration of that system. The same applies to a religious or political or economic or any other system of meanings, in its relationship to the vehicles and agents.

The above analysis embraces all the forms of the disintegration

and decline of any cultural system, small or vast, past and present and future. When historians depict the decline of Egyptian art or religion, of Greek philosophy or science, of Roman Empire or medieval Scholasticism, of feudal regime or Gothic style, of autocracy or capitalist system, of Western culture, or of anything else (if the object of the decline is a system),[28] we can be sure that it is either quantitative or qualitative, or quantitative-qualitative, decline in one of the above forms. Unfortunately, having no clear conception of decline and disintegration, most historians leave the whole subject in a hazy state. If and when they analyze the decline and disintegration of a real empirical system, it will be found to consist of one of the above forms of decline and disintegration or of an integral process embracing all these forms.

C. *Relationship of the Forms.* Finally, *between the quantitative and the qualitative decline there exists hardly any uniformity in the sense that they are always either positively or negatively associated.* In some cases, they seem to proceed hand in hand: qualitative decline leads to a quantitative decrease of the vehicles and agents of the system, or vice versa. The decline of Græco-Roman paganism before and during the first centuries of Christianity gives an example of such an association. Long before the emergence of Christianity, the traditional system of Græco-Roman religion was progressively deteriorating and disintegrating — followed by an increasing defection of its adherents and by their shift either to atheism, or enlightened philosophy, or to one of the Oriental cults. Decline and disintegration of the medieval Gothic style is another example of such an association. As we pass to the more and more "flamboyant" Gothic of the centuries after the thirteenth, the unity of the style becomes more and more

[28] Unfortunately, as we shall see, most of the writers on decline rarely separate the sociocultural system from a mere conglomeration of congeries; therefore, their theories of decline are vitiated by vagueness and blunders. What never has been integrated — congeries — cannot disintegrate. This concerns also A. J. Toynbee's "civilization." Again, to my regret, I have to point out that otherwise his very important work shows in these problems of growth and decline of social systems a number of fatal weaknesses, due mainly to the lack of a clear distinction between systems and congeries and, for this reason, to a mistaken treatment of his "civilizations" as systems (while, in fact, they are a conglomeration of many systems and congeries). Therefore, his analysis of the growth and decline of civilizations remains, at the same time, vague and indefinite. In addition, it has a number of overstatements which are exaggerations, or simply false. See Toynbee's analysis of growth and decline in his *A Study of History*, Vols. III, IV, V, VI, *passim*. For the shortcomings of his conceptions see my article "A. J. Toynbee's Philosophy of History" (cited). In spite of these defects, Toynbee's work deserves careful study as a distinguished contribution to the field of historical synthesis.

distorted by the introduction of heterogeneous elements. This is followed by a quantitative decrease of the buildings erected in this style during the centuries after the fourteenth.

Side by side with such parallelism, there are many cases when we have either a purely quantitative decline without any serious deterioration of the system (for various reasons, it simply ceases to appeal and, therefore, shrinks in its vehicles and in the number of its followers) or a qualitative disintegration without quantitative decrease of its vehicles and agents. Finally, not infrequently, and for the reasons mentioned above, qualitative deterioration of the system is followed by a quantitative increase — in its vehicles and human agents.[26] This is particularly true in regard to complex, refined, and delicate systems of meanings which require a proper ability and training for their adequate understanding, evaluation, and articulation. Because of their complex and refined nature, such systems of meanings are inaccessible to large masses of people — untrained and incapable of understanding and articulating them adequately. Therefore, when such a system is widely diffused and acquires a vast set of vehicles and followers, we may be sure it does so at the expense of vulgarization, simplification, and deterioration of its purity and identity. Examples of this point were given above and it will be demonstrated further in Chapter Five.

XVIII. Dissolution of Empirical Sociocultural Systems

A system can have several alternations of growth and decline during its life-career.[27] Any temporary decline does not necessarily mean the complete dissolution of the system and cessation of its existence as an empirical sociocultural system. The death of the system comes (1) *when its system of meanings disintegrates, to such an extent that it loses its identity and becomes unrecognizable,* (2) *when it loses all its vehicles, or* (3) *when it loses all its agents or all its vehicles and agents.*

A. The first form of cessation of the existence of a system follows from the facts that the individuality or identity of any sociocultural system is posited mainly in its system of meanings and that its

[26] See Toynbee, *op. cit.*, especially Vol. III, pp. 128–174; Vol IV, pp. 39–119; Vols. V and VI, passim. Though generally accurate, this analysis overstates the negative correlations between qualitative deterioration and quantitative increase of the systems. Sometimes the situation is such; in other cases, it is reversed or different.

[27] Petrie's, Spengler's, and Toynbee's organic theory of only one growth and one decline in the life history of a system is untenable.

vehicles are an interdependent system, not by virtue of their inherent nature but by that of their being instrumentalities of the same system of meanings. If it changes to such an extent that it becomes unidentifiable with its predecessor, the system ceases to exist — though its vehicles may remain unchanged. If its system of meanings remains the same, the system continues to exist — though its vehicles may be changed, provided it is not deprived of all the vehicles and agents. The vehicles of Harvard University may remain intact; but if the system of meaning attached to it changes — say that in the same vehicles and agents is incorporated the United States Military Academy, or the United States Steel Corporation — such a change means the cessation of Harvard University and an incarnation, in its vehicles (buildings, funds, etc.) and its personnel, of a new system, very different from the original one.

The vehicles and agents of the previous countries of Austria, Czechoslovakia, Poland, or Holland continue to exist and remain essentially the same as before (in territory, population, cities, villages, etc.). Nevertheless, for the time being at least, these systems as independent state systems have ceased to exist because their system of meanings is changed. Vehicles and agents of the system can be filled with different contents-meanings, like a bottle — now by wine, now by milk or something else. The bottle (vehicle-agent) remains intact, but the change of the meaning-content puts an end to its career as a wine bottle and fills the vehicle with something else.

On the other hand, a destruction of several buildings of Harvard by fire or inundation or earthquake, accompanied by a huge loss of life among its students and professors and by the ruin of its libraries and museums, does not necessarily mean its death. In spite of such an enormous change in its vehicles, the system will continue to exist as long as its system of meanings and its functions in some vehicles and agents — in very reduced form — are continued. It may even be forced to change its locale, say to New Hampshire, and build an entirely new "Yard" and dormitories. And yet it will still remain Harvard University. If the catastrophe is not overwhelming, in new conditions, in a new place, with new vehicles, it might even restore, more or less, its vigor and functions and former *status quo*.[28]

[28] G. Simmel's theory of the persistence of the social group through preservation of its form, in spite of changing membership, is a partial case of this general rule. See G. Simmel, "The Persistence of the Social Group," *American Journal of Sociology*, Vols. III and IV.

B. Another way to the death of a sociocultural system is *when the system loses all its vehicles and agents without replacing them by new ones. It ceases to exist as an empirical system and passes into the realm of the pure system of meanings.* The assortment of vehicles and agents, divorced from their system of meanings, becomes either a mere conglomeration of physicochemical and biological objects or phenomena or, as a rule, a mass of vehicles and agents for a different system of meanings. It is rather a rare phenomenon when the vehicles and agents of a dying system of meanings perish physically or remain unappropriated by some other system of meanings. Ordinarily, as soon as they are divorced from their previous system of meanings they are at once married by a new system of meanings. Very often they are sued, even before their divorce, by various suitors (the other systems of meanings) who want to take them from their own system of meaning before its death. With the end of the ancient Egyptian or ancient Greek state system, or that of the Roman religion, its vehicles and agents (territory, cities, buildings, population, etc.) did not disappear physically. But as the system of meanings became unidentifiable, the vehicles were married to new systems of meanings (for instance, the Roman Empire or Christianity). When a business firm becomes bankrupt, its vehicles and agents do not disappear physically, but are appropriated as vehicles or agents by another firm, or bank, or creditor. Such are the conditions of continuity of existence and of the end of existence of the sociocultural systems.

As a special example of the dissolution of the system, the case of its *mummification* can be cited. This happens when the system loses all its agents but keeps some of its vehicles. Such a loss of agents may happen through their physical extermination or through their complete defection from the system of meanings. Pompeii, suddenly destroyed by the eruption of Vesuvius, with the death of most of its population, is an example of this. When excavated, it reveals a large assortment of the vehicles of several systems that existed at the moment of the eruption, and we recognize several of the systems of meanings objectified by these vehicles; but there are no human bearers of these systems. Therefore, we have their lifeless mummies. In most of the cases, such a mummification is due to the gradual or sudden defection of the agents and their shifts to other systems of meanings. If the defected system still keeps some of its vehicles, we have again the case of mummification of the system. Many buried and excavated cultures give us a large assortment of such mummified systems;

for example, ancient Egyptian, Sumerian, Creto-Mycenaean, Mayan, and other excavated civilizations.

Another special example of the death of the system is supplied by those theoretical cases when a given system loses all its vehicles without losing all its agents. Such a case, it is true, is theoretical rather than factual, because loss of all vehicles usually means also a loss of all agents. But theoretically the case is quite thinkable. An approach to it is given by those cases when a certain system (say, religious or political) is prohibited in a given population, all its vehicles are confiscated, and all manifestations of the system are penalized by capital punishment. Such a situation may be called a half-mortal blow to the system. It is not quite dead, so far as its followers still cling to it secretly and still manifest it secretly in some kind of vehicles. It becomes mainly "inner," but not yet dead. If the external compulsion passes, it often revives and bursts forth in resurrection: acquires new vehicles and new agents. If the system of meanings is vital, such resurrection is a usual outcome of this phase of the inner existence. If the system of meanings is half-dead in its inner existence, an enforcement of the compulsion for some time may kill it completely. It does not revive later on, and, losing its vehicles and agents, it passes into the world of pure meanings from the empirical world of sociocultural phenomena.

XIX. Span of Life of Empirical Sociocultural Systems

If the pure system of meanings is timeless and as such does not know a beginning or an end, most of the empirical systems seem to be finite in their existence. They emerge as an empirical reality at a certain moment, and after a long or a short life they pass out of the empirical world in one of the above forms of extinction. This is the destiny of most, if not all, empirical individuality.

Some of the systems, like little systems of fashions and fads, come and go, having very short spans of life. Some others, like the great religious, scientific, ethical, juridical systems, live and function for hundreds, even thousands, of years. Confucianism, Hinduism, Taoism, Buddhism, Christianity, Mohammedanism, Jainism, still function and live. So also do Platonism, Aristotelianism, Augustinianism, Thomism, Kantism, and other philosophical systems. So do Ideational and Visual forms of art and Classic and Gothic styles of architecture, and the Monarchic and Republican, the Theocratic and Secular, political systems. The same is true of the systems of Roman

Law and Canon Law, of Idealism and Materialism; of Ethics of Absolute Principles and the systems of relativistic ethics — Hedonism, Utilitarianism, Eudaemonism. And this is still truer of the systems of physics, chemistry, biology, mathematics, logic, astronomy, history, economics, sociology, and other sciences. Likewise, some of the early state systems (for instance, China, Japan, Russia, France, England) still exist as empirical systems, other state systems have been living for a much shorter time, and still others — most of them — emerged only recently.

Side by side with these, other social systems (such as business firms, families, various societies and associations) exist, most of them for a much shorter time — a few days or months or years.[29]

In brief, there is an enormous variety in the span of life of the systems. Most of them, however, are finite in their existence. Those which seem to be immortal appear so mainly because they continue to exist in the realm of pure meanings known to us, but not as functioning empirical systems with a set of vehicles and agents. Others live long, even an indefinitely long time, but mainly in a generic form of the system and through incessant resurrection — not so much in an individual form of a given system. Thus religion generally, law generally, ethics generally, art generally, idealism-materialism generally, eternalism-temporalism generally, and other basic forms seem to be immortal and to exist as long as human culture exists. But each individual system of religion (for instance, Egyptian or Roman); each individual system of philosophy or law, of art or political regime, of ethics or economic organization, seems to be finite in its empirical existence. It emerges, is articulated by vehicles and agents for some period, and passes into the realm of pure meanings — sometimes forgotten even as a pure meaning, sometimes remembered and studied and somewhat still articulated.

XX. Resurrection of Empirical Sociocultural Systems

Such a phenomenon really occurs. It is represented by all cases of renaissance and revival of the systems which, having died, after some time acquire a new set of vehicles and agents and return as real empirical systems. The European Renaissance of the Græco-Roman systems in the fifteenth and sixteenth centuries is one example of this; the recent "revival" of the Gothic style, the resurrection

[29] See the data in my "Life Span, Age Composition, and Mortality of Social Organizations," *Mensch en Maatschappij*, 9e Jaargang, pp. 69–85.

of Poland and Czechoslovakia in 1918, and the revival of Thomism, or of Roman Law, which flourished in Europe in the eleventh and subsequent centuries (so-called reception of the Roman Law) are further examples of such a resurrection. On a smaller scale, it occurs much more frequently than most of us realize. Of course, in such a resurrection the system appears always altered — but not to the extent of being entirely different from its previous form. Its system of meanings keeps its essential identity, though its vehicles and agents are different and new.

The indefinitely long existence of the basic sociocultural systems — like religion, law, idealism-materialism, eternalism-temporalism, determinism-indeterminism, and so on — is due in a considerable degree to this resurrection. A given concrete system of religion emerges and sooner or later passes into the world of pure meanings, but a new concrete system of religion similar in generic traits emerges and takes its place. A given idealistic system of philosophy — say, of Xenophanes or Philolaos — arrives and, in time, passes into the realm of pure meanings; but in its stead a series of new idealistic systems (of Socrates, Plato, Architas) springs up and continues the generic pattern of the defunct system. As the new systems are similar in essentials to the departed system, they continue it and incessantly resurrect it. The same can be said of all the immortal systems that live in their generic form for an indefinitely long time.

Viewed in this light, the sociocultural life is a process in which the systems incessantly die and incessantly revive and resurrect themselves. Death and resurrection of the systems is a perennial uniformity of the life of culture as long as it lives.

XXI. Conclusion

The enumerated properties — structural and dynamic — of empirical sociocultural systems imply a number of other, more detailed, characteristics. They will be considered eventually. For the present, the above analysis gives an idea of the essential characteristics of any empirical sociocultural system. We perceive that the systems are, indeed, realities with definite properties, structure, functions, birth, growth, decline, and death. We see also how peculiar they are in their nature and how different from the physicochemical or biological systems. The fundamental difference in our systems from these other systems is their meaningful aspect or their system of meanings. Without these qualities, there are no sociocultural systems. Nor is it pos-

sible to understand anything of their properties if the system of meanings as the basic component of the empirical sociocultural systems is neglected or overlooked. One is not obliged to be an idealist or metaphysician in order to see, to observe, to test operationally, the central importance of the system of meanings in any empirical sociocultural system. The most empirical — even "instrumental," "operational," "pragmatic," "inductive," or any really accurate and empirically tested — study brings it at once to the center of the observed empirical systems. Only those who are blind and deaf, and do not apply any real empirical method, can fail to see this. But by this failure they demonstrate only their own incapacity for being empirically scientific investigators. This is exactly what we find in all the noisy, self-appointed apostles of so-called "empiricism," "behaviorism," "operationalism," and other pseudo empiricists. They are the worst kind of metaphysicians and antiempiricists known.[30]

To this class belong all those critics who attempt to criticize the meaningful aspect of sociocultural phenomena and, therefore, meaningful methods and other derivatives. If they had observed a little more carefully the empirical sociocultural phenomena, and if they had thought a little more coherently, they hardly would have proffered their ideas under the name, and for the sake, of empiricism, science, and other values.

Any real and thoughtful observer of the empirical sociocultural system has to accept the system of meanings as its central and absolutely unavoidable component. Without it, he cannot separate systems from congeries; he cannot recognize any sociocultural phenomenon and describe it — be it law, religion, science, art, politics, economics, ethics, or any cultural phenomenon whatever — because each and every one is first of all either a system or a congeries of meanings. Without meanings all sociocultural phenomena are indescribable and unutterable. Still less possible is it to grasp and to understand the structure and properties and dynamic processes of the systems. With the introduction of this central component, these properties and

[30] As a humorous example of this, it can be mentioned that one of these pseudo empiricists in a friendly letter admonished me to beware the swamp of mysticism into which I am drifting with my meaningful method and theory. Also humorously, I answered him that in my works, including the *Dynamics*, I have handled many times more, and more accurately, and more relevant, empirical facts than all the self-appointed empiricists taken together have done. And this statement stands. See many an apt statement on such pseudo empiricists in the natural sciences in Sir Arthur Eddington's work (cited), pp 12, 21, 33, 62, *et passim*.

dynamic processes become easily grasped, clearly definable, and comprehensible. From this standpoint, with some modification, we can repeat the ancient statement: "In the beginning [of the sociocultural world] was the Word [meaning]. . . . And the Word [meaning] was made flesh and dwelt among us [acquired vehicles and agents]." [31]

If not in time, then on a logical plane the Word (Meaning) is the first component of any cultural phenomenon; when it is made flesh (acquires vehicles and agents), it becomes a system of this empirical sociocultural reality.[32]

[31] St John, I, 1 and 14.

[32] The above shows that logico-meaningful method and system are very different from what many a critic made of them See for instance, W. F Albright. *From the Stone Age to Christianity* (Baltimore, 1940), pp. 60–70.

Chapter Three

COMPOSITION AND STRUCTURE OF THE TOTAL CULTURE OF AN AREA

I. Total Culture as a Multitude of Congeries, Systems, and Supersystems

The preceding analysis of the empirical sociocultural system leads to a definite conception of the total culture of a given area, however large or small. Meaning by the total culture of any area the totality of all the externalized cultural meanings and their vehicles and agents — practically all that is created or modified by the activities of the interacting human beings — we can safely contend that: (1) *the total culture does not represent a mere agglomeration of various single congeries as sociocultural atomists seem to regard it;* (2) *nor does it represent one system that integrates all the cultural elements of the area, as the "wholesale integralists" seem to view it;* but (3) *it is a coexistence of a multitude of various systems plus various single congeries that exist, partly as heterogeneous elements in many a system, partly as congeries outside of the systems.*

In an unfolded form the last conception gives the following classification.

Total Culture of Area

I			II	
Multitude of Systems			*Multitude of Single Congeries*	
1	2	3	1	2
Subordinated or embraced by one another (sub-sub-subsystems of larger systems ending with a supersystem)	*Co-ordinated with one another*	*Being Congeries to one another*	*Existing as heterogeneous or contradictory element in systems*	*Existing as unrelated congeries outside of systems*

This means that the total culture of any area is not one perfectly logical and consistent system in which there are neither other systems unrelated to it nor any single elements that contradict it or exist as a

unit, unrelated causally or meaningfully. Nor is the total culture a completely inconsistent, incidental, irrational, or nonlogical conglomeration of its objects. These points of view claim either that the total culture is perfectly rational, consistent, logical, and has no unrelated and contradictory elements or that it is completely irrational, incidental, nonlogical, representing a purely incidental heterogeneous jumble of a multitude of unrelated meanings-vehicles-agents; either of these claims is entirely inadequate and does not correspond to the reality at all. What the above scheme means is that any culture has its logical, rational, consistent, and unified parts (represented by all its subordinated and co-ordinated systems and partly by each system unrelated to one another, when such a system is regarded alone — in its inner consistency) and its nonlogical, even ill-logical, irrational part (represented by all the single congeries — in and outside of the systems — and partly by its unrelated systems, viewed in the aspect of their congeries relationship). Insofar, neither those who claim a perfect unity, rationality, and consistency of the total culture (totalitarian integralists) nor those who claim its complete irrationality and nonlogicity (sociocultural atomists) are right.

The above thesis is proved if its validity can be shown for the smallest possible culture area. If such an area represents the above coexistence of a multitude of systems and congeries, this must be still truer in regard to the total culture of larger and vaster culture areas. *What is the smallest culture area? An individual.* Viewed not as a biological organism but as a sociocultural creature, an individual is the bearer or agent of a certain culture: a multitude of meanings articulated by his speech and actions, with all the multitude of objects involved. An individual's mind and experience form a genuine culture area of a multitude of meanings: his actions, and objects involved in the actions, are agencies and external vehicles of these meanings. In the empirical sociocultural world all this is spatially integrated into one biocultural person. There can be hardly any culture area more restricted or smaller than an individual.

In studying this "culture area" we can easily find there a multitude of systems and congeries. With the exception of pure idiots and certain other cases (which fall outside the realm of sociocultural phenomena), each individual has certain ideas and beliefs, part of them integrated into a sort of scientific or religious system; certain ethical norms of what ought and ought not to be, what is right or wrong; certain art values; certain practical values in the form of preference

or desirability of one thing to another; and so on. Suppose we have an average contemporary individual — a Baptist, a Republican, a physician or farmer by occupation — who prefers Mark Twain to Hawthorne, vanilla ice cream to chocolate ice cream; Negro Spirituals to Gershwin's music, baseball to tennis. Being a Baptist, his beliefs are at least in part integrated into a system, because the Baptist system is a tangibly, though not perfectly, integrated system of beliefs; for the same reason, his political convictions are not mere congeries, because the Republican platform is at least in part an integrated system; as a physician or farmer, he is a member of an occupational system in which he is dependent upon other parts of the system. In brief, in the culture area of our individual we find a series of systems — at least one or a few. Otherwise our individual would be but a patient for an insane asylum; a person perfectly inconsistent, irrational, entirely incapable of thinking through two simplest ideas or of being consistent in two of his actions. On the other hand, if we take his system of religion in connection with his preference for baseball versus tennis, or even in connection with his Republican party versus the Democratic party, it is difficult to find any logical or causal relationship between these two systems — as would be the case with the system and congeries of ice cream or baseball preference. The Baptist religion neither logically nor otherwise requires the Republican or Democratic party, and either of these parties is independent of the Baptist religion. Logically, they are not related. Factually, also, there are Republicans belonging to different religions, and Baptists to different political parties. Still less is it possible to find any relationship between Baptism or Republicanism and vanilla ice cream or baseball in contradistinction to chocolate ice cream or tennis, between vanilla ice cream and Negro Spirituals in preference to Gershwin's music, between Negro Spirituals and Mark Twain in contradistinction to Nathaniel Hawthorne.

These systems appear to be congeries in regard to one another, and congeries to the single mentioned cultural elements. This we have also seen, for instance, in the study of the relationship of the overt behavior of historical personalities to their mentality. While the mentality of many of them appeared to be almost 100 per cent Ideational, their overt behavior has to some degree — and in our data no less than 50 per cent [1] — always been Sensate, and vice versa. In his overt actions, even a Sensate man is rarely purely Sensate. If

[1] See *Social and Cultural Dynamics*, Vol III, pp. 519 f, and Chapter XV.

such a coexistence of the heterogeneous and somewhat even opposite traits of the Sensate and Ideational systems is present in historical personalities, still more is it probable in regard to the common man. Add to this the fact that in an individual, just as in a population, at any given time, there is a coexistence of the values and ideas that are dying (the survivals of the past), that are alive, and that are new and just received. These three layers of systems and congeries — the new, the living, and the half-dead (the survivals) — are often contradictory to one another, and still more often indifferent mutually. For this reason, they are far from being harmonious parts of one system. Insofar, the individual's culture area shows a presence of congeries. If the analysis is continued, we can easily find there systems within systems (subordinated), systems co-ordinated, congeries within systems, and congeries outside of systems.

Concretely, the multitude of the systems and congeries, their kinds, their specific forms, widely fluctuates from individual to individual. So also do the relative proportions of various systems and congeries. But, purely pathological cases excluded (because most of them, like perfect idiocy, belong to biology rather than to culture), every individual — primitive and sophisticated, illiterate and educated, rich and poor, of any occupation, of any walk of life — is a bearer of all the types of systems mentioned and of all the congeries typified. If an individual did not possess any congeries, he would be an absolutely logical and consistent creature. Such an individual has hardly ever existed, and hardly can exist. The reason is that hardly ever do all (100 per cent) scientific or religious meanings of an individual stand in logical or causal connection with 100 per cent of his preferences for food. Some of the ideas may be in such a relationship with some of his food preferences (motivated by his desire to have all the vitamins, a balanced diet, etc.), but never the whole 100 per cent of the values of these classes; similarly, all his preferences for certain kinds of food are rarely in any logical or causal way related to those for a certain kind of music, or a certain kind of play, or a certain kind of philosophy, or a certain type of sweetheart, or a certain hobby. Idealism in philosophy is not tied to a blonde or brunette type of sweetheart; or to pork chops, to the exclusion of roast beef or turkey; or to bridge, to the exclusion of crossword puzzles, and so on. On the other hand, the preference for a certain ice cream neither logically nor causally involves a definite kind of philosophy — say, Idealistic or Materialistic, Platonic, Kantian — or a vitalistic or mechanistic standpoint in

biology; this latter does not involve a preference for a Plymouth car over a Ford, nor does it involve a preference for the Republican party over the Democratic (or vice versa), and so on. So far as any individual has in some degree such numerous unrelated preferences, thoughts, experiences, activities, and traits; so far as many of these traits neither require nor contradict the others, and are not shown to be associated causally *in all* individuals — insofar, every individual is a bearer not only of an integrated system of culture but also of many congeries of cultural traits given in the area of his mind as well as in that of his actions (vehicles).[2]

This analysis — which can be extended to many details and which anybody can test on himself or others — bears witness to the accuracy of the above structure of the total culture of the individual as the smallest culture area.[3] If valid for this area, it is still more valid for

[2] The above statement that the totality of culture elements is never perfectly integrated into one system, even in an individual, would appear striking and questionable to many, from psychiatrists to the plain citizens who talk and claim the total integration of their own personality and that of their friends. And yet the fact of a lack of a complete integration of practically any individual in this respect can hardly be questioned If, say, an individual is a bearer of 2000 cultural traits or elements, only a portion of them (*different* for *different* individuals) — say, 500 or 1000 — are, in fact, integrated into *one* causal or meaningful system The rest are the congeries to that system, either perfectly neutral or, sometimes, even opposite (hence the contradictions in an individual, so evident to any attentive observer), existing either as isolated traits or as the parts of other systems different from the main and often different from one another. From this standpoint, the difference between the individual "with a strong personality and individuality" and the one without it is not the difference between the perfectly integrated and the unintegrated personality, but that between the man relatively integrated around "some major axis" (of the subordinated or co-ordinated type) — with most of his traits united into the system of this axis, with the rest more or less neutral and free from too many and too strong contradictions — and the man who hardly has such a central system, his culture traits remaining mostly in the state of congeries either of isolated traits or of unrelated and contradictory systems The same is true of the difference between so-called "normal" and "abnormal" individuals, no matter what is the content of the "normal" and "abnormal" systems and congeries according to the norms of a given culture.

[3] "Let a man, for the sake of amusement, attempt to note, with all possible accuracy, all the series of small sensations — muscular movements, steps, gestures, sayings, etc. — of which his day is composed, and let him try to find a formula of such a series, a word for such a maze! He will succeed neither better nor poorer in that than a historian who tries to legislate history, or a series of the national states of mind," rightly stresses Tarde, writing of the above situation in the culture area of an individual. Still more is this true in regard to the total culture of larger areas of population, where there always is a coexistence of the survivals of the past, of the living systems and congeries, and of the newly invented values often quite contradictory to the living and the dead survivals. From this standpoint, an incessant struggle between the old and the new goes on all the time, in language and literature, arts and sciences, philosophy and religion, law and ethics, economic and political and social forms of organizaton. Such a struggle means

the total culture of any larger area — be it the culture of a small group (the family, the State, the class) or that of a single city block, of an apartment house, of a village, of a primitive tribe, of a city, of a whole country or nation or "civilization."

With an increase of area (other conditions being equal) the multitude of the systems (subordinated, co-ordinated, and congeries in regard to one another) and of the single congeries is likely to increase still more.

II. Criticism of Atomistic and Completely Integralistic Conceptions of the Total Culture of a Given Area

The preceding anatomy of the total culture of any area is fundamentally different from some of the current conceptions of it. These current conceptions are represented by two opposite and — at the same time — similar theories of cultural atomism and cultural perfect integralism. The atomistic theories view the total of any culture area as a mere conglomeration of persons, traits, events, objects, that are in the given area at a certain period. They do not draw any explicit division between sociocultural systems and congeries. As a result, they view the total culture as a jungle of congeries.

Likewise, if they make a "survey" of it, be it the culture of County A or of Tribe B, they merely enumerate certain persons, objects, actions, events, in the area and, having done so, they consider the task is finished. No serious attempt to separate the systems from the congeries is made in such works. If some classifications are used, they are used as *purely formal* groupings of the elements of the conglomeration studied under fictitious catalogue headings; for instance, the quantity and kind of the musical instruments found there, of art objects, of schools, of houses, of ceremonies of marriage or other religious ritual, of political events, of taboos or ethical norms — up to a man's sexual life or average income. As a result, we have the piling up of various bits of information into a number of chapters or volumes, without any comprehension of the structure of the culture area; without even an understanding of why, out of a potentially infinite number of singular cultural objects and events, only these, and not millions of others, are selected. In brief, we have a chaotic pile of bits of in-

that the new and the old are contradictory, or represent congeries in regard to one another. See G Tarde, *La logique sociale* (Paris, 1895), pp 152 ff and *The Laws of Imitation* (New York, 1903), pp. 152 ff., and chap. v, see also S. M. Shirokogoroff, *Ethnos* (in Russ. Shanghai, 1923), pp 17 ff.

formation formally listed under several headings, and nothing else.

If such atomists write a history or theory of a change in the total culture of a given area, they similarly just catalogue some persons, events, and objects as they happen to follow one another in time and space-adjacency. They give us just a "chronicle," or a variety of history well represented by pictorial histories (such as "Movie News" or "News Reel" or "Time Marches On") or by daily and weekly papers. After the introductory fanfare they give us a picture of last week's murderer, then of a battle in Europe or China, then of Hitler or Roosevelt; followed by a snapshot of ski jumping or bridge playing, then of a heavyweight champion, replaced by that of a famous professor's classroom — and so on, without any interconnection except their time proximity or space contiguity. Chronicles and many "histories" are similar: they give us a picture — now photographic, now verbal — of Cleopatra or Cicero, followed by that of a certain battle; then pictures of Lucretius and materialism, then of the Roman Senate and the cult of Mithras; then a picture of the Augustan Parthenon or Christian Catacombs; then — after a few statistics on the wages of the period — a view of a farm worked by slave labor; then a picture of a gladiator or an uprising of slaves — and so on and so forth, one picture after another united only by time or space proximity and rarely by anything more. Some formal classification for the grouping of this infinitely heterogeneous material is used, of course; but it is a purely mechanical classification, serving mainly the purpose of bringing this unmanageable heterogeneity into some sort of mechanical order. Hence the chapters "The First Triumvirate and Its Wars"; "Uprising of the Slaves"; "Virgil, Horace, and Literature"; "Christianity Emerging"; "The End of Republican Rome"; "The Economic Situation"; and so on and so forth. In vain one may ask why these, but not millions of other persons, objects, phenomena, events, are specifically picked out. What, if any, is the connection between them? What does all this mean? And what are the reasons why now Cleopatra "pops up" on the screen, now Saint Paul or a gladiator, now a poor slave or a businessman? In vain one might ask all these whys. He is told that his whys are out of place, that they are "bad metaphysics," and that he must be satisfied with anything which, by the fancy of the writer, "pops up" on the screen of history or in the "News Reel."

The integralistic theory is, in a sense, opposite. Represented especially by "functional anthropologists" (W. D. Wallis, R. Benedict, B. Malinowski, A. R. Radcliffe-Brown, M. Mead, C. Wissler, and

others) and also by some historians and sociologists,[4] it contends that the total culture of any area is entirely integrated and represents one functional system, that all the elements and traits are causally and functionally related with one another, and that there are no congeries and no multitude of especially independent systems. The total culture of either the Trobriand or the Samoa Islands, or of the Melanesian or any other group — primitive or not — is completely integrated.[5] The atomists see only trees and do not see the wood. The totalitarian integralists see only wood and do not see the trees. But the net result of both theories is the same: they do not see the difference between the congeries and systems. One drowns the difference by submerging the systems under the water of a multitude of single congeries; the other drowns the congeries under the water of one unified system. After what has been said in Chapter One, Volume One, and here, it is hardly necessary to insist that the totalitarian integralists simply mix a causal, meaningful, or mixed relationship with mere spatial or time adjacency (congeries). Therefore, their concept of "integration" does not mean anything but mere spatial adjacency which in no way is equivalent to either causal or logico-meaningful relationships or to mixed ones. The atomists make the same blunder but in the reverse way: they do not see that some of their objects, events, persons, are tied into one system by meaningful-causal ties, while some others are not and are mere spatial or time congeries. Shall we wonder, therefore, that in the works of the totalitarian integralists we also rarely find any answer to our hows and whys, and that many of their theories

[4] It is to be regretted that A J Toynbee made the similar mistake of taking the whole "civilization" (Hellenic, Western, Sumerian, Egyptian, Far Eastern, and the rest of his twenty-one "civilizations" — including even a generally "Nomad Civilization") as a united and interdependent system in which everything is interconnected with everything. If the total "civilization" (he uses the term in the sense of "the total culture") of an individual is not one united system, still less is one system the total culture-civilization of such enormous areas as Egyptian or Western culture, as Graeco-Roman or Far Eastern total culture This fallacious conception is repudiated by Toynbee himself when he shows that the technico-economic part of it changes often without a change of the rest of the civilization, or improves when the rest of the civilization declines, and generally the movement of the technologico-economic part is independent from that of the rest of the civilization whose part it is. Subsequent criticism of the totalitarian integralism concerns equally Toynbee's conception. See his *A Study of History* (Oxford University Press, 1934–1939), 6 vols., and my criticism of it in the article (cited) in *Journal of Modern History*, September, 1940.

[5] See the quotations from their works in *Dynamics*, Vol. I, chap i. We read even such assertions as the following "No one would deny so obvious a statement that all aspects of a culture are interrelated" M J Herskovits, *Acculturation* (New York, 1930), p. 21. It shows how nonsense is accepted as an axiom.

of culture and cultural change are as deficient in their own way as are those of the atomists.[6]

Evident absurdities of both conceptions will be pointed out further in the fifth section of this chapter. For the present we can proceed with an analysis of the total culture and its main systems.[7]

[6] This criticism does not mean that all histories or all anthropological studies are "atomistic" or "completely integralistic" Fortunately, the great historical works as well as many of the best anthropological studies are free from these defects In one way or another they draw the distinction between the sociocultural systems and congeries, and respectively give us either a comprehensive analysis of the structure of society and culture or a theory of change of sociocultural phenomena

[7] Between these two poles — the social atomists and the totalitarian integralists — are most of the other currents of socioanthropological thought, for instance, the extreme school of the diffusionists, like G E Smith and, partly, W. H. R. Rivers; the school of the *Kulturkreise* of F Graebner and, partly, W Schmidt; the Durkheimian school represented by M Mauss Each of these theories suffers enormously from the lack of the distinction between a sociocultural system and congeries and, through that, from a series of inner contradictions, vagueness, and finally factual blunders Aside from an untenable theory of Egypt as the center of all the important inventions that diffused throughout the whole world from there, the theory of the extreme diffusionists assumes simultaneously that the Egyptian total culture was one unified system because it was invented as such and existed as such and that it was a conglomeration of congeries (because its various elements could separate themselves from the rest of the system and diffuse, each in different directions, one by one, in various areas and ground themselves in these cultures of immigration) If it were a system, it could move only as a whole in that case its various elements could not separate themselves from the rest of the meaningful causal whole, if they could, it was not a system but a conglomeration of systems and congeries See G. E Smith, *The Migration of Early Culture* (Manchester, 1929)

Similarly, when Graebner and others of the *Kulturkreise* school define each culture area by its "dominant" trait and then follow the alleged peregrinations of it in space, they seemingly assume that the rest or, at least, the majority of the other traits of the culture with the same dominant trait are causally united with the dominant trait and, therefore, will be present in all cultures in which a given dominant trait is found On the other hand, taking as the dominant trait such comparatively insignificant traits as the *Bogenkultur*, the *Zweiklassenkultur*, or *Freivaterrechtliche Kultur* and failing to show, indeed, that all the societies with the *Bogenkultur* have similar traits in the rest of their culture, they proceed as sociocultural atomists, hunting only a distribution of the given dominant trait and describing some other traits of the cultures where it is found The whole procedure is, therefore, a self-contradictory hunting of nobody knows what causal complexes or congeries If the first, then the authors should have ascertained that, when *Bogenkultur* is given, other traits — A, B, C . N — are given and that they move together — something they never have done If the second — if all they are interested in is to find how this or that trait, as such, migrated and diffused — then there is no reason to claim that it is a dominant trait nor to make it the characteristic of a given culture In that case, the whole study is a study of the spatial circulation (or independent emergence) of various cultural congeries, a useful but comparatively unimportant task See F Graebner, *Methode der Ethnologie* (Heidelberg, 1911); W. Schmidt, *The Culture Historical Method of Ethnology* (New York, 1939).

Finally, Durkheim and his collaborators have also been busy with the problem of

III. Main Cultural Systems

The above general formula of the structure of the total culture of any area is certainly a step forward toward a scientific "morphology" of culture. But it is far from being a final step. The point is that any area, beginning with the smallest one (the culture area of an individual), is a seething multitude of systems and congeries almost infinite in their number and variety. Indeed, since any single proposition or judgment ("A is B") represents already a system of meanings incarnated in the form of the judgment, any individual is a bearer of millions of such systems. The culture area of his mind is a "storehouse" of millions of such systems, incessantly externalized in words and actions: "A is B; A must be B; A should be B; A is better than B; A must be done by B; A should avoid or achieve or do B," and so on. Such cultural systems fill the life of an individual, and that life itself consists largely in acquiring, creating, modifying, losing, and externalizing such systems. Still more numerous are such systems in the larger culture areas. There their number and variety are practically infinite. Viewed *socially*, an individual is also a member of a multitude of social systems beginning with the smallest ones: subsystems of parents or of children in the family; the system of closest friends, of neighbors, of a local community, of some club or political party, of a business or occupational group, of a certain church, of a certain state — up to the

culture under the name of civilization. Outlined already in the *L'année sociologique* (Vols. III, XI, XII), this conception of civilization (or culture in my sense) has been developed more systematically by M. Mauss in his "Les civilisations, éléments et formes" in *Civilisation. Le mot et l'idée* (Paris, 1930), pp. 81–108. Defining the phenomena of civilization as those that are capable of diffusion from group to group, from area to area, as essentially international or extranational, Mauss gives the following concept of a civilization (or culture). "It is a sufficiently grand and numerous ensemble of the phenomena of civilization, sufficiently important by their mass and their quality." Such a civilization diffuses over several societies or groups. Each civilization has its own specific form, which makes of it a specific type, and its own area. "The form of a given civilization is made up of the totality of its special aspects which manifest ideas, practices, and products common — or more or less common — to a number of given societies, the inventors and bearers of such a civilization." It is hardly necessary to say, on my part, that Mauss's "civilization" is what I call an agglomeration of congeries and systems or "the total culture." As such, it can be studied only as a mere conglomeration of congeries — and nothing more. Mauss gives no evidence that such a civilization is a causal or meaningful unity; nor does he indicate any dominant characteristic of such a "totality of the specific aspects of a given civilization." His further treatment of his civilization shows that now he treats it as a unity, now as a mere conglomeration of various congeries. Such a mixture of systems with congeries gives, at the best, a mere spatial distribution of this or that trait, a series of vague statements and fallacious con-

[illegible] — in all these three "schools."

multitude of various clubs, societies, associations, leagues, and the like. Members of primitive tribes may belong to a smaller number of social systems, but even they belong to several subsystems within their tribe. If we take a larger area, especially the contemporary urban area, there in a territory of a few blocks we find dozens and sometimes hundreds of various social systems, as individualized bodies with interdependence of their parts and other characteristics of a real social system.

Amidst such an infinitude we are as helpless as amidst a jungle of congeries. If we do not want to be lost and want to be able to orient ourselves in this chaos of systems and congeries, we must in some way reduce this infinitude to a manageable number of main systems; but these systems must be real, empirical, mixed systems, with all their properties — not merely formal classes of pseudo systems. Hence the incessant efforts of social scientists to organize this infinitude into limited classes of sociocultural phenomena; hence a multitude of classifications of these phenomena by historians, economists, political scientists, sociologists, anthropologists, philosophers, and psychologists.

It is not the purpose of this work to give a history or a survey of such classifications. For our purposes, it is enough to remark that many of these classifications are purely formal. The classes they give are not real systems, but just nominal pigeonholing that sometimes divides the real system into two or more parts and unites into one class the parts of different systems and congeries. Such fictitious classes do not serve the purpose. Fortunately, many other classifications are better: their classes are roughly nearer to the real systems and, therefore, help us greatly to orient ourselves in the above cultural chaos.

What, then, are the ways of reduction of the infinitude of systems and congeries to a limited number of the main systems, and what are these systems?

The main way is clear from the preceding analysis. It is based upon the fortunate fact of the subordination of the systems to one another, giving us a vast continent of a most embracing system composed of subsystems, and each of these of their sub-sub-sub . . . systems. Beginning with the simplest kind of equation ("one and one make two"), a multitude of such systems becomes a subsystem of larger mathematical propositions which become the systems of arithmetic, algebra, geometry, calculus; these, in their turn, become the still more embracing system of mathematics. Similarly, beginning with a multitude of propositions united into a syllogism or into other larger systems, these into still larger theories, the theories into still larger

systems, we have the systems of science — chemistry, physics, biology, or economics. The same goes for religion, or law, or art, in all its main forms. Each relatively distinct scientific discipline — be it chemistry or economics, law or religion, etc. — is a vast system composed of many subsystems, and these of their sub-sub-sub . . . systems until we come to a single concept or judgment. (Of course, there are in each some congeries; but we are not interested in these at this moment.) Furthermore, we have seen that the natural sciences, also, compose a system that embraces all the natural sciences and that the natural, the social, the humanistic, sciences enter as subsystems into a vaster (though looser) system of science generally. That *science generally* (especially in a given area) is a system is shown by the presence in it of all the test characteristics of an empirical sociocultural system. (Only the science of two areas that are absolutely isolated from each other is not a real empirical system, since there is no interdependence and other marks of a real system.) The same goes for other vast systems of culture; for example, religion and law; ethics and music; all main forms of art and all forms of social, political, and economic organization (or systems of economic, political, and social culture).

This fact — the existence of a multitude of systems within systems — enormously reduces the multitude to a much smaller number of the vastest systems. Knowing the generic properties of each of these vastest systems (for instance, of religion generally and of a given religion particularly, of science generally and of a given science particularly, of painting generally and of a given painting particularly, and so on), we greatly overcome the chaos of the infinite variety and number of systems and acquire a limited, manageable framework of the cultural co-ordinates that helps us orient ourselves in this jungle just as a system of spatial co-ordinates helps us orient ourselves in the infinity of space. Knowing the latitude-longitude-altitude of a spot on this planet, we understand where it is. Similarly, having the main cultural co-ordinates in the form of the main vastest systems, we begin to understand somewhat the confusion; it appears to us now orderly to a considerable extent and much less chaotic. In other words, the existence of "subordinated systems of systems" is the main and indispensable way to conquer the cultural chaos of systems and congeries.

Similarly, a multitude of *social* systems is also reduced to a manageable number of the main, most embracing, social systems with their sub-sub-sub . . . systems. An enormous number of the smallest

subsystems of a state — be they village streets or wards or precincts — are consolidated in the larger state systems of villages, towns, counties, and so on, until we reach the whole state system. Each special organ of a village, or town, or county (be it police or court) is a subsystem made up of a long series of sub-sub-sub . . . systems and joining its sister subsystems to help form its state system (police or the Supreme Court).

The system of religious social bodies displays in like manner the same pattern of systems in a system, beginning with a parish (or even a part of it) and ending with the whole system of the religion, with its central organs. And so in regard to other social systems. Due to this progressive subordination in the relationship of the systems, their immense multitude is again reduced to a limited number of main social systems. This fact makes knowledge of them possible, for it shows that, in their totality, they represent a system of social co-ordinates for an orientation in the social world.

A supplementary way of overcoming the infinitude of social and cultural systems is to understand the *co-ordination* of several systems into one new and larger system.

Judicial, executive, and legislative systems of the various states, each being subordinated to the system of the United States, are, at the same time, co-ordinated with one another. The systems of the secular and spiritual powers in the Middle Ages were also co-ordinated with each other (except during the periods of the decisive supremacy of one of these). In the countries where the State and the Church are separated from each other, they also are co-ordinated with each other to a tangible degree. Economics and sociology, as mentioned, are co-ordinated and interdependent from each other to a noticeable degree. So are many other social and cultural systems.

When we know the main social and cultural systems of the subordinated type and when we know, in addition, the relationship of co-ordination between several subsystems of the same system, or between the co-ordinated systems as such, our knowledge of the structure (and functions and change, as we shall see) of the greater part of the socio-cultural world becomes so considerable that it ceases to be a complete chaos for us. Instead, we begin to discern a certain order and logic in this chaos, a certain understandable structure of it, and certain understandable relationships. When, in addition, we are aware that besides these main subordinated and co-ordinated systems there are systems in congeries relation with one another, and also certain single

congeries, we come into possession of an approximate knowledge of it.

Hence the importance of some classification or enumeration of the main subordinated and co-ordinated systems of the total culture. At the present time it is hardly possible to give an exhaustive and polished classification of such systems, but an enumeration of the majority of the most important and vastest systems seems to be possible.

The following list mentions probably the majority of the main cultural (not social) systems. Within any inhabited interaction area [8] (no matter how small or large it is) and especially within any organized group [9] (no matter how small or large it is), we find in its total culture the following *cultural* systems (as empirical systems of meanings, vehicles, and agents).

A. *System of Language.* Underlying all the other systems is language (oral and written), which in its grammar and syntax (but not in all its words) represents one of the most marvelous systems, mainly of the co-ordinated type. That this is so is shown by the closed character of the grammar and syntax of any developed language. It is so well integrated that it does not admit, or admits only as a rare exception, any change of the grammar rules that are incompatible with the total character of the grammar-syntax.

> Outside of a small number of grammatical rules and forms which are alike in character and which meet *all* the needs of the language, no new rule or form can arise without entering into opposition with others and without tending to recast the idiom in a different mould If the idea of expressing case by means of a preposition followed by an article comes into a language which is already possessed of declensions, either the article and the preposition must eventually eliminate the declensions, or the declensions must repel them.[10]

Any developed language in its grammatical and syntactical parts is a real unity whose rules compose one closed system and mutually supplement one another and jealously guard an intrusion of any heterogeneous — contradictory — element or rules. If such an intrusion happens, the respective parts must reorganize themselves in order to

[8] Interaction area — because if two areas are isolated from each other and no interaction goes on between them, each will have, say, the system of science, but the system of science of one area will be isolated from that of the other and, therefore, we will have two systems of the same science but not one

[9] For its definition see *Dynamics*, Vol III, chaps. i and ii.

[10] G Tarde (*op cit*), p 175.

become unity again. Otherwise, they remain — under the name of "exceptions" — congeries to the rest of the system.[11]

B. *System of Science.* By this we mean mainly the system of truth of senses plus the truth of reason, with the admixture — partly consistent, partly as congeries — of the elements of truth of faith[12] consisting often of a number of vast subsystems like the theoretical and applied (technological) or the natural and social sciences, each subsystem consisting again of several subsystems of chemistry and physics or of sociology and economics and so on, each of these made up again of several subsystems represented by their main parts — and so on, up to the smallest subsystems: single judgments out of which are woven subtheories and theories of each part. Like any other empirical system, the science system has a multifarious system of its vehicles (schools, universities, laboratories, instruments, books, observatories, etc.) and its human agents.

A given area, like that of the United States or of Boston, may have a highly integrated and differentiated system of science, with comparatively few congeries imbedded in it. Other areas, like that of some primitive tribe, may have a system of science little developed, with a much larger admixture of congeries. But in some form science will be found as a system in any culture area, because any social group, as long as it lives, must have and does have a minimum of knowledge of the world that surrounds it, of the phenomena and objects that are important for its survival and existence. No group entirely devoid of any knowledge can exist and survive for any length of time. All the fashionable theories that depict to us the savage and the primitive tribes

[11] As any system, in contradistinction to congeries, is self-directing unity having a margin of autonomy from the external forces this is the reason why the grammar-syntax system of language resists the external influences more strongly and successfully than does, for instance, its phonetics or its vocabulary A number of investigations in this field have shown, indeed, that in the contact of two different languages — that of the natives and that of foreigners — in the native languages the grammar, "and particularly that mode of expression to which the word idiom is applied . . . is the most resistant to contact, while vocabulary is most easily worked into the speech habits of those who must learn a new tongue" This concerns the Negro, the Haitian Negro-French, and the English of South African natives M. J. Herskovits, *op cit*, p 108 See other evidences in S Sylvain, *Le Creole Haitien* (Brussels, 1936), G P Lestrade, "European Influences upon the Development of Bantu Language and Literature," *Western Civilization and the Natives of South Africa* (London, 1934), pp. 105–127.

[12] See what is meant by these systems of truth, *Dynamics*, Vol II, chaps i, ii, iii, *et passim* See also G. D Birkhoff, "Intuition, Reason and Faith in Science," *Science*, December 30, 1938. See, further, Chapter xvi of this book for the systems and sources of truth.

as entirely devoid of knowledge are sheer nonsense. The most backward tribe of hunters and collectors of the gifts of nature does know, at least, which plants are eatable and which are not; it does not ascribe the properties of a lamb to a lion, of fire to water, and of a fish to a bird; it knows a great deal in the field of the phenomena vital for its existence. And, also, such knowledge as it has is tangibly interdependent in its parts and in the relationship of the parts to the whole. The interdependence and consistency are possibly looser, but they are still tangible. In contemporary society, science is certainly a system, composed out of many sub-sub-sub . . . systems, with quite tangible interdependence of its main parts, of the parts upon the whole, and the whole upon the parts.[13]

The interdependence and other characteristics of real empirical cultural systems are progressively increasing as we pass from the larger systems of science to the narrower sub-sub-sub . . . systems. They are also different in different subsystems of science. The most integrated science is probably mathematics; the least, the social sciences (like political science, history, economics, sociology, psychology, cultural anthropology, etc.). But even these are quite tangibly systems,[14] though with a great admixture of congeries. The above does not mean that all science is necessarily one system. So far as different theories of the same scientific discipline or of different sciences are contradictory or inconsistent, so far they are congeries to one another but not parts of the same system. This must be borne in mind to avoid a grave misunderstanding.

C. *System of Religion.* By this is meant mainly the system of the truth of faith,[15] plus the truth of reason, with an admixture of the truth of the senses which enters the religious system partly as congeries, partly as an organic part of it; so far as the system of science has the elements of the truth of faith and of reason, and religion the elements

[13] As Tarde rightly remarks, as soon as science passes the stage of mere fact collecting and "as soon as it conceives of theories that are able to give to facts the air of mutual confirmation . . . then science becomes, perhaps, the most incapable of extension of all human achievements", that is, the most closed system in its consistency and in its non-admission of the congeries G Tarde, *op cit*, p 179.

[14] Except, perhaps, some elementary textbooks in these sciences which are, in greater part, mere congeries, with bits of information about this, that, and what not and with their chapters united only by the binding of the book (spatial adjacency) and with nothing more But each social science is science, not in its elementary and thoughtless exposition, but in its greatest and highest systems — given by its leaders

[15] On the nature of truth of faith see *Dynamics*, Vol. II, chaps i–iii See further, in this volume, chap. xvi

of the truth of senses and of reason, there is always a bridge between the system of science and that of religion; and insofar they make a co-ordinated system, interdependent upon one another within these common systems of truth and their theories and propositions. Insofar there is a mixed system: *Science-Religion.* A factual study of the interrelationship between Science and Religion demonstrates the existence of this intermediary system and upon this common ground, their mutual interdependence — positive or negative. Again, in any culture area, in the totality of its cultural systems and congeries, this system will always be found. It is again made up of a great number of large subsystems, like the main religious systems of the area: Roman-Catholic, Protestant, Judaistic, Eastern-Christian, and so on, for the Western world, and Hinduist, Buddhist, Jainist, Confucian, Taoist, Shintoist, and so on, for India, China, Japan; and the respective religion of a given primitive tribe of the area. Each of these large subsystems is again composed of several denominations; each denomination of several subordinated subsystems and so on, up to the smallest sub-sub-subsystems represented by a single religious proposition and its externalization.

All that has just been said about the system of science can be said, with slight variation, about the system of religion. The system of religion has been, is, and will be found in the total culture of any area. Man has never been without some sort of belief (truth of faith); he has always transgressed the boundary of the truth of senses, even that of reason, into the realm of the truth of faith. The reason for that is clear: by definition, the truth of senses cannot answer any problem that is "supersensory." It cannot settle by itself even the first principles and categories of the empirical science itself. For that it has to go beyond itself, into the realm of the truth of reason and of faith (see further in this volume, Chapter Sixteen). Still less can it say anything about any supersensory problem, from God up to the "ultimate reality." Hence, man has been and probably will be not only *homo sapiens* but no less *homo credens.* There never has been a culture or a society or even an individual without beliefs (based on truth of faith) and it is doubtful if there ever will be.

Again, some of the systems (or subsystems) of religion are more, some less fully integrated;[16] some contain more, the others less, of the

[16] After establishing the dogma of a given religion, "a moment comes when no new dogma can be introduced which does not partly contradict established dogma," which shows the closely consistent character of well-developed religious system G Tarde, *op cit*, p 176

elements of congeries. But even a totemistic or animistic religion of this or that primitive tribe is far from being a mere incoherent mass of congeries. Most of its beliefs are consistent with one another; and for this reason, with its system of vehicles.[17] Here again we shall drop all the nonsense written about "savages" and primitive peoples as being entirely illogical, irrational, and idiotic creatures. If they and our primitive ancestors were indeed such, the whole human species would long ago have been wiped out of existence. Since the human species is still alive, its ancestors had to have some rationality, some logic, and consistency of thought. A study of the ancient or contemporary primitive religions shows indeed that they had and have those qualities to quite a considerable degree. Here again, as we pass from the vaster system of religion to narrower subsystems, the degree of the integration probably grows and the proportion of the congeries in the system decreases. Exceptions to this rule are probable, but the rule is likely to be true. Again various contradictory beliefs within one religion or contradictory religious systems coexisting in one area are by definition not the parts of one system but congeries in regard to one another. So also are religion and science, when they are contradictory. As any empirical system, religion is objectified in a large set of vehicles (temples, sacred objects, rituals, ceremonies, prayers, etc.) and has its human agents ranging from priests to plain believers.

D. *System of Fine Arts.* This consists of such main subsystems as Painting, Sculpture, Architecture, Music, Literature, and Theater. Each of these is made up in turn of many sub-sub-subsystems. It is objectified in all art-objects, museums, orchestras, theaters, literature, etc., and carried on by its agents: artists, admirers, buyers, and users of art in various forms. It is a system unified probably more loosely than the system of science and religion, nevertheless tangibly. Greater looseness of its integration means that in it we find more variety and congeries than possibly in the previous two systems. In the preceding volumes of *Dynamics*, we have seen, for instance, that in each of the main periods of Ideational and Sensate cultures, the main forms of art are permeated by a similarity of their meanings as well as by that of their style. Painting, sculpture, architecture, music and literature of the Ideational culture are religious in their topics and symbolic in style, while those of the Sensate culture are all secular in their topics (systems

[17] Even if we accept Lévy-Bruhl's theory of the logic of the "loi de participation" of the primitive peoples, they are consistent in the style of this logic. But, to my regret, I can hardly accept the theory of the distinguished sociologist.

of meanings) and visual or Sensate in their style, with all the other characteristics of each type.

If, instead of Ideational-Idealistic-Sensate we use other types, for instance, "Classic-Romantic," "Linear-Malerisch," and others, the main subsystems of the fine art of a given period or culture show again a permeation by the same traits — in their meaning, style, and in their vehicles and agents. Any history of the fine art of a given culture or period shows clearly that "identity or similarity" of the inner and external traits of its main subsystems; in other words, their tangible interdependence and unity. The reasons for that are fairly comprehensible. A system of fine art generally, or of any of its main subsystems, is united or tied together by three different ties: first, by the logical ties of the identity or similarity and consistency of the meanings expressed in the objects of art; second, by the expressive consistency of the style used for their externalization; third, by causal interdependence of various forms of art upon one another. The logical similarity of the topics of painting, sculpture, architecture, literature, music, theater, of a given culture and period follows from the fact that the artists in all these fields of art live in the same culture, are subjected to the same meanings prevalent in it; therefore, they cannot help articulating the same or similar ideas and meanings in their creations. Painters translate these prevalent meanings into the language of line and color; sculptors, into that of three-dimensional creations in stone, or bronze, or wood, or marble; poets and writers, into the language of images expressed in words; and so on. For the same reason, their style has to show a similarity. Finally, so far as painting and sculpture are often united spatially within an architectural building, as "ornamentations," they have to fit one another, so to speak, causally and expressively. A great artist, sculptor, or painter cannot decorate the Parthenon with the sculptured patterns of the Gothic style, or vice versa. Similarly, literature, music, and drama are quite often united spatially with painting, sculpture, and architecture: a great deal of music is performed in special buildings, temples, cathedrals, concert halls; music is often united with certain poetry and literature and religion (hymns, cantatas, secular songs, operas, etc.); theatrical performance, be it secular drama, religious mystery, or religious service, is at once music, literature, painting, and sculpture (decorations, costumes, words, singing, etc.). All these arts function together, in the same spatial and time adjacency, as often as they function separately. For this reason, so far as there is an expressive logic and consistency,

harmony or disharmony, order or disorder in art — and there can be no doubt they exist as much as any logical consistency — the main forms of fine art of the same culture and period cannot help having, to some extent, a tangible unity in their meanings, in their style, and in their causal interdependence.

In brief, the system of fine arts of a given culture and period is a real system, but that does not hinder it from having within this main system and its subordinated subsystems many congeries. Neither does it exclude coexistence of a different (contradictory) form of art, side by side with this main system. Such discordant arts are also congeries to one another. But as mentioned, congeries are present more or less, within practically any cultural system. This system of fine art, like that of science and religion, in a number of ways is co-ordinated and interrelated with the systems of science, religion, ethics, making thus a co-ordinated *"inter-system of arts, science, religion, ethics."* If investigators like Hegel, De Roberty, and many others somewhat exaggerate the interdependence of these four systems,[18] there is no doubt they are quite tangibly interdependent.

In their topics or systems of meanings, fine arts are definitely conditioned by the prevalent character of the systems of science and religion in a given society. Egyptian art — pyramids, temples, obelisks, sculpture, painting, literature, music — is mainly an articulation of the Egyptian religion, science, and ethics; incomprehensible otherwise. Science, religious systems, and ethics of the Greeks were quite different; and quite different is their art. There we do not find in religion as well as in art anything like the Egyptian belief in the hereafter, Egyptian deities like Ammon-Re, Isis, Osiris, Apis, etc.; instead we find the human-like deities of Zeus, Apollo, Athena, Venus, etc., and the same deities we meet in the Greek art. Science, religion and ethics of medieval Christianity were again different. And again medieval art in all its main forms was but "the Bible in stone," or in sounds, or scripture, or painting and sculpture. When we come to science, religion, and ethics of the modern Sensate era, we find again, as it has been shown in Volume One, the fine arts clearly reflecting the science, religious systems, and ethics of that period.[19]

To sum up, the systems of the Fine Arts, of Science, of Religion, of

[18] See several theories in *Dynamics*, Vol I, chaps v, vi, vii, *et passim* For E. De Roberty's theory see my *Contemporary Sociological Theories*, pp 438 ff

[19] Volumes One and Two of *Dynamics* give a systematic factual corroboration of this tangible interdependence

Ethics, existing each as a distinct real system, are at the same time, in the same culture and period, tangibly interconnected with one another, as co-ordinated intersystems. This interdependence concerns only some limited sectors in each of these systems — only those that are indeed bridged together — meaningfully. But within these limits, the sectors of all these four systems are indeed bridged together and make a truly co-ordinated system: *Science-Religion-Arts-Ethics.*

E. *System of Ethics.* By this is meant the system composed by two main subsystems: *Law and Morals,*[20] each made up of many subsystems; there again is hardly any doubt that such a system is a real system.

The vast system of law is composed of several large subsystems such as Constitutional and Administrative Law; Civil Law (with its subsystems of the law of the family, marriage, and domestic relations); law of property, with a large number of subsystems such as equity, torts, corporation finance, business organization, public utilities, law of commerce (contractual law and so on); Criminal Law, and some other subsystems depending upon the character of the system of law of the country or period.

The system of law, with all its subsystems, determines the constitution of the *real social* groups such as the State, the family, the business enterprise; the religious group: the political party, and any other organized social group that exists. It also embraces the so-called *economic system* because the norms of law determine what it is; what is the constitution and organization of business and business relationship; what is the system of commercial and trade relations; what is property; even what is wealth or economic value, and what are lawful ways of making, possessing, using it and disposing of it; what are the economic relationships between the employer and employee, master and slave; and so on. From this standpoint, L. Petrajitsky and R. Stammler were not far from the truth in claiming that law is the form, and economic values are the content or vehicles of this form; the form molds and conditions the modes of production and distribution; of the appropriation, use, possession and disposal of the content: the material wealth.[21]

Similarly it contains the so-called *political* system, because it is

[20] See *Dynamics*, Vol II, chaps xiii, xiv, xv. See also N S Timasheff, *The Sociology of Law* (Cambridge, Mass., 1939)

[21] See L. Petrajitsky, *Lehre von Einkommen* (Leipzig, 1893); R. Stammler, *Wirtschaft und Recht* (5th ed, Leipzig, 1924), J Commons, *Legal Foundations of Capitalism* (New York, 1924).

determined by the norms of *the constitutional and administrative law* from the constitution of the State up to that of the smallest political organization. And so also with the system of the *family* or any other real *social* system. They all are embraced, outlined, specified and delimited by the system of Ethics, that determines — from A to Z — their structures, functions, values; in a word, all their essentials. This has to be stressed in order to avoid a number of errors and misunderstandings.

That the norms of law of any group are not a haphazard pile of heterogeneous norms, without any consistency and central meanings passing through them, does not need any corroboration: anyone who knows something of law and law codes knows that, if not all, then most of the law-norms of the total law of a given culture or society are a consistent logical unity, with certain major premises permeating the detailed norms; and that as soon as any incoherency or contradiction between the norms becomes explicit, those contradictions are eliminated as quickly and to as great an extent as possible. Not incidentally does one talk about the logic of juridical thought, which often is as coherent as any consistency of any logic. The same can be said of the system of Moral Codes (as the totality of the imperative only, but not Imperative-Attributive system of propositions). Be it the code of the Ten Commandments, or that of Jesus' Sermon on the Mount (Matthew, chaps. 5, 6), or the moral code of the Vedas and Upanishads, or that of a given primitive tribe, or that of the ethical systems of Plato, Aristotle, St. Thomas Aquinas, or of Hobbes, Spinoza, J. S. Mill, Kant, and others — they all are, in their greater part, closely knit, consistent systems of meanings. It is true that practically all the law codes and all the systems of morals have an admixture of congeries. But this does not deny the existence of the integrated systems of law and morals for the rest of the juridical and moral norms. If, however, we have two contradictory systems of ethics, they are by definition, congeries, but not parts of the same system.

Finally, it is clear that *Law and Morals of a given culture are also tangibly interrelated, meaningfully and causally.* The theory that law is but the necessary minimum of what is demanded by the code of morals (G. Jellineck and others) may be defective in a number of points, but it stresses rightly the close interdependence of law and morals. The history of moral and legal codes shows clearly that they change together; if the moral norms of a society considerably change, its law changes too; and vice versa. In brief, the system of Ethics

is a real system made up of the two main subsystems of law and morals.[22]

This system is again, in several of its sectors, quite tangibly tied to some of the sectors of language, science, religion, and fine arts. The proposition is almost axiomatic and in this sense platitudinous, so far as the interdependence of law and morals with religion and science is concerned. Any historian of law and morals knows that in the past they have been little differentiated; that the moral and legal norms were at the same time the norms of religion, and were given often as religious taboos or commandments of what is the sacred and profane, the saintly and sinful, and so on.[23] In brief, there is no doubt that in some sectors the systems of ethics and of religion are interconnected meaningfully and causally. The same can be said of the system of ethics in its relationship with that of science. First, so far as the system of science is connected with that of religion, it is indirectly connected with that of ethics. Besides, quite directly the system of science has always been connected, through some sectors, with that of ethics. So far as the norms of ethics pursue utilitarian purposes, and a part of their norms always do so, the decision of what is useful or harmful depends upon the empirical knowledge, that is, upon science, as the empirical system of knowledge. So far as the norms of ethics for their most efficient realization have to deal with an enormous number of purely empirical phenomena and their biological and physical characteristics — man, property, action, motives, and so on — they are again conditioned by the existing empirical knowledge of these phenomena, beginning with such empirical situations as "self-defence"

[22] Practically, law and morals embrace almost all the norms of conduct which often are loosely covered by the terms of mores, custom and the like. They embrace all the imperative-attributive (law) and purely imperative norms (moral). And most of the norms of the mores and custom and rules of propriety, good manners, even etiquette, are either two-sided norms imperative-attributive, or one-sided, purely imperative. Outside of law and morals there remain only purely technical provisions devoid of either the imperative-attributive or purely imperative character. See the unsurpassed and hardly rivaled analysis of law and morals and their interrelations and their "meaningful and causal" interdependence in L. Petrajitsky's *Introduction to the Theory of Law and Ethics* (in Russ., St. Petersburg, 1907), and his *Theory of Law and Morals* (2 vols; in Russ., St. Petersburg, 1909). See also N. S. Timasheff, *An Introduction to the Sociology of Law* (Cambridge, 1939).

[23] The interdependence of religion and the juridical and moral norms has been so close that some of the investigators of religion, like E. Durkheim, almost identify them. His "sacred and profane," as the special characteristic of religion, makes it almost impossible to differentiate it from law and morals, his religious norms from juridical and moral norms.

or properties of a child or the insane, up to the Bertillon system and "scientific crime detection."

Finally, in several respects the system of ethics is connected with that of the fine arts. First, indirectly, so far as both are related to the systems of science and religion. Second, directly, through ethical-moral and legal norms that regulate directly the fine art phenomena, as the objects of property and possession, as permissible and impermissible, decent and indecent, prohibited and recommended, demoralizing and moralizing. The Just and Beautiful have always been inseparable to a great extent in many ways.

Ethical systems have many vehicles and agents, from judges, moral educators, policemen, up to the plain citizen; from electric chairs, prisons, court buildings, up to the Sunday-schools, reformatories, Y.M.C.A.'s, even to the prizes and badges for moral heroes; from court ritual and detective-police activities up to the actions of crime or supreme altruism.

These five main systems (essentially different from one another) exhaust the main fundamental cultural systems of any culture area.[24] They embrace all the main categories of meaning and value: Truth, Beauty, Goodness or Justice, meaning by it all the practical values whatsoever, from the supreme *summum bonum* to the economic and utilitarian values

F. *Mixed, Composite, and Derivative Cultural Systems.* There is no doubt that besides these systems there exist a large number of other systems. But all these are either composites or derivatives from the above five, being combinations of their subsystems We have seen a number of *composite double systems* like Science-Religion, Science-Art, Religion-Law, Religion-Art, mentioned above; a number of *composite triple systems* like Science-Religion-Art; Religion-Art-Ethics; Science-Art-Ethics (made by the "bridged" parts of the systems); and so on. It is clear that there is a large number of small and huge composite systems and subsystems of that kind made by

[24] From this standpoint E De Roberty's classification of the main forms of social thought is practically one of the best offered in the social sciences Viewing the pure sociocultural phenomenon as a form of social thought (in contradistinction to the mixed cosmo-bio-social phenomena) he classifies them into four fundamental forms analytical or scientific thought (system of science); synthetic thought (system of religion and philosophy); symbolic or aesthetic thought (system of the fine arts); and practical or applied thought (system of law, morals, and any practical application of the scientific-religious-aesthetic thought to the practical needs of man and society) Each of these forms of thought is irreducible to the others See my *Contemporary Sociological Theories*, cited, pp 448 ff

the meaningful and causal unification of the parts of each of these five systems (and also a still greater number of the congeries of these five systems).

Side by side with the composite systems, there is a large number of other derivative systems not mentioned specifically before. Such are, for instance, the *philosophical, economic* or *political systems* of a given society, to mention but the main ones.

(1) *System of Philosophy.* Some philosophers regard philosophy as a subsystem of science (in which case it enters the system of science), while others view it as a subsystem of religion, and some others as a subsystem of ethics (in which case it is a part of these systems). Factually, however, most of the philosophical systems have not been purely scientific, purely religious, or purely ethical but a peculiar combination of all these systems Dealing with the "first principles" and categories of human knowledge, philosophical systems have always been a consistent or inconsistent (eclectic) combination of all three systems of truth of the senses, of reason, and of faith (in its ultimate postulates or assumptions); in addition, so far as the theory of art or aesthetic phenomena has always been a traditional part of practically all complete philosophical systems, side by side with ontology or metaphysics, epistemology, logic, and ethics, philosophy has been far from being identical with any of the above four systems.

Philosophy has been a derivative cultural system, *sui-generis*. Some of the philosophies are eclectic and inconsistent, and therefore represent congeries rather than a system. Others, the great philosophies, like the Platonic or Aristotelian, Plotinian or Thomist, Kantian or Hegelian, Hobbesian or Cartesian, Comtian or Spencerian, Hume's or Leibnitz's, have been, in their greater part, well-integrated systems, reaching the rigor of consistency of the best scientific theories. These individual systems of philosophy (composed of many subsystems) function, in their turn, as subsystems of larger systems of philosophical thought, such as Idealism-Materialism in metaphysics; as Empiricism, Rationalism, Mysticism, Fideism, Scepticism, Agnosticism, or Criticism in epistemology; as Absolutistic and Relativistic systems of ethics. These larger systems make the system of philosophy of a given culture. This system may be a real subordinated system, embracing the majority of other subsystems, when a certain kind of philosophy is monopolistic or dominant in a given culture, as, for instance, Idealistic philosophy was in the Middle Ages. It may be a co-ordinated, half-real system, when in a given area several different

philosophies exist side by side, none being monopolistic or explicitly dominant. Such a total philosophy of a given society or area represents an eclectic coexistence of these various philosophies standing in the relation to one another of congeries, to a considerable degree. But even there, in spite of the differences, the philosophers of different schools of philosophy of the same culture and period have several common traits: common philosophical interest in certain problems of the period; common philosophical language; common assumptions. They talk different things, and yet speak in the same idioms and terms, and with the same manner of thinking. Therefore, even such a coexistence of different systems of philosophy is not entirely congeries. It is, to an extent, also a system, with logical and causal interdependence of various schools upon one another, to a tangible degree.

As mentioned, philosophy is associated with language, science, religion, arts, and ethics by several ties. Therefore there are, in the total culture, composite subsystems: *Philosophy-Science, Philosophy-Religion, Philosophy-Arts, Philosophy-Ethics, Language-Philosophy (logic)*: which fact manifests itself, among other things, in the titles of many philosophical works such as: "Philosophy of Science" (or Scientific Philosophy); "Philosophy of Religion" (or Religious Philosophy); "Philosophy of Art" (or Aesthetic Philosophy); "Philosophy of Ethics and Law" (or Ethico-Juridical Philosophy); "Logical Syntax of Language" (Philosophy or Logic of Language). Side by side with these "double systems" there are triple, quadruple composite systems made up of the combination of philosophy with two or three of these systems.

(2) *Economic System.* As mentioned, this system is derivative and composite. As a system of norms that determine the whole structure of economic inter-relationships from A to Z, it is a subsystem in the system of law and morals. The law norms determine all the property relationships, all the economic, contractual relationships, the whole system of production and distribution; in brief, the whole economic system down to its last details. Even unlawful economic relationships are unlawful because they are made such by the norms of law. On the other hand, the economic system is not only the pure system of norms pertaining to all economic relationships, but also a system of economic vehicles which by itself acquires a peculiar importance as the totality of the material values. As a pure system of economic relationship, the economic system may be the same in both *a poor and a rich society.* The system of norms of, say, "property"

may be the same in a society where the typical wealth (and economic standard of living) is $5,000 per person, and in one where it is $50 per person. The difference in the accessible vehicles is great and important. In this "vehicle-aspect," the economic system is conditioned by the science-system in its especially applied aspect, by the religious-system, by the art-system. Science conditions it because its applied empirical knowledge (inventions, technology) is one of the most important factors of wealth creation. Religion can either hinder the efforts of increasing wealth, as medieval Christianity did, or facilitate it, as the diluted Christianity and other religions of the last few centuries have done.[25] Even an art-system is relevant in this aspect. It may facilitate "conspicuous waste" for costly and magnificent art creations, as it did in the times of "the Golden Emperor," Amenhotep III in Egypt, Solomon in Palestine, Nebuchadnezzar in Babylon, Pericles in Athens, Justinian in Byzantium, Louis XIV in France, and in this way contribute to the economic ruin.[26] On the other hand it may contribute to a more energetic creation of wealth through a stimulation towards "more beautiful culture and life." It may exert its influence in dozens of other ways.

To sum up, the economic system understood in both its meaningful and material aspects is a derivative and composite system, containing in itself some elements of science, religion, art, and especially of ethics (laws and morals). It contains a certain portion of congeries; nevertheless, to a considerable degree, it is often a real system in its meaningful, and through that, in its causal aspects. As such, in its turn it influences science, religion, art, ethics. One need not be a Marxian to be convinced of that influence.

(3) The situation of the *Political System* is similar. As a system of meanings, any political system (or congeries) is a derivative from the ethical system, which determines it through constitutional and administrative law from beginning to end. In its system of vehicles, it is conditioned by science, religion, and even art, whose elements it incorporates, beginning with the leading principles of the constitution of the body politic and the forms of the government, to its technique of propaganda, warfare, and other functions. Scien-

[25] See Max Weber *Gesammelte Aufsätze zur Religionssoziologie*, 3 vols. (Tubingen, 1922–23), and other works analyzed in my *Contemporary Sociological Theories* (cited), chap. XII.

[26] Compare J. Baikie, *A History of Egypt* (New York, 1929), Vol II. pp 172–173; C J. Bullock, *Politics, Finance and Consequences* (Harvard University Press, 1939), chaps. i, ii, *et passim*.

tific, religious, aesthetic elements enter it invariably in a multitude of various combinations. As such, it always is a certain mixture of the elements of the above five systems.

(4) *Other Derivative Cultural Systems.* It is reasonably certain that almost all of the numerous cultural systems and subsystems in one way or another either enter one of the above five cultural systems, or represent a combination of their subsystems. Indeed, all the systems dealing with all the three systems of truth, from a broad philosophical or religious *Weltanschauung*, up to the single judgment, are embraced by science, or religion, or ethics, or art. All the norms of the right and wrong, sacred and profane, good and bad, useful and harmful, recommended and prohibited, approving and disapproving, praising and blaming, and so on — all such norms, including the technical and technological norms, enter the system of ethics or the applied parts of the system of science, or religion, or art Finally, all the aesthetic phenomena and systems of meanings enter the system of art. Outside of these five fundamental systems, there remains hardly any important system different from them or not made out of a combination of the elements of these "big five"

Most of the systems that exist in a sense outside of these five systems are mainly the *composite systems* made out of combinations of some of their elements. Such are the aforementioned Science-Religion, Science-Religion-Art, Religion-Ethics, Science-Ethics, Philosophy-Science, Language-Art (literature) systems; and so on. There are many mixed double systems made up of a combination of two of the elements of the big five. There are mixed triple systems, quadruple and quintuple; theoretically, countless combinations are possible of these five main systems and subsystems Being derivative and composite, they need not be enumerated here

IV. Interrelationship of Cultural and Social Systems

It is probable that some readers will think that the above list of the main cultural systems is too short and leaves unmentioned many seemingly real systems, such as the Family, the State, the Church, the Business Corporation, the School, and several others. Such an omission, however, is not accidental, on my part. There is no doubt that the State, or the family, or a political party, or university, or business concern, and many others, are real systems, but they are *social, not cultural systems.* They are real organized social groups, of a certain kind, but not specific cultural systems different from the

above main and derivative cultural systems (and congeries). The total culture of any family, State, political party, or business concern is represented by the totality of its linguistic, scientific, religious, aesthetic, ethical and juridical values and meanings, that in some form and combination are in the possession of the group, as their living agent and vehicle; but the group itself does not add any new important system of culture to those systems and "congeries." So far as its specific *cultural* character is concerned, its cultural individuality is molded by the cultural values it incorporates. So far as its specific *social organization* is concerned (for instance, the structure and organization of the family in contrast to that of the State or the Labor Union), *the norms* of the organization, the constitution of the group, form but one of the subsystems of the linguistic, ethical, juridical, religious, scientific, and aesthetic norms and values. As such, it enters into the above five and their derivative cultural systems. The constitution of the State is but one of the subsystems of the system of law and ethics given by the Constitutional Law, while the given type of the Family is defined by the Civil Law. So is the constitution of each organized social group, no matter whether it be a business concern, labor union, political party, certain association, as army, prison, school, or what not. These remarks explain the reasons for the omission. Viewed as *social systems* differentiated from other social systems and nominal groups, such groups are real systems and can be classified in a limited number of the main *social* groups, such as the family, the territorial community, the language group (often mixed with nationality), the occupational group, the State, Church organizations, political party, scientific or artistic or ethical associations and societies, and so on; and then in a series of the "cumulative" social systems of a great number and variety.[27]

Viewed in their aspect of stratification, each of these groups and all together give us the "upper and the lower layers" as subsystems of social systems (the governors and the governed, the rich and poor, the privileged and disinherited); but these strata are again the subsystems of social — not cultural — systems.[28] Culturally, however, none of these real groups makes a system of culture different from the above cultural systems. *The group (or social system) is a bearer or agent of all the above cultural systems (or congeries) which it com-*

[27] See my *Sistema sotsiologii* (St Petersburg, 1921), Vol II, *passim*, where a systematic classification of the main social systems is given

[28] See my *Social Mobility* (New York, 1927), *passim*.

bines in some way — partly logical, partly eclectic; but by itself it does not create or make any new cultural system. When we talk of the culture of the family, we mean a certain kind and amount of scientific knowledge it has; its language, its religious beliefs, its artistic values, its ethical and juridical norms, and especially the norms that constitute the family in contradistinction from other groups, like the church, or school, or political party. A given combination of these cultural systems and cultural congeries establishes the culture of the family as a social system. But the family itself does not add any new cultural system to these. It is but a specifically organized bearer of culture. The culture of a given State or an occupational group consists again of a combination of the above main (and derivative from them) systems and congeries; the State or labor union is the bearer of such a combination, but does not itself make any new cultural system different from the surveyed ones. Even as a bearer of culture, its specific characteristics distinguishing it from other groups are determined by the above cultural systems, particularly by the ethico-juridical system that provides the constitution of the State or of the labor union or of any real social system.

Such being the situation, the social systems, as bearers of certain culture, differ from one another in their types. There are the social systems, like a religious group (the Protestant, the Catholic, the Buddhist, etc.), or art-society or business corporation which is a bearer of *predominantly one* primary or derivative system of culture, in this case religious, or aesthetic or economic, respectively. And there are social systems, like the family or the totalitarian State, that *bear several or all of the main systems of culture:* linguistic, scientific, religious, ethico-juridical, and aesthetic, with many derivative and composite subsystems and congeries (economic, political, philosophical, etc.). The first type of social systems is more closely associated with a certain type of cultural system than is the second, which articulates several or all cultural systems. The first type of the social systems can be styled as *bearers of the specified kind of cultural* values (religious, artistic, scientific, or economic, and so on), while the second type is the bearer of an *encyclopedia of cultural systems and values.* The family, the State (especially of totalitarian type), the nonspecialized school (college, university) are examples of social groups of this type.[29]

[29] F. Tönnies' "Gesellschaft" is nearer to the first type; his "Gemeinschaft," to the second. However, due to his mixture of cultural and social systems, these types do not coincide entirely with our two types — specialized and encyclopedic — of the social systems.

Then internally these types of social systems differ from one another by the specific characteristics and functions they perform according to the nature of their constitution, delineated in cultural systems of law and morals. This shows that *the classes of the social systems and cultural systems are not identical and not the same.* They proceed along different lines. Cultural systems are, first of all and most of all, the systems of meanings externalized in a great many different vehicles, and agents, individuals and groups. Social systems are first of all the systems of interacting and interdependent human beings, bearing and realizing the cultural systems and congeries of meanings. A given social system may specialize in externalization of a specified kind of cultural system and congeries. Another may do it in regard to several cultural systems and congeries. In both cases its unity and individuality as a social system is due to the meaningful-causal interdependence of its parts, and to various other characteristics of a real system which it has. As has been pointed out, the causal dependence in social systems is also the result of the meaningful nature of the system determined by its organization and constitution (the State, the family, etc.), which are conditioned and determined by the ethico-juridical cultural system. This constitution determines what cultural values it bears, externalizes, and realizes; in which way, through what functions, in what form of organization, and so on. From this meaningful determination follows its causal unity; and from both develops the real character of the social system.

But all this does not make it necessary for any social system to be a bearer of only one kind of cultural values and systems. Just as stores may be specialized shoe or liquor stores, or encyclopedic department stores, both remaining social systems, so also social systems generally can be real systems when they bear mainly one kind of cultural values and when they do it in regard to different cultural systems. Even an individual, as has been shown above, is a bearer or agent not of one but of many and different cultural systems: he is the agent of scientific, religious, artistic, ethical, and other derivative systems and congeries. This does not prevent him from being — psychologically, socially, and biologically — a real unity, though culturally he is often a culture area of many systems and congeries. The same is still truer of the social systems.[30]

[30] This means that the prevalent attempts to form a classification of sociocultural systems which is simultaneously social and cultural — and such are almost all the existing classifications — which assumes that cultural and social systems are identical and

As we are dealing here mainly with cultural systems and congeries, the above is sufficient to clarify the relationship between cultural and social systems and to explain why social systems are not included in the above enumeration of the main cultural systems.

V. Quest for a Further Unification of Cultural Systems into Still Vaster Supersystems. The Place of Ideational, Idealistic, and Sensate Supersystems of Culture among the Supersystems Offered

Having the main cultural systems at our disposal, we can ask now a further question: Is each of these main cultural systems so vast that it cannot be a subsystem for any still more embracing supersystem; or is there a still vaster supersystem for which several or all of the above five big and derivative systems are but subsystems? If such a supersystem exists, what is it? And if it does, is not its existence an evidence that the total — or almost the total — culture of an area is integrated into one vast supersystem? If so, is not such a supersystem a corroboration of the theories of "the totalitarian integrators" rejected above?

If we consider the main answers to these questions, they fall readily into three main groups. *The first group explicitly or implicitly assumes that the total sum of the cultural phenomena are all integrated into one supersystem or organism: the totalitarian integrators and all those who claim that the whole culture is one organism, that lives and functions and changes together, are representatives of this class.* The second theory does not go so far, but claims nevertheless that *all the main systems and congeries of culture fall into two main supersystems: Material and Nonmaterial; Technological and Ideological; Civilizational and Cultural properly. They can be styled "dicho-*

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coincide, never has been successful and fruitful, and has always created mainly fictitious but not real classes of systems If, in regard to specialized social systems, there is some correspondence between the nature of the social system and that of the cultural values it bears and realizes (religious group as a bearer of mainly religious systems of cultural values; business enterprise as a bearer of economic cultural values, etc), in regard to such social systems as the family or the totalitarian state, or the school and university, there is no one specific cultural system they are associated with; they bear and realize all kinds of cultural values As a result, such classifications cut across many real social and cultural systems and unite into one fictitious system that in fact comprises parts of different cultural and social systems A survey of the existing classifications of that type exhibits an overabundance of social and cultural monsters that do not exist, as real systems, in either a cultural or social world. See such a survey and criticism in my *Sistema sociologii* (cited), Vol. II, chap ii.

tomic" theories of cultural supersystems. Each of these two supersystems is evidently vaster than any of our named big systems, since the two systems embrace practically all the cultural systems and congeries. Then, third, there are *theories that divide the whole culture either into four main systems, or five, or more, and add that indirectly all these systems somehow are connected with one another.* Eventually we shall meet samples of all these theories.

For the present, let us see in which way the partisans of "the totalitarian integration" of culture account for an integration of a total culture of any area into one supersystem. One of the *typical procedures of the totalitarian integrators is finding some central "axis" A (factor, variable, principle) on which all the cultural phenomena: a, b, c, d . . . z are dependent and by which they all are conditioned. Such a dependence upon one and the same axis of all the cultural phenomena makes all of them interdependent and bound together into one system.* Such is the method of demonstration of the total integration of culture into one system used by 99 per cent of the theories of this type.

When they come to an indication of the central axis A on and through which, so to speak, all the cultural phenomena are hanging together, they fall into two main groups: a part of the theories finds the axis A in a factor that is outside of culture itself, being either a cosmic-geographic factor or biological factor of some sort; another part of the theories finds the axis in one of the cultural factors, be it economic, or religious, or some other. The following scheme gives a fairly complete classification of all the main varieties of the theories of a totalitarian integration of culture according to the nature of the axis indicated by each theory.

Theories of Complete Integration of Culture into One System through the Central Axis

I. *Axis is a factor outside of culture:*[31]
   (A) Geographic-Cosmic (Most of the Geographic theories)
   (B) Biological (demographic factors, race and heredity, law of struggle for existence, etc.) (Most of the Biological theories)

[31] See all these theories in my *Contemporary Sociological Theories.* There are also theories that try to integrate the whole, or almost whole, culture through two, three or more factors For instance, N Sims takes· interaction and organization and ideational factors (thoughts, norms, law, art, beliefs, etc) as the three factors of integration. *The Problems of Social Change* (New York, 1939), pp 236 ff The hopelessness of such a procedure must be evident Already his three factors are incommensurable

II. *Axis is one of the factors or systems of culture itself:*

(A) Economic (Marxianism and other theories)
(B) Technological (Marxianism, T. Veblen, and others)
(C) Religious (F. de Coulanges, A. Comte, G. F. Hegel, partly M. Weber and others)
(D) Forms of the Family (LePlay and his school)
(E) Mores (W. G. Sumner and others)
(F) Science (De Roberty and others)
(G) Almost all of the cultural factors or systems mentioned have been offered as a unifying magnet or axis.

It is unnecessary to analyze and criticize these theories here. That has been done by me elsewhere.[32] It is enough to say that none of these theories has succeeded in showing that their axis-factor *tangibly* conditions all cultural phenomena: since it does not do that, it does not unite with itself by dependence all the cultural phenomena; not uniting them with itself, it does not unite them with one another into one real system.

We are reasonably certain that a vast region of cultural phenomena is not tangibly conditioned either by cosmic-geographic factors, or by biological factors, or by any specific cultural factor-axis, whether it be economic, religious, technological, or any other. All the numerous attempts to view a whole culture as a mere function or dependent-

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congeries which do not and cannot give integration but only three classes of phenomena, each on a different level Second, his "organization" — if it means anything — is another term for integration In that case, we have a tautological proposition "Integration (organization) is a factor of integration." In the third place, there may be and are two or more "organizations" and "ideational systems" which are congeries to one another In the fourth place, "interaction" (for instance, of the German and French armies at the front) does not always lead to, and is not always a factor of, integration So also an interaction of Communist and Capitalist ideologies, Catholic and Atheist beliefs, and so on.

Finally, to make the statement that ideational factors are the factors of the same ideational phenomena is again an unadulterated tautology. In brief, the whole theory is untenable and is a congeries of "interaction," "organization," and "ideational values" devoid of any meaningful integration. It is not surprising therefore that throughout the work Sims contradicts himself and vacillates between the claims: "total culture is integrated" and "it is not closely and wholly integrated"; between the theory of meaningless equilibrium and perennial disequilibrium of a culture, using the terms equilibrium, harmony, adaptation, static, dynamic and others in the vaguest sense, typical of a vague thought and weak logic.

The same, with a proper modification, can be said of most of this kind of theories. See following pages of this chapter, and especially my forthcoming *Sociocultural Causality, Space, Time*

[32] See *Contemporary Sociological Theories, passim.*

variable of this or that single factor have invariably failed.[33] This claim failing, the theories fail also.

The second way in which the totalitarian integralists demonstrate the totalitarian interdependence of the total culture is, so to speak, in a structural way. It consists in the statement that the same man or the same group bears the total culture of a given area. Since the man himself or a group of interacting men as a group are obviously interdependent systems, through this structural identity of the agency the whole culture they bear has to be one interdependent system. The argument is obviously false. We have seen above in this chapter that practically every man is a bearer of not one system of culture but of many systems and congeries, and some of these systems are in the relationship of congeries to one another. Still truer is this in regard to a group of interacting individuals or groups. The structural identity of the bearer in no way guarantees the meaningful-causal interdependence of all that he bears. If I bear, say, the Idealistic system of philosophy (A), the Republican party system (B), wear brown shoes (C), and prefer a good wine to beer (D), it does not follow that all these cultural systems and congeries are united with one another meaningfully or causally: that each time, in any individual who adheres to the Idealistic system of philosophy (A) we shall find him wearing brown shoes (C), being a member of the Republican party (B), and preferring good wine to beer (D). In causal relationship, when A is given, B, C, or D is given; when A is changing, B, C, or D is changing. Nothing of the sort is found in actual reality. There are plenty of Republicans who wear black or yellow shoes; who do not drink any alcoholic beverage, or prefer whiskey or beer to wine; who are materialists in philosophy, and so on, in the most diverse combination of these A, B, C, D, and of hundreds of other cultural traits. Since these A, B, C, D, are neither invariably given together, nor change together in the same or different individuals, they evidently are mere congeries, and not the elements of the causal relationships. Still less do they require one another logically or meaningfully. These considerations are sufficient to show all the emptiness of the argument.[34]

[33] See the criticism and evidence, *ibid passim* In the preceding volumes of *Dynamics* we have seen that most of the cultural phenomena change fairly independently of the fluctuation of economic prosperity, and a large number of them independently of one another.

[34] The above argument of Sims is exactly of this kind, only poorly formulated.

The third typical procedure of the totalitarian integralists to validate their claim consists in the statement that all cultural phenomena are interdependent, as functions of the same organism, of the same unified system.

Such a statement sounds convincing and is used nowadays all the time by philosophers, anthropologists, sociologists, historians. However, when we ask what it really means, we rarely get any satisfactory answer and the answer given simply mixes spatial or time adjacency (congeries) with causal or meaningful relations, as has been shown in Volume One, Chapter One, and above in this chapter. Otherwise, the argument puts the cart before the horse. It assumes what has to be proved, namely, that all cultural phenomena are causally or meaningfully interdependent, and, assuming that, proceeds to claim that the whole culture is an organism, one unified system. Assuming this, it turns back and claims that all cultural phenomena are interdependent, therefore they create one system. In other words the argument is but the old *petitio principii.* As such, it amounts to nothing. The absurdity of the claim is evident from the following reasoning. If the statement is taken at its face value, it would mean that whatever two or more cultural phenomena (adjacent in time or space) we take, they are surely causally connected, because all cultural phenomena are causally interdependent. Such a situation means that social science has reached such a height that there is no longer any need to study whether A and B are causally connected. We are told they are. There is no need to look for noncausal or incidental relationships between cultural phenomena found in any area: they merely do not exist, because all cultural phenomena are interdependent. There is no need of any painful experimental, statistical or other determination of the existence or nonexistence of causal relationships or uniformities between any adjacent cultural phenomena. We are assured they all are tied together into one interdependent system. Therefore, whatever happens: the victory of A in a bridge contest, a sermon of Pope Pius XII, the birth of quintuplets in village M, a bullish trend in the stock market, epidemics of influenza, the ending of war in Spain, and millions of other phenomena and processes which seem to be little connected with one another, all are certainly connected; we are assured of this by our "totalitarian interdependence" theories. These half-humorous remarks are sufficient to show all their emptiness and absurdity. If the theory were true, tomorrow all the research institutions in the field of the cultural phenomena, all the

studies and researches concerning relationships between cultural phenomena — statistical, experimental, observational, and what not — all must be liquidated. Since all the cultural phenomena are interdependent, these researches and studies are a mere waste of time: they try to discover what has already been discovered, once and for all, by the universal formula of a universal interdependence of all the cultural phenomena upon one another.

If the partisans of such theories would say that they do not assume the interdependence is the same among all the cultural phenomena — that some of them are united more closely, and are more interdependent, while others are more loosely tied together — such a retreat from the above formulation would be practically an abandonment of the contention of universal interdependence of all the cultural phenomena. In that case we may say: It is probable that in this world everything is connected with everything; *"Tout se lie, tout s'enchaîne dans ce monde."* And yet, to repeat Cournot's brilliant remark, "Nobody would seriously think that by stamping on the ground with one's foot, one can derange the navigators of the other hemisphere from their course or shake the system of Jupiter's satellites." [35] If the wholesale interdependentists mean by interdependence just this intangible interdependence, we style it a lack of interdependence. If they mean by it something of the tangible causal relationship, they cannot apply it unceremoniously to all cultural phenomena, and can do it only to those between which it is tangibly observed and demonstrated. In that case, they cannot state loosely that all cultural phenomena are interdependent.

These considerations are sufficient to demonstrate the false pretenses of the "totalitarian integralists" as argued by the thesis of universal interdependence of cultural phenomena. The thesis is either a mere *petitio principii,* a factual and logical absurdity, or self-contradiction. Either it says what it does not mean or it means what it does not say. Or if it means what it says, it is self-contradictory nonsense.

Thus examining the argumentation and evidence of the theories of a complete integration of culture into one system, we see they cannot hold water — an additional reason for the rejection, as before, of such theories.

Slightly modified, the above reasoning applies equally to the *theories of sociocultural atomists.* If they were right, this would mean that in the sociocultural world there is no such thing as the causal or mean-

[35] See a continuation of the quotation in *Dynamics,* Vol. III, pp 5–6.

ingful or meaningful-causal relationship or uniformities, because all sociocultural phenomena are mere congeries. We shall abandon any search for causal or meaningful relationship and respective uniformities and quietly content ourselves with the sociocultural chaos of absolute casualness, contingency, and fancifulness of the world of congeries. Besides many anthropologists, Hollywood news-reel makers, and others, such an atomistic and anti-uniformistic attitude is assumed implicitly by many a historian. Explicitly a number of them in recent time have voiced it.[36] Herbert Fisher's statement is typical in this respect.

> Men wiser and more learned than I have discovered in history a plot, a rhythm, a predetermined pattern These harmonies are concealed from me. I can see only one emergency following upon another as wave follows upon wave, only one great fact in respect to which, since it is unique, there can be no generalizations; only one safe rule for the historian: that he should recognize in the development of human destinies the play of the contingent and the unforeseen.[37]

Another example is given by Sir Charles Oman. He tells us:

> To my mind, history is not so much a record of Progress, or Evolution, but a series of happenings of various tendency. And so far is it from being an impersonal, logical process that there is more truth in the much-decried theory of Thomas Carlyle . . . that it has been largely affected by the working of individual men of mark on their contemporaries. Personalities like Alexander the Great, Augustus Caesar, Mohammed, Charlemagne, Bona-

[36] "In recent time" because historians, especially of the seventeenth and eighteenth centuries, suffered from the opposite weakness of viewing the process of history along the line of the total integralists as a rationalistic unfolding of a definite principle and as a process displaying a series of quite comprehensible uniformities and laws, the process devoid of anything incidental, casual, unforeseen, and contingent They treated the whole of mankind as a unity Bossuet's famous *Discours sur l'histoire universelle*, Voltaire's *Essai sur les Mœurs*, Montesquieux's *The Spirit of Laws* are samples of such a history. In the nineteenth and twentieth centuries this fashion has been superseded by the *Historismus*, in the sense "of a substitution of individualizing viewpoint for a generalizing one" F. Meinecke, *Die Entstehung des Historismus* (München-Berlin, 1936), Vol. I, p 2 See there the detailed treatment of the problem and of the history of the shift. See also G P. Gooch, "Some Conceptions of History," *The Sociological Review* (July, 1939), A. Nevins, *The Gateway to History* (New York, 1938), chap. ii. The change manifested itself in the growing denial by the modern historians of uniformities and laws in historical process. This, in our terms, means an atomistic conception of history as a time-space sequence of contingent and casual congeries.

[37] H. Fisher. *History of Europe* (London, 1935), Vol I, Preface, p. vii See also G. v. Below: *Soziologie als Lehrfach* (Munchen, 1920); A. D. Xénopol, *La theorie de l'histoire* (Paris, 1908).

parte, or even Lenin, were not mere typical developments of their generation, but men who turned the course of history from its normal channel because they were abnormal. Who can dare to say that if Alexander or Mohammed had not existed some other Macedonian King or Arabian prophet would have upset the world? . . . In short, let us never talk of the world-stream, or of inevitability, but reflect that the human record is illogical, often cataclysmic.[38]

Postulating that "history never repeats itself," and that any historical or sociocultural process is unique in time and space, they contend that since there is no repetition, no uniformity can be assumed in the unique processes. Therefore a search for uniformities is unwarranted, and no sociology as a science of sociocultural uniformities is possible.

There is no doubt that there is much that is contingent, unforeseen, cataclysmic, and illogical in sociocultural processes. I have stressed that many times.[39] The very fact that the total culture of any area represents a coexistence of systems and congeries, means that its structure and change contain an irrational, nonlogical, contingent aspect. Nevertheless, in its extreme form, the atomistic and cataclysmic position is certainly untenable factually and logically. Factually it is untenable because there are in any culture area cultural systems often united with one another by subordination and co-ordination. By definition and by fact, a cultural system is a consistent unity; therefore it is logical and rational in its system of meanings and manifestations. Therefore not the whole culture in its structure and change is something irrational, casual, contingent, and cataclysmic. Logically, as has been shown before, and I dare say shown irrefutably,[40] no consistent atomistic unicist standpoint is possible and indeed never has been carried through by any historian or other partisan of such a standpoint. Its logical impossibility is unconquerable. Since these reasons were given in an irrefutable form in Volume One, there is no need to repeat them here. Logically, any sociocultural process is unique, in certain aspects, and is recurrent — in time or in space or in both — in certain other aspects. We cannot think of it as absolutely unique, still less describe it as such, and still less convey such ideas to

[38] Sir Charles Oman, *On the Writing of History* (New York, 1939).

[39] See especially P Sorokin and C. Berger, *Time Budgets of Human Behavior* (Harvard University Press, 1939), chaps. xiii, xiv

[40] See *Dynamics*, Vol I, pp 167 ff Critics and writers seem to have paid little attention to my criticism of this negativist or unicist standpoint. Meanwhile it deserves such an attention; the reasons given are hardly refutable.

others. It is as much a logical absurdity as steel wood or black whiteness.

If we have to think of it as relatively unique, and, at the same time, as relatively recurrent, this means that with the recurrence given, some uniformity is given; since uniformity is given, the chance of grasping it is also given. Therefore a ground for a science of sociocultural uniformities exists, and with it the possibility of such a science. So much for this logical reason.

Another logical reason against the "Atomistic anti-uniformist" standpoint is less important theoretically, but practically deserves mentioning. It is this: if the standpoint of the "sceptical atomistic anti-uniformists" were valid, it would amount to a denial of any possibility of a real and serious understanding of sociocultural and historical phenomena. It would reduce history itself and all the other social sciences to a mere enumeration and description of incidentally taken bits and fragments of persons, actions, happenings, events, which would be similar to a mere news-reel history. It might be as entertaining as fiction; it might be boring, as most of such "serial narratives of historians are." But it would give as little or less knowledge and understanding of the hows and whys of these and many other happenings than one gets from the "movie-news" in regard to their whys, hows, and the total configurations of which they are infinitesimal parts. Such a science would be a mere parody on science. Fortunately, in spite of the formal declaration of a unicist and anti-uniformist atomistic standpoint, no real historian has been able to carry it through, especially none of the great historians, from Thucydides to Mommsen. As a matter of fact, they all indulged liberally in "causal" and other interpretations of the how and why of the events narrated; quite abundantly formulated broad, and often much too broad and wild, generalizations on uniformities, and invariably selected and dealt with the change of systems, sometimes fictitious, sometimes real, like the State, the Church, Army, Art, Science, Civilization, Law, Economic institutions, and the like. For the reasons indicated in Volume One, none of the thinking historians can do otherwise. This demonstrates further the fallacy of the atomists and anti-uniformists.[41]

[41] It is amusing to note that the explicit "atomistic anti-uniformists," after their vigorous denial of any uniformity (and system) in history, a few lines or pages farther on sharply contradict themselves by proclaiming this or that uniformity — often a doubtful one; and this or that system as different from congeries. For instance, H. Fisher, quoted, after his vigorous rejection of all uniformities, immediately proclaims the law and uniformity of progress in human history. "The fact of progress is written plain and large

Such atomists in their reaction against the rationalistic totalitarian integralism, with its sweeping universal pseudo generalizations, have gone to the opposite extreme, beyond the legitimate limit of their justifiable criticism of the pseudo uniformities of the integralists. This means that in the sociocultural reality there is the meaningfully-causal, and therefore there are some limited and approximate uniformities, given mainly where we deal with the sociocultural systems; and there is the contingent, the unforeseen, the chaotic, and casual, given mainly in the field of the change of congeries of single traits as well as of systems. In their change Oman's "cataclysmic" plays, indeed, an enormous role. Both extreme positions of the totalitarian integralists and totalitarian atomists and anti-uniformists are fallacious, logically and factually.

Dichotomic Theories. More valid and consistent are the *dichotomic theories*. They claim that all or almost all the cultural phenomena — all the systems and congeries — are united into two main cultural systems, such as: Material-Nonmaterial (K. Marx, W. Ogburn and others); Technological-Ideological (A. Coste, L. Weber and others); a system of Civilization and that of Culture (F. Bacon, M. Tugan-Baranovsky, A. Weber, R. McIver and others). If such theories were true, their thesis would certainly be one of the greatest generalizations of the social sciences. Later on, we shall analyze and give a verdict on these theories (see further Chapters Four, Six and Seven); for the present, a mere mentioning suffices to show that they also are among the theories in quest of a discovery of the vastest supersystems of culture.

The reasons for such a quest are comprehensible. The structure,

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in the page of history." (Fisher, *op cit*, Vol. I, p vii.) Thus he reintroduces one of the most doubtful and hazy generalizations and uniformities into his historical world of "the play of the contingent and the unforeseen" Likewise, on the first page of the Introduction he sees the system of European civilization, as real and distinct, "Our civilization, then, is distinct, it is all pervading and preponderant." (*Ibid*, p 1.) Farther on, he sets forth a number of generalizing statements. So also do other atomists and anti-uniformists Similarly, Sir Charles Oman, in his historical works, deals not only with systems, but systematically tries to analyze the causation and to discover uniformities in the phenomena studied See, for instance, his studies of Peasants' Rebellions. Unfortunately, most of them take often a pseudo system for a real system, and cut into parts a real system. Such usual systems of historians as the total culture of Sparta, Greece, Rome, China, or Fisher's "European civilization" are certainly pseudo systems treated as real systems Such a treatment makes these "atomists" the "totalitarian integralists" and adds to their own sins all the sins of the latter Such a revenge of logic is highly instructive and once more demonstrates the untenability of the position proclaimed by the atomistic anti-uniformists.

the processes, and the change of cultural phenomena must appear quite different when consisting only of congeries and when made up of systems; and quite different also when the systems are related to one another as congeries or as parts of larger systems. If we discover the vastest cultural systems, our comprehension of the structure and change of cultural phenomena is enormously enriched, almost as much as was that of the motion of material bodies by the discovery of Newton's law of gravitation. Hence the quest and its real urgency and importance.

The foregoing analysis led us to a rejection of all the totalitarian theories of a complete integration of culture into one supersystem; we also rejected the atomistic conception of sociocultural phenomena. Farther on, it will be shown that the dichotomic theories are also unacceptable (see Chapters Four, Six and Seven). The question naturally arises: Does this mean that no further step beyond the above "big five" can be taken in this direction? Does this mean that in the empirical cultural reality there are no supersystems vaster than each of these five? No, all the above rejections do not mean that. Larger systems seem to exist. One of the tokens of that is the mentioned fact of the existence of the "bridges" and "interconnections" between the five main systems. The rejection of the totalitarian integration and the dichotomic theories means that these theories start in the wrong way and try to find the solution in a direction which cannot give it. The more valid solution seems to lie in the direction assumed by this work. Vaster systems than the big five cultural systems exist in the *form of the supersystems of Ideational, Idealistic, and Sensate cultures that we have been systematically dealing with in the preceding volumes.*

Here in this quest for the vastest but real cultural supersystems, lies their significance. The preceding volumes have shown not only their purely meaningful but also their empirical existence. Farther on, some additional evidences will be added to that. Being empirically existing systems of culture, each of these systems is vaster and more embracing than any of the big five systems. Indeed, whether the Ideational, or Sensate, or Idealistic system of culture, each *cuts across all these five and their many derivative systems, and unites into one supersystem (Ideational, or Idealistic or Sensate or mixed) all the big five and an enormous number of derivative systems.* Each of them is composed of the main subsystems of: Ideational (or respectively Sensate or Idealistic) system of art; system of truth and

knowledge; (science and religion and philosophy) system of ethics and law; and even, though more loosely, economic and political systems and the system of the fundamental forms of social relationships (familistic, contractual, compulsory), not to mention an enormous number of smaller subsystems.

Thus each of these three supersystems of culture is vaster than any of the big five systems separately taken. So far as they are real systems, they differ from the purely fictitious all-embracing system of the totalitarian integrators. Since the vastest supersystems of the dichotomic theories are also, as we shall see, mainly fictitious systems, our supersystems are more adequate than the pseudo systems of the dichotomists.

For these reasons, *the supersystems of Ideational, Idealistic, and Sensate (plus Mixed) cultures are a step forward in comparison with either purely Atomistic, or Dichotomist, or "Complete Integration" theories. Herein lies their significance.* Viewed from this standpoint, these supersystems of culture seem to be, so far, the vastest supersystems among all the real cultural systems hitherto discovered. What is peculiar to each of our three supersystems is that each of them *cuts across all the main cultural systems and does not identify any one of these three systems of culture with any of the big five or derivative systems.* Practically all the existing theories of the vastest supersystems, including the dichotomic ones, identify their supersystems with some of the big five or their derivative systems as a whole.

Marxianism makes a central system out of the economic system and the dependent system of "ideology" out of the whole system of religion, science, art, ethics and philosophy. The dichotomic theories, likewise, put into one of their supersystems ("material," "technological," "civilizational") one or more of our five big systems again, in their entirety, while the other system ("nonmaterial," "ideological," "cultural") is filled by the other classes of cultural phenomena taken, again, entire. Any religion for these theories enters their "nonmaterial," "cultural," or "ideological" supersystem in its completeness, while a technical or economic system makes a subsystem in the other big supersystem ("Material" or "Civilizational"), again in its entirety. Each of our three vast supersystems is made, on the contrary, out of all the five and many derivative systems.

While the other theories draw the boundary line vertically, putting one or more of the five main systems as a whole into one supersystem

and the others into another, our supersystems draw the boundary line horizontally, so to speak: certain forms or systems of art belong to the Ideational while others belong to the Sensate or Idealistic. Certain philosophies belong to the Idealistic system, while other philosophies belong to the Ideational or Sensate. And so with other systems. Such is the first peculiarity of the supersystems proposed in this work.

Some of the critics may say to that: But does not such a cutting across a system of truth or art or law mean that my supersystems divide into different parts what is really a whole system (for instance, art or science or law), and unite into one Sensate, or Ideational, or Idealistic supersystem the parts of different systems of science, religion, art and ethics? Are not therefore these supersystems fictitious, uniting into one system different congeries and dividing the living unity of each of the big five cultural systems?

Such an objection would be crucial, if it did not neglect the fact that various scientific, religious, or philosophical theories, or various art phenomena, or different law and moral norms, can stand meaningfully to one another either in the relationship of contradiction, or of identity and harmony, or, finally, of indifferentism. When two scientific theories are contradictory, they are congeries in regard to one another, and not parts of the same or one system. The same is true of contradictory religious beliefs and dogmas; of contradictory norms of law or morals; of discordant forms of art; and so on.

By definition and by fact, such discordant or contradictory systems of science are not the parts of one scientific system, but congeries coexisting side by side. So also are the contradictory systems of religion, or art, or law, or what not. For this reason, separation of such contradictory systems in each of the five big fields (science, religion, art, ethics) from one another, as congeries; and unification into one supersystem (Ideational, or Idealistic, or Sensate) of the identical forms of science, religion, ethics, and art (plus other derivative systems) that articulate the same principles of culture mentality, that empirically live, function, and change together, is not objectionable but the only possible logical operation uniting into one supersystem what is one, meaningfully and causally, and separating into different supersystems principles which are different meaningfully, and which live, function, and change, not together, but independently of or contradictorily to one another. Our supersystems identify and unite those principles which are identical and are parts of one system, and separate into different supersystems those principles which are

different and are parts of different systems. This is sufficient to dispel the above criticism. It applies not to our supersystems but precisely to all the theories that unite congeries into one super-system, and divide unities into different supersystems.

The second peculiarity of the theory proposed is that *it does not contend that each or all of the three systems embrace all the phenomena of culture, or even all the parts of the main five and of many derivative systems.* The theory claims that these three systems are the vastest real supersystems, but it states explicitly that there remain many cultural systems and congeries not embraced by any or all three systems. In the cultural world there are many phenomena — congeries and systems — that do not belong to, are not a part of, and are independent from, each and all three supersystems. In this respect, the theory is more modest in its claims than almost all other supersystem theories in the field.

Its third characteristic is that *practically, in any culture of any period, none of these three systems exists monopolistically without the coexistence, as a minor or equal stream, of the other systems.* Though the contemporary culture is predominantly Sensate, side by side with it coexist the Ideational as well as Idealistic supersystems, not to mention the vast eclectic congeries. The preceding volumes have shown this explicitly and almost every table and chart given there makes it clear; with the exception of a few periods, all the variables of Ideational, Sensate, and Idealistic supersystems coexist side by side in almost all tables. This means that any culture of a comparatively large area is not always entirely united, and besides the numerous congeries of small systems and single traits, almost always gives us coexisting congeries of these three vast supersystems. This is an additional evidence of the fallacy of the complete integration of culture thesis as supported by the "totalitarian integralists."

Its fourth trait is that, as has been shown in the preceding volumes, *the subsystems and sub-subsystems that make each of these supersystems are not equally closely integrated with one another and with the whole supersystem.* They all are tangibly integrated, but the interdependence of some of the subsystems with one another is comparatively close, while with other subsystems it is notably looser.

Other traits will be unfolded farther on. For the present, the above is enough to show the place in this field of the supersystems of Ideational, Sensate, and Idealistic cultures; what is their place among other systems proposed by other theories, how it differs from them,

and why the quest for the vastest supersystems is important. This whole chapter gives a clearly delineated theory of the structure of the total culture of a given area. The theory is considerably more complex than many others. Where some see either one completely unified system of culture or two; or see only endless congeries of cultural traits and phenomena ("atomists"), our proposed theory finds in the total culture a multitude of systems and of congeries of single elements; the systems themselves exist united (co-ordinated and subordinated) into vaster systems, and finally, as congeries towards one another. Even taking the vastest supersystems we find that in the total culture they usually coexist side by side as congeries. Such a picture is far more complex than those of the culture as "united into one system," or as a multitude of congeries of single elements, or as a few systems nicely arranged and co-operating with one another. But it is hoped that, in spite of its complexity, it is much nearer to the cultural reality than these simplicist theories.

VI. Conclusion

Thus we see that whether we take the total culture of an individual or of a given society, it is neither a purely incoherent maze of congeries nor one perfectly integrated system. So far as a considerable part of the total culture of a society or an individual is unified into one or few great supersystems, so far this total culture is *rational, logical, and consistent,* and therefore its bearers — society or individuals — are also *rational and consistent* (no matter what are the concrete forms of the cultural values). So far as their total culture has congeries (either congeries of systems or of single cultural values), they are *nonrational, nonlogical, inconsistent creatures*, with corresponding mentalities. This means that all those who contend that man and society are *perfectly rational and logical* ("totalitarian integrators") as well as those who claim that man and society are completely *nonrational, nonlogical* (atomists) are *equally wrong.* The truth lies between these extreme propositions. *Man and society both are a kind* of the *coincidentia oppositorum,* to use Erigena's and N. Cusanus' expression, *in whom coexist at any given moment rational and logical with nonrational and nonlogical, supersystems with congeries, consistency with contradiction, integration with disintegration, synthesis with accumulation of disunited and undigested values.* Later on, in Chapter Sixteen we shall return to this point.

PART TWO

How Culture Changes

Chapter Four

DOES THE TOTAL CULTURE OF AN AREA CHANGE IN TOGETHERNESS OR INDEPENDENTLY IN ITS VARIOUS PARTS?

I. Propositions Concerning Change of Supersystems, Systems and Congeries

Having now at our disposal the concept of the Sociocultural System and Congeries, and that of the structure of the total culture of a given population, we can proceed to the study of the fundamental forms of cultural change and to the formulation of some more or less general uniformities observable in such a change. When our analysis of how culture changes is finished, we shall pass to that of why it changes, and why the change assumes these forms. In order to clear the field of our inquiry of much of the debris that litters it, we shall open our study of cultural change with a number of propositions concerning the problem: Does a culture of a given population or area change as a whole, in togetherness, or do its various traits, elements and complexes change independently of one another (as independent congeries)? When this preliminary, but vitally important, problem is answered and the debris of various fallacious theories is cleared away, we can proceed to the study of more specific problems of cultural change.

On the basis of the preceding analysis of the system and congeries of the total culture of any area, however small or large, the theoretical answer to the question is easy and certain. It can be summed up in the following propositions.

A. If a given culture is a closely integrated empirical system, then it changes as a whole, in togetherness. Any serious change in any of its important parts involves a change of the rest of its important parts and of the whole; and any change of the whole leads to that of its parts.[1] The greater the integration and interdependence of the system, the greater the togetherness of the change.

[1] See Chapter Two, for the meaning of change in togetherness, as a whole.

B. If a given culture is a system, but not closely integrated, and consists, say, of several subsystems, each with some margin of autonomy, then the leeway between the parts is greater; therefore only strong changes in the most important parts of it will be interlocked and will lead to the change of the culture as a whole, in its important compartments. A number of small changes in some of its parts may be purely local changes, limited to that part, without involving any of the other compartments. Even in a human organism, we can cut our hair or sustain local scratches without any tangible effects upon the rest of the organism. This is still truer of a loosely integrated, sociocultural system.

C. If a given culture is a mere spatial congeries, any part of it can change without involving any change in the rest of its elements. One can replace one shirt or hat by another, without any substantial modification of his organism as such. I can easily empty my pocket of many objects in it, or fill it with various articles without any serious change of the functions of my organism. One can take off or add a can or bottle to the congeries of a dump without any serious disturbance to the rest of the dump.

D. If a given total culture is, as we have seen, the coexistence of several systems (some subordinated and united into larger systems and supersystems; some co-ordinated with one another and some being congeries to one another) and the coexistence of single congeries within and outside the systems, then such a total culture must change differently in its different parts: (*a*) *all its important elements and components united into one system or supersystem change together, as parts of the whole;* (*b*) *all its congeries — be they single elements or systems that are congeries to one another — change independently from one another. The pattern, direction, rhythm, tempo of the change of the systems and of the congeries are profoundly different from one another.*

These propositions are certain, by definition and by fact, and sum up the answer quite clearly, from a purely theoretical standpoint.

Practically the situation is more complex because of the difficulty of deciding as to whether a given complex of culture is a congeries or a system; and if a system, how closely integrated and which and how many elements of a given total culture of an area it embraces. In many small sub-subsystems of cultural elements we often have no difficulty in deciding the question. It is evident that such complexes as a so-called "horse complex" or "milk complex," or combination of

bat and ball in a "baseball complex," the engine and battery in a car, and the like, are closely integrated little systems. So are the propositions of Euclidian geometry, of the Christian Credo, or the Parthenon, or Kant's system of philosophy, or thousands of other "little" cultural systems. None of the essential elements of these systems can be taken away, or perfectly heterogeneous elements added to them, without modifying or destroying the system as a whole.

Likewise, there is no difficulty in finding congeries in many a small combination of culture elements. A car and a bunch of flowers in or on it, a writing desk on which stands a shoe, a copy of Plato's *Republic* with a photograph of the latest movie star between its pages — these "complexes" are evidently congeries in which flowers, shoe, or photograph can easily be separated from car, writing desk, and Plato's book, without destroying either one of the elements, and each element can change without involving a change of the other.

More difficult is the diagnosis of vaster and more complex conglomerations of cultural objects and elements. In regard, for instance, to the totality of the cultural elements found in Boston, or in the United States of America, or in Ancient Greece, the difficulty in diagnosis is to decide whether all these elements are a part of one system; if not, which are systems and which are congeries; which elements belong to which systems; and how close is the integration of the elements of the system, and is it the same for all the elements. The difficulty in such a diagnosis is incomparably greater than in the case of the "little" cultural sub-sub-subsystems, or sub-sub-subcongeries.

In diagnosing such vast cultural conglomerations from this standpoint there is a strong possibility of error in taking for congeries what is a system, and vice versa.

However, the difficulties should not be exaggerated. They are about as great as those of finding a causal relationship between the physicochemical and biological phenomena.[2] If the complexity of

[2] Contrary to the prevalent opinion, a discovery of such relationships is much more difficult than many think Usually the process of such a discovery is depicted by a simple process of application of an inductive method, and especially of the rule of the concomitant variation. "But the real procedure is very different," rightly says A. A. Tschuproff. "The experimenter heats water up to 100 degrees Celsius, the water begins to boil. Does he have the right to start his causal analysis with the assumption that the complex of causes of this observed result consists of the form, material, size of the water container and of the temperature reached? What happens if he begins to vary the conditions of his experiment (according to the principle of concomitant variation) in order to find out whether the temperature at which water boils is in a causal relationship with the material and form of the water container? To what conclusions

the sociocultural phenomena increases the difficulty, the meaningful aspect of the sociocultural systems helps one greatly to conjecture the right induction and then to check it (which conjecture cannot be made with the physicochemical or biological phenomena).

Therefore, a careful study of the vast cultural conglomerations permits one in many cases to find some systems and some congeries and, after an adequate test, to arrive at a sound conclusion in the matter. As soon as such a finding is made, and a real system is separated from the rest of the cultural conglomeration, and when the same is done with congeries, the actual study of the system and congeries follows the patterns of the above theoretical propositions. Operating with the vast Graeco-Roman and Western cultural continents, we found in each, besides many small systems and congeries, vast supersystems: Ideational, Sensate, and Idealistic. Studying the transformation of each of these systems, and of the rest of the cultural continent, we observed the following forms of change:

1. All the main subsystems of each of these supersystems have indeed been changing as a whole, though this togetherness does not necessarily mean an instantaneous synchronicity of their change, as explained above (in Chapter Two). We have seen that painting, sculpture, music, architecture, literature, system of truth (science, philosophy, religion), law, morals and a few other subsystems of each of these supersystems underwent a transformation of the same kind

would he be led by the strictest application of the rules of induction, if he did not include in the relevant conditions the indication of the barometric pressure? Repeating the experiment in the same container, he would see that, depending upon the barometric pressure, water boils now at 99, now at 101 degrees (Celsius). On the other hand, at any of these temperatures, water will now boil, now will not boil, in a brass, iron, or glass container, and so on. In brief, the experiment cannot come to any definite conclusion, if, by lucky chance, the barometer remains unmoved during the experiments. Under less favorable conditions, the experimenter risks arriving at a wrong conclusion, in spite of the most rigorous application of the methods of induction Water is heated in a small container and boils at 100 degrees. Next day water is boiled in a large-sized container and boils at 99 degrees, due to increased barometric pressure. If barometric pressure is not included in the relevant conditions of A, B, C, the method of difference will yield the conclusion that the temperature of boiling water is causally connected with the size of the container. Meanwhile, if we do not know in advance that the water-boiling temperature stands in a causal relationship with the atmospheric pressure, our experimenter would hardly think of recording the barometric indications. This means that working experimentally in a field unstudied, where the causal relationship remains to be discovered, the investigator can hardly apply the inductive methods, and, when he does, cannot have any guarantee against mistake" A. A. Tschuproff, *Ocherki po teorii statistiki* (*Studies in Statistical Theory*) (St. Petersburg, 1909), pp. 111 ff. See there a detailed brilliant analysis of the difficulties.

in their meaning and character and in the same direction, and gained or lost a large number of specific characteristics in conformity with those of the other subsystems. When the Ideational supersystem was rising, all these subsystems, with their sub-sub-subsystems, became imprinted with a number of Ideational characteristics. When the Ideational supersystem began to decline and the Idealistic or Sensate began to rise, all the subsystems (with their sub-sub-subsystems) began to lose their Ideational traits and exhibit more and more Idealistic or Sensate traits. Though the change in each of the sub-sub-subsystems was not instantaneously synchronous, if we take small units of astronomical time, nevertheless they were changes in togetherness and even somewhat synchronous, if we take sufficiently large units of astronomical time. The preceding volumes furnish factual documentation for this.

2. We have seen that side by side with the elements integrated in these systems, there were, in the Graeco-Roman and Western cultures, many other elements that did not belong to these systems. They were congeries in regard to them, no matter if they were isolated congeries or entered as parts into other systems different from ours. In that case, we have the coexistence of different systems in a culture, which becomes then a congeries of systems. All such elements were, in regard to our system, purely accidental partners. Therefore our supersystems changed without involving a change of these elements accidental to them; and these elements changed without involving a change of the systems and their elements. For instance, we have seen (Volume Three, Chapters Eleven and Fourteen) that even such vast cultural complexes as war and revolution, in their increase and decrease, were not directly connected with the crystallized Ideational, Sensate, or Idealistic cultural supersystems. They existed side by side with each of these systems, not showing either a tangible increase or decrease in their quantitative fluctuations. This means that they are not closely integrated with each of these systems. Only in their "coloring" — wars of religious and secular character — were they associated with our supersystems (see Volume Three, pages 373 ff.). Only a disintegration or crystallization of any of these systems happened to be a process connected respectively with the rise and decline of war and disturbances, but they were not the inherent element of Sensate, Ideational, or Idealistic culture systems as such.

We have seen also that short-time fluctuations of the expansion and contraction of governmental control, as such, have very little to do

with the nature of the culture systems studied (see Volume Three, Chapter Eight). Still truer is this "independence" of change in regard to thousands and thousands of smaller cultural elements in the Graeco-Roman and Western cultures. Under all these cultures the people have been eating, sleeping, loving, hating, laughing, crying, fighting, performing generally their biological and biosocial functions. Though some qualitative, even some quantitative aspects of these phenomena were involved in the Ideational, Idealistic, and Sensate supersystems of cultures, the performance of these functions took place under all these culture systems. Farther on, we have seen that in their fluctuations some of the scientific theories, like that of abiogenesis (see Volume Two, pages 459 ff.), have been little connected, if at all, with the fluctuation of the main supersystems of culture. The courses of change of the supersystems and of these congeries to them have been different and fairly independent of one another.

As in practically any total culture of any area or population there always are congeries of either elements or systems, it is reasonably certain that *there is hardly a single case in human history in which the total sum of the cultural elements (total culture) of the group or area have changed together, in toto, as one system.* This proposition holds of even the total culture of a family, tribe, or individual,[3] not to mention still larger groups or areas. In any such area or population the total change of its cultural elements proceeds simultaneously in two different forms: some of the elements change together, as parts of the same system or supersystem; all the other elements and systems that are congeries to it may not change at all, or change in a way and direction quite different from that of the elements of the above system. Such are two fundamental and perennial modes of culture-change that go on in any culture area — vast and small, past and present.[4]

[3] Every one of us is frequently changing this or that cultural trait, for instance, our hobby, our art preferences, our political party, our favorite dish, our scientific or philosophic sympathies, etc. Such a change either does not disturb the rest of our cultural values, if it concerns a congeries, or disturbs and leads to readjustment of only those values which were united into one system with the changed trait or value.

[4] Contrary to his own assumption that the total culture ("civilization" in his terminology) of such vast areas as the Sumerian, Egyptian, Hellenic and Western societies is one united and independent system, A. J Toynbee gives an excellent corroboration of the above conclusion. He shows convincingly that, for instance, the technological change in each of these civilizations has proceeded quite independently from the change of the rest of the civilization; in other places he gives also the cases when a change in the political or religious compartment of his supposedly unified "civilization" took place without a concordant change in the other parts of his "civilization" All this proves that his "civilization" is not a system but a conglomeration of several systems and con-

Finally, as a detail, the elements and components of culture united into one system are not necessarily all integrated equally and with the same degree of closeness. Our study has displayed this lack of uniformity in many ways and at many times. First, it has shown that though the main forms of art, or science, or philosophy, or their categories and first principles, or several aspects of law and ethics, all happened to be a part of our supersystems of culture, and changed together as a part of the same supersystem, nevertheless the change has been neither perfectly "parallel" in the minor movements of all these variables (see the curves and figures in Volumes One, Two, and Three), nor perfectly synchronous. In music, for instance, compared with painting and sculpture, a change towards another type of culture sometimes precedes, sometimes follows, by a century or so, a "similar turn" in painting and sculpture (see Volume One, Chapters Five, Six, *et passim*). Similar lack of synchronicity is displayed in art, science, law, and generally in many other cases. Each subsystem of the Ideational or Sensate cultures has thus displayed a margin of autonomy, especially in its minor changes, which means a lack of perfect integration. Our data have also shown that the closeness or togetherness of the change of various subsystems has been different. Take, for instance, the fluctuation of such subsystems as the overt behavior of historical persons, or the fluctuation of economic Sensate prosperity, or the change of the main forms of social relationships (familistic, contractual, compulsory). A glance at the data shows (see Volume Three, Chapters Four, Eight, and Fifteen) that there is a sufficiently tangible relationship of the main movements of these subsystems to that of the rest of the subsystems of our supersystem; and yet the relationship is much looser than, for instance, that between the fluctuation of painting and music and literature, and systems of truth and of ethics, and some others. The first three variables do not show a "parallel response" to many — and fairly important — movements of the other variables; they are insensitive to them; then, in a number of cases, they display some major movements different from those of the others; only in the "tidal waves" do they display a tangible connection and

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geries. Since it is not a unified system, one cannot expect that all its parts would change together in their genesis, growth, breakdown, disintegration, and dissolution, and that such a uniformity would be shown by all his twenty-one civilizations. See A. J. Toynbee *A Study of History*, Vol. I, pp. 34, 43 ff, 169 ff.; Vol. III, pp 152, 154 ff. (*et passim*), 380; and Vol. IV, pp. 40 ff. See also my quoted paper: "A. J. Toynbee's Philosophy of History."

participation in the Ideational, Idealistic, or Sensate supersystems.[5]

On the other hand, when we consider the fluctuations of such subsystems as painting, sculpture, architecture, music, literature, systems of truth, systems of ethics, some aspects of law codes, they show much closer interrelation between themselves than with the above three subsystems — forms of social relationships, overt behavior, and fluctuation of poverty and prosperity.

The same is quite noticeable in the fluctuations of sub-subsystems. For instance, among the art subsystems, music seems to show a greater margin of autonomy than the other forms of art (painting, sculpture, literature) show in regard to one another.[6]

[5] In a preliminary way, this means that, contrary to Marxian claims, and those of all the economically minded interpreters of history, the relationship between this aspect of the economic system and almost all the culture-mentality systems (so-called "superstructure and ideologies," in Marxian terms) is far from being so close and sensitive as they claim.

[6] Thus my conclusion is intermediary between two extreme theories one claiming that there is a perfect togetherness and synchronicity of change of the whole given culture (totalitarian integralists) and the other contending there is no togetherness and no synchronicity, each cultural element changing fortuitously, independently of the others (cultural atomists).

So far as Taine does not mean by the subsequent quotation the total culture, and does not overstress the closeness of the interdependence, his meaning is borne out by our study *"Entre une charmille de Versailles, un raisonnement philosophique et théologique de Malebranche, un précepte de versification de Boileau, une loi de Colbert sur les hypothèques, un compliment d'antichambre à Marly, la distance semble infinie et infranchissable; nulle liaison apparente, les faits sont si dissemblables qu'au premier aspect on les juge isolés, separés Mais non, tout cela est étroitement lié par une dépendence mutuelle."* (Quoted from W. Deonna, *L'archéologie* (Paris, 1912), Vol. II, p. 24.)

On the other hand C. Lalo, criticizing an exaggeration of this interdependence in many theories, like those of the functional anthropologists, such as Vitet, Juglar and others, who assume that the total culture is one interdependent system changing in togetherness and synchronously, is also right stressing multilinearity and comparative independence of change of various "cultural functions"

"Each of the grand social functions has its own nature and its own specific laws in the bosom of the same society, as each organ in the bosom of the same organism Therefore it should be expected that the phases of their evolution do not accord ordinarily either in time or in space. The fine arts themselves, having undoubtedly the same direction (of change), do not follow the same routes, nor move with the same speed or the same ripening. . . . In the same bed of a grand river there move many currents which do not mix entirely together"

Then he states that there is no uniformity of sequence of development of various arts, nor perfect synchronicity of their decay or blossoming. (I have discussed that in Vol. I, chaps. v, vi, *et passim*)

"The Greek letters present two classic ages of almost the same high level: the Homeric age and the fifth century B.C. The Hellenic music had but one such an age intermediary between the two literary ages." (The period of Terpander)

"The classic age of Greek music then preceded by two centuries the plastic and literary flourishment of the fifth century."

The above analysis shows, first, that the fundamental patterns of change are more numerous and more complex than most writers have shown. Second, that it is an impermissible simplification of the situation when the writers do not make a fundamental distinction between the above two basically different forms of change and lump them together in the same category as things similar or identical.

This means that all the theories which take one factor or system and try to explain through its variation the variation of all the other social and cultural sectors, or systems and congeries, of a given culture, are hopelessly dead: any such theory assumes that all the social and cultural traits are united with this factor into one system, and therefore, when the main factor changes, all the rest of the traits change. Since the assumption is fallacious, the conclusions are erroneous. This equally concerns all "monistic" theories, no matter what is their main factor or system: economic (Marxianism), technological (T. Veblen), religious (F. de Coulanges and others), geographic (the Geographic school), biological — race, heredity, demographic factors (Social Darwinists, Organicists, Gobineau, Galton, Pearson and others) — and what not.[7]

Viewed in the light of these propositions, the total change of the total culture of any given area or society gives an exceedingly complex "Music of the Concert Hall of History." It is as though we were to find ourselves in a concert hall, where simultaneously several orchestras were playing each its own symphony, and where the general bedlam was still more increased by the noises of the "congeries" made by the audience in the hall. Naturally we are lost in such "music." The best we can do is to concentrate for the time being on the symphony played by one orchestra and try to follow it — the change in one sys-

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Only in Germany does the highest development of music seem to coincide with that of their literature and German thought: Haydn, Mozart, Beethoven are contemporaries of Lessing, Goethe, or Kant; and Schumann or Mendelssohn rival with Hegel, Schopenhauer or Heine. "This coincidence is quite exceptional because in all the four periods (studied) it happened only once."

"Thus the evolution of various fine arts is neither unilinear nor parallel," nor quite synchronous. Only the main direction is the same. C. Lalo, *Esquisse d'une esthétique musicale scientifique* (Paris, 1908), pp. 309–316.

Taine somewhat exaggerates the functional dependence, Lalo the independence of functioning and change of culture. Taine's statement is accurate in regard to systems, Lalo's in regard to congeries See also W Deonna, *op cit*, *loc. cit.*; L. Vitet, *Etudes sur les beaux-arts* (Paris, 1846), Vol. II, p. 91. The preceding chapters show how utterly superfluous is H Becker's criticism of my theory as "close to extreme functionalism." Barnes and Becker, *Contemporary Social Theory*, quoted, pp. 535 ff.

[7] See, regarding these theories, my *Contemporary Sociological Theories*.

tem. Then, at least, we are not entirely confused. But following this one symphony does not give us any proper idea what the other orchestras — systems — are playing. If we want to know that, we have to concentrate on each of their symphonies, one by one. If they are not too numerous, then perhaps after such a cycle of listening to all the symphonies, we can form some idea as to how many orchestras — systems — there are (not the sub-subsystems, like the section of the first violins), and what are the character, the rhythm, the tempo, the motives of the symphonies being played. But even then our idea of the total change is likely to be fragmentary and defective. Only two conditions may somewhat alleviate the situation: first, if we pay attention only to the largest and most important orchestras and symphonies, setting aside all the small bands and individual artists and congeries; second, if the number of such main orchestras (main cultural systems) is not too great; finally, if among them there are one or two orchestras (supersystems) that are main among the main, and that give, in some way, the tune and tempo to most of the other orchestras (as subsystems). Then we can orient ourselves somewhat more exactly in this bewildering total noise of the total social cultural change of a given society and its culture-area.

In this light the importance of the Ideational-Sensate-Idealistic supersystems (and several important social elements related to them) must be comprehensible. If I succeeded in showing that such supersystems really exist, as I believe I did, and if they embrace a large number of systems and subsystems, combining in their turn a large number of elements and components of a given culture, and in their totality most (but not all) of the traits of a given culture-mentality, this means that the supersystem is one of the main, most important and largest "orchestras" of the culture-concert. By studying it and its properties, liaisons, compartments, and subsystems, we can follow the theme of one of the main orchestras of history. Therefore, we are so far oriented in this current of music. When, in addition, we observe by listening which of the other orchestras are somewhat adapting their music to that of our superorchestra, and which are not, we go beyond the knowledge of our system and get some apprehension of the other orchestras and noises in the "concert hall of history." As a result, we obtain some further orientation in the bewildering "cacophony of history."

To be sure, there are other orchestras, playing different music with different tunes, rhythms, and tempos. Nevertheless, our Ideational-

Sensate-Idealistic supersystems are probably as big and as important orchestra systems as any so far offered in the social sciences. Herein lies the significance of these supersystems.

In order to realize that and also to find out what other main supersystems have been offered as the "main orchestras" in this concert hall of history, let us glance at the theories that seem to appear influential and to be accepted by many at the present time.

These are the total culture integration theories which we have examined and found dead. Likewise, we have rejected the atomistic theories. Among the other theories, the most important place is occupied by the dichotomic theories of culture and culture change. They were mentioned before (in Chapter Three) but not examined. Let us turn to that task now.

II. Dichotomic Theories of Supersystems of F. Bacon, K. Marx, A. Coste, M. Tugan-Baranovsky, L. Weber, T. Veblen, A. Weber, R. McIver, W. Ogburn, and Others

The common characteristic of all the dichotomic theories is that, without any explicit distinction between sociocultural systems and congeries, they divide the total culture of any society into two different classes, and claim that all the phenomena within each class are interdependent and change along the same pattern, while the patterns of the change of each class are fundamentally different.

A. Coste divides all the sociocultural phenomena into two classes of *"social"* and *"ideological" phenomena or systems*, though he gives no explicit distinction between the systems and congeries.

By the "social facts" Coste means the phenomena of government, production and distribution of economic or useful things, beliefs, and solidarity. By the "ideological" fact he means the phenomena of nonpractical or nonuseful arts, such as poetry, philosophy, various ideologies, including theoretical and nonapplied sciences, which do not have a useful or utilitarian character. While the "social" phenomena of government, of economic phenomena, belief, and solidarity are closely united and correlated with one another in their change, fluctuation, and evolution, the "ideological" phenomena do not show any close correlation with the "social" phenomena! In other words, "sociality" and "ideological mentality" are independent of one another.[8]

[8] P. Sorokin, *Contemporary Sociological Theories*, p. 360 See there a more substantial outline of Coste's theory See A. Coste, *L'expérience des peuples et les prévisions qu'elle autorise* (Paris, 1900), chaps. i, ii; *Les principes d'une sociologie objective* (Paris, 1899), chaps. ii, iii, iv, xxii.

Such are two orchestras that play different symphonies on the stage of history. Being different systems, they change differently — in direction, rhythm, tempo, and character.

The changes of the "ideological" phenomena proceed sporadically, irregularly, without continuity, consistent direction or accumulation. They rise and decline. The "socially" most powerful societies are often inconspicuous, so far as their ideological achievements and ideological men of genius are concerned, while the "socially" weak societies have often an abundance of great ideological creations — in art, in a theological system of religion, in literature, and in theoretical science or philosophy. The "social system" with its elements, on the contrary, shows a continuity, regularity, accumulation, and a linear direction of progress. In this linear trend, the "social system" has passed — in all its compartments: economic, government, beliefs, and solidarity — through five stages: from a "burg" to the "Federation of the Metropolises"; in each stage each of these compartments or subsystems being integrated with the others and changing together.[9]

Such are the essentials of Coste's theory of social change. The whole field of sociocultural phenomena does not change together; it falls into two main systems, and division of the systems is based on the principle of the useful and utilitarian nature of "social" phenomena, and the useless or nonutilitarian nature of "ideological" phenomena.

Similar to Coste's theory in relevant points are the theories of F. Bacon, K. Marx, L. Weber, A. Weber, M. Tugan-Baranovsky, W. Ogburn, T. Veblen, R. McIver and many others.[10]

First, as in Coste's theory, they all divide the whole sociocultural world into two classes or supersystems: culture-system and civilization-system (F. Bacon, A. Weber, R. McIver); material (economic-technological) and nonmaterial (ideological) supersystems (K. Marx, L. Weber, W. Ogburn, T. Veblen, and others). They all stress the idea that each of these supersystems or classes changes differently; but the difference is again similar to that of the change of Coste's "social" and "ideological" classes.

[9] For the details, see the cited works of Coste, and my *Contemporary Sociological Theories*.

[10] With a reservation, to this group of theories belongs also the theory of W. G. Sumner and A. G. Keller, so far as it distinguishes the "maintenance mores" (concerned with the ways of getting a living) from the secondary or superstructure or derivative mores of ethics, religion, art and other non-"maintenance mores" See especially A G. Keller, *Societal Evolution* (New York, 1931), pp 208, 218 ff, 225–226, 246–250. In this sense their theory is also a variety of the Marxian theory. Subsequent criticism, with a slight modification, applies to it also, on this specific point.

The supersystem of "civilization" or of the "material culture" (and its economic, technological replicas) supposedly changes along a linear trend of accumulation-selection, growing (quantitatively and qualitatively) in the course of time, diffusing and being adopted *urbi et orbi*, regardless of what is the nature of the supersystem of "culture" or of the "nonmaterial" culture of different societies. The "culture" or the "nonmaterial" supersystem is not accumulative; no linear trend to the bigger and better is found in it; it rises and declines irregularly; it is not universal in its nature, but local, adopted in one society and not adopted in others. A number of other derivative differentials which distinguish each of these two supersystems will be discussed later. What is important at this point is the similarity of all these theories as shown above. Each of them thus represents a claim that all the sociocultural elements of a given society and culture-area are united into two big classes or supersystems and change in two different ways.

What shall we say about these theories? Before answering the question, let us glance at them more closely, then we shall be better prepared to pass judgment on their validity. Let us begin with the *F. Bacon, L. Weber, A. Weber, R. MacIver theories.* F. Bacon formulates it in a nutshell: the mechanical arts, as real participants in life, march on and on, ever improving and progressing, while philosophy (in the broad sense of the term, meaning all the ideologies and nonmaterial culture), like a celebrated and honored statue, does not move at all.[11]

In more elaborated form, this theory in a nutshell is found in Louis Weber's *Rhythm of Progress*.[12] According to Weber, man and his mind are double in nature: *homo faber*, technical and fabricating man, on the one hand, and *homo socius*, social man, on the other. In order to live and survive man had — and has — to be *homo faber*, manipulating and controlling the external, material objects of nature; as a social animal, he has to develop "social instincts" and respective proclivities

[11] *Artes enim mechanicas, ut aurae cuiusdam vitalis participes, quotidie crescere et perfici; philosophiam vero statuae more adorare et celebrari, nec moveri.* Francis Bacon, "De Dignitate et Augmentis Scientarum," *The Works of Francis Bacon* (London, 1803), Vol. VII, p 24. See also his Preface to "Instauratio magna."

Even earlier (see *Dynamics*, Vol. II, pp. 109 ff), and again later, similar belief of a steady progress of science and technique has been expressed by Campanella, Leonardo da Vinci, Leibnitz, Huygens, Luther, Descartes, John Locke, Saint-Simon and his followers, and by many others. See P. M. Schuhl, *Machinisme et philosophie* (Paris, 1938), chaps ii, iii, iv.

[12] Louis Weber, *Le rythme du progrès* (Paris, 1913) See also his "Civilisation et technique," in *Civilisation: le mot et l'idée* (Paris, 1930), pp. 131–143.

of his mind. These two aspects of human nature and intelligence manifest themselves now in the technical preoccupations and activities; now in the social — and speculative — activities and preoccupations.

At any epoch of his existence man spends his attention and ingenuity either in contact with the external objects [of the material world of nature] or in association with other human beings. He detaches his attention from matter only to direct it to society, and vice versa.[13]

Hence these two streams or systems in culture: one technical, the other reflective or speculative.

Between these two tendencies, the geometrico-mechanical comprehension of the external world, and a speculative conception of this world which forms in us when we become aware of it through the looking-glass of the social categories, there is neither harmony, nor any rational correspondence; rather there is a discordance and almost antinomy. It is said when man thinks about nature and its conditions, he thinks with the brain of another age, and, though possessing the technical knowledge of the adult, he philosophizes, nevertheless, as a child.[14]

Respectively, in any society and culture, there always are these two different systems, each of which unites a large number of traits and elements. The technical system embraces technology, practical and applied sciences, economic processes of production and modification of material things, practical inventions, practical language, and other sectors of culture. The speculative and reflective system consists of religion, magic, ethics, law, arts, philosophy, and theoretical sciences.[15] At one moment one of these systems predominates in a given society ("reflective or speculative" in the Middle Ages, for instance), at another its competitor (the technical, in the modern age). Each of them, when dominating, imprints its respective culture with a definite stamp.[16]

Of these, the *homo-faber*-technical system (and thought and activities) appeared earlier than the speculative, reflective, or social.[17] The changes of these systems and of all the elements of each system proceed in different ways. The technical system changes gradually, continuously, and accumulatively. Technical aptitude and culture — manual fabrication and modification of things — preceded the reflective aptitude and culture. The change of the reflective system in culture proceeds sporadically and nonaccumulatively.[18] Since the technical progress or change is accumulative and continuous, it in-

[13] *Ibid.*, pp. xi–xii. [15] *Ibid.*, chaps v, vi. [17] *Ibid*, pp. xii, 127–128.
[14] *Ibid.*, p. xiii. [16] *Ibid.*, pp. 209 ff. [18] *Ibid.*, pp. 127–128, 132–133.

fluences the change of the speculative system in the total culture much more than the latter does the former. Only when in certain periods the technical intelligence develops so far as to exhaust the capacity for invention and practical penetration into the material world of things compatible with a certain ideological system established before, the reflective intelligence seizes the results of the existing technique and uses them indirectly to elevate itself to a higher vision and to reach a more complete knowledge of things, basing itself on the data of social consciousness and conscience (*social conscience*). In the first stage (of technical activity) the intelligence [of culture] plunged into a direct perception of the world of things, forgets itself and manifests itself in technical activity. In the second stage, intelligence replaces perception by concepts and enjoys itself by contemplation of ideas for which the material was prepared by its preceding (technical) activity and to which it now gives logical form and existence.[19]

Such is the essential framework of this theory. Not much different is the theory offered by Alfred Weber, R. McIver and T. Veblen. Alfred Weber rightly points out that if sociology does not want to be sterile and pedantic, it must deal not only, and not so much, with pure study of forms and description of little facts (however precise) but must attack the central problems of social and cultural life, and try to understand the historical processes, their meanings, their how and why in their totality.[20]

Following this objective, he finds that the total sociocultural world of any given society or area (*social system*) and the total change in it (*Gesellschaftsprozess*), consists of two different systems (Civilization and Culture systems) and two different processes: *Zivilizationsprozess* and *Kulturbewegung* — civilizational and cultural change. By Civilization, Weber means something similar to Bacon's "mechanical arts," to L. Weber's technical system, and, in a generic form (though not in concrete content) to A. Coste's "social category." It is a world of technical, technological, economic, material, utilitarian, sociocultural phenomena. By Culture, he means the reflective, spiritual, nonutilitarian values and phenomena: religious, philosophical, artistic, ethical and the like.[21]

[19] *Ibid.*, pp. 289 ff.

[20] Alfred Weber, *Ideen zur Staats- und Kultursoziologie* (Karlsruhe, 1927), pp. 5–6 His latest work, *Kulturgeschichte als Kultursoziologie* (Leyden, 1935) does not advance at all the theory set forth in the *Ideen;* therefore it is not referred to further in the characterization of the general theories of Weber

[21] A. Weber, *Ideen, op. cit.*, pp. 2 ff. He describes *Zivilization* as *"auf der Bewusstseinaufhellung und dem geistig-technischen Fortschritt samt dessen folgen ruhender Zivi-*

The total sociocultural change (*Gesellschaftsprozess*) is composed of the change of these two main processes: *Zivilizationsprozess* and *Kulturbewegung*. The manner of change of each of these processes is different: *Zivilizationsprozess* is universal, ever diffusing itself over larger and larger sections of humanity, regular, accumulative, linear in its expansion, accumulation, and perfectibility; it is a line of progress. *Kulturbewegung* is irregular, nonaccumulative, having no linear trend, bounded by a certain historical culture-area, or society, beyond which it does not diffuse, in spite of cultural contact: it is untransferable to other cultures.[22]

From this outline we can easily recognize the essential similarity of the schemes of Coste, Louis Weber, and Alfred Weber.

Almost identical in essential points is the scheme of R. McIver. He stresses the inadequacy of the present haphazard description of historical change, due to the scholars' failure to recognize the basic unity of the phenomena they describe. Without any real unity, no real change can take place, because any real change presupposes continuity, and continuity exists only in a certain unity. He aptly says: "Without this concept of unity, historical research is only cutting separate trails through the jungle of events." [23] In brief, he realizes clearly the necessity of distinguishing between a unity of system and congeries. As congeries are infinite in their number, no mere description of the change or shift of congeries can give us adequate comprehension of the how and why of the general patterns of change. Hence, his search for the main systems or unities in the jungle of the sociocultural phenomena. His solution is almost identical with that of the previously mentioned authors, especially with that of A. Weber. It boils down to the recognition in the total sociocultural world of the

lizationsprozess"; while *Kultur* is *"um die seelisch-geistige Durchbringung der von diesen beiden gebotenen Lebenssubstanz ringende, stets alle Kulturinkrustationen dabei gleichzeitig mit unformende Kulturbewegung."* Unfortunately he does not give, as the other authors do, a more definite and specific enumeration and analysis of what classes of sociocultural phenomena enter into the class or system of *Zivilization* and that of *Kultur*.

[22] *Der Zivilizationsprozess* [is] *"eine universell die ganz Menschheit weitertribende, kumulieren rollende, gradlinige Fortschrittsbewegung* [of the whole of mankind]. *Die Kulturbewegung dagegen* [is] *eine, von dem seelisch-geistigen Formungwillen getragene, in gewissen Situationen eruptive-wirkende Bewegung die auf den ersten Blick den Eindruck eines regellosen Aufgipfelns und Zusammensinkens hervorruft; ganz und gar eingeschlossen dabei in Wesen und Art der verschiedenen Geschichtskreise trotz universeller Berührung der kulturellen Bezierke" Ibid.*, pp. 2–31.

[23] R. McIver, "The Historical Pattern of Social Change," *Journal of Social Philosophy*, October, 1936, p. 36.

two different fundamental classes or systems, namely: *civilization-system* and *culture-system*. The first is made up of all the sociocultural "elements" that have a utilitarian character, that serve as means rather than as ends or self-values; such are the technological, scientific, economic, and political systems. The culture-system, on the contrary, is composed of sociocultural elements that are "values-as-ends." "The family, the church, the club, the discussion group, the gossip party, the sport organization, the association of the fine arts and of the sciences, the alumni association, and certain forms of educational institutions, are typical embodiments of values-as-ends." [24]

Such are the main systems that coexist in any society or culture-area. Now the patterns of change of each of these systems are different: civilization or technological change (technology is used by him mainly as the particularly typical specimen of his civilization system) is gradual, accumulative, linear, progressive along the line of better and better civilizational means. Cultural change is, on the contrary, intermittent, hardly accumulative, nonlinear, progressing in wave-like lines or in "cycles and rhythms." Civilization, for instance, the latest and most perfect machinery, car, airplane, is universal in its nature; it diffuses among all the different peoples with different cultures. Culture, on the contrary, is something most intimate, that can belong only to a given group, and to no other. It does not have universality; does not penetrate beyond a certain group; does not diffuse *urbi et orbi*, and is confined within a limited social area.[25]

There are several other — secondary — differences between these systems, but they can be passed by without enumeration. Both these systems coexist in any society and mutually influence one another.

[24] "We are distinguishing between the things men pursue because they want them and those they pursue because they are the means of their attaining what they want" The first class are ends; the second, means; the second are utilitarian in their nature; the first are self-values. He distinguishes further that in this classification he stands not upon psychological but sociological ground "From the psychological standpoint, values-as-ends and values-as-means are inextricably and hopelessly intermingled. But from the sociological standpoint, the distinction is tenable and serviceable" *Ibid*, pp 40–41, *et passim*. See also McIver, *Society* (New York, 1937), chap xii. These criteria have been used by many economists for separating economic activities from other ones "Economic activity is characterized by two specific marks: objective· the nature but not man being an immediate object of it; subjective economic activity is always a means and not an end in itself." M I. Tugan-Baranovsky, *Foundations of Political Economy*, 6th ed (Riga, 1924, in Russian), p. 9. See chap. i This, perhaps, is the best formula of what A. Weber and McIver mean by civilization.

[25] *Ibid., passim*. See especially McIver, *Society* (cited), pp. 403 ff., 438 ff., 443, 462–473.

But as the progress of the civilizational order is relentless, accumulative, and unobstructable, the technological order seems to condition the cultural order notably more than is true of the reverse.[26] In all these points, the theory is essentially the same as that of Louis and Alfred Weber, of M. Tugan-Baranovsky, of F. Bacon, and A. Coste.

Constructed along the same lines is the theory of W. Ogburn and F. S. Chapin, accepted by many a textbook writer in sociology. According to W. Ogburn, the sociocultural phenomena fall into two main classes: the *material* and *nonmaterial culture*. In this latter he specifically mentions a special part of the "adaptive nonmaterial culture that is closest to the material and most dependent upon it." What exactly is material culture is not defined clearly by the author.[27] But from the context of the writings of W. Ogburn, it is evident that the material culture embraces technological inventions, economic, and seemingly a few other classes of sociocultural phenomena. The nonmaterial culture consists of the nonmaterial sociocultural phenomena, such as art, philosophy, religion, partly social, political, and other forms of organization, and other sectors of the sociocultural world. As a matter of fact, his categories of the material and nonmaterial culture differ hardly at all from the corresponding categories of the authors previously cited. Except in some details, the difference is mainly one of terminology.

Ogburn's theory is similar in other characteristics. These two systems of culture are different, and being so, change in different ways.

[26] On this point an ambiguity runs throughout both works of McIver. On the one hand he emphatically stresses the mutuality of influence, and even that culture controls the ship of technology or civilization and determines for what it is used. See *Society*, pp. 462–464. "We are justified in regarding culture as, no less than civilization, a basic condition of social change. . . . The direction in which we travel is not predestined by the design of the ship [of civilization]. . . . The port we sail to remains a cultural choice." On the other hand, on pp. 470–473 and others, he factually makes cultural change a mere result of technological change, and states that cultural opposition to the change introduced by technological change is doomed to failure. "The resistance to indigenous technological advance has been, on the whole, a losing cause. It has become increasingly clear that culture cannot successfully oppose the advance of civilization, but that instead, its task is to accept and direct that advance." [How is it possible if the impact of the technological course is irresistible! Or is culture similar to the king who reigns but does not rule?] This ambiguity, inevitable in such a setting, runs throughout the whole theory of McIver.

[27] In his *Social Change* (New York, 1922) he introduces the term and concept suddenly, without any definition and specification, on pp 60 ff. See also *Recent Social Trends in the United States* (New York, 1933), pp. xiii ff., where the whole theory is newly stated. Specific definitions given do not clear up the vagueness. They will be quoted farther on.

Material culture changes along a linear trend of a selective accumulation; in the course of time it progressively grows, and becomes more perfect; the change in it is continuous (though not at the same rate and tempo all the time); the tempo of change there is faster than in the nonmaterial culture. In the process of change, the material culture, as a rule, leads, while the nonmaterial culture lags. This means that the material culture is more powerful than the nonmaterial — again a thesis shared by all the preceding theories. Nonmaterial culture changes sporadically; is neither accumulative nor universal. In brief, it has the same characteristics of change as the corresponding part in other theories: Ideology of Coste, Philosophy of Bacon, Reflective-Social part of L. Weber, Kultur of A. Weber and McIver, Noneconomic Class of Tugan-Baranovsky.

Finally, a number of other theories, like that of K. Marx and T. Veblen,[28] run along somewhat similar lines, with this difference, that they stress clearly the economic or technological system in the total sociocultural world ("material power," "material forces of production," of K. Marx and the technological system of Veblen) but they do not group the rest of the sociocultural traits into another definite system. They leave them as a kind of residual category, in which they sometimes distinguish such subsystems as Marx's "the legal and political superstructure" and "ideology"; but this is done *en passant*, so to speak. Another difference — though mostly only apparent — is that Marx's and Veblen's theory implicitly assumes that the whole sociocultural world is integrated tangibly around their "economico-technological" system, into one whole system, and that therefore, when the axis changes, the rest of the sectors of the sociocultural world change also. But this difference — important at first glance — is not so important in reality because, after all, L. Weber, Ogburn, and McIver also claim that the technologico-material system changes continually and is irresistible in its effects upon the "cultural nonmaterial system," which means, in fact, that both their systems are somehow integrated into one causal system, dominated by the Civilization or Material system. With these differences of form rather

[28] See K. Marx, *A Contribution to the Critique of Political Economy* (New York, 1904), pp 11–13 *et passim*. For a general outline and analysis of Marxian sociology see my *Contemporary Sociological Theories*, chap x; T. Veblen, *The Instinct of Workmanship* (New York, 1914); *The Theory of the Leisure Class* (New York, 1899); *The Place of Science in Modern Civilization* (New York, 1919); *The Higher Learning in America* (New York, 1918). A concise outline of Veblen's theory of social change is seen in McIver's *Society* (cited), pp. 452 ff.

than of reality, Marx's theory is in fact a prototype of all the other — later — theories surveyed. All of these, from Coste's to Veblen's, are a variation of the Marxian theory, with its primacy of the economico-technological system in social and cultural change.

The foregoing are a series of the recent dichotomic theories in the field studied.

III. Criticism of the Dichotomic Theories

Their first general defect is that none of these theories have gone beyond some more or less general statements as to the nature of their sociocultural system or unity. Is it a system of causally united elements, or one of meaningfully united elements, or is it just a formal class-concept, as a mere sum of similar congeries; and how does it differ from congeries, in that case? None of the authors, except McIver,[29] even go into the matter of defining this problem. None of the theories take the trouble to define clearly of what "strains" — components, elements, and subsystems — each of the dichotomies is made. All that they do is to outline vaguely their class, mention one or a few sociocultural "strains" that typify it, and that is all. As a result, we do not yet know exactly what represents each of the dichotomic classes. Likewise, none of the theories state clearly whether *all* sociocultural phenomena enter into their two systems, leaving no congeries outside of them, or if there are congeries not embraced by them. Still less do we know whether a certain class of social phenomena, for instance, art or religion, in *all* its forms, always belongs to one of the two systems, or if it belongs to it only in a certain form; for example, when art is Visual or Sensate or when religion is "scientific" they belong to one class; and belong to the other system when art is Ideational, or religion is super-rational. For these reasons, the theories are indeed foggy and therefore unsatisfactory.

So far as one must assume that they really mean something definite and must, on the basis of the inadequate remarks of the authors, interpret them, one finds their dichotomic divisions are fictitious rather than real; defective logically rather than precise; fallacious factually rather than adequate. Let us take, from that standpoint, one variant after another.

A. *Dichotomy of the Material and Nonmaterial Culture.* What is

[29] See McIver's "The Historical Pattern of Social Change," quoted, pp. 38 ff., where he tries to point out, though not very clearly, something similar to what I call the "meaningful-causal" system

material culture? In one place we are told that materiality of the culture-trait "lies not in the life [or physical properties] of a particular object, but in the perpetuation of the *knowledge* of the making of the object." [30]

Farther on, we are told again and again that material culture "grows through inventions," "because of inventions," "because of mental ability." [31] This means that *material culture itself is a form of knowledge,* mental fact, because invention or mental ability is neither a physicochemical process as such, nor a biological process as such (many organisms do not make any invention), but a mental process of the phenomenon of thought. As such, it has to be classed by Ogburn with the nonmaterial culture, because science is regarded by him as a form of the nonmaterial culture.[32] Thus we have two propositions of Ogburn: "Knowledge is material culture"; "knowledge [science] is nonmaterial culture."

They evidently are contradictory. Therefore, the conclusion that the material culture (knowledge) is different from and leads the nonmaterial culture (also knowledge) becomes meaningless.

No wonder, therefore, that, as R. Merton rightly remarks:

> the same cultural trait is at times classified [by Ogburn] as material, at others as nonmaterial. For example, the use of objects and substances is a part of material culture (*Social Change,* p. 72), while ways of doing things and rules involved in handling technical appliances are nonmaterial (*Ibid.,* pp. 28, 44, 271). Again, the methods of making objects are both material and nonmaterial. (*Ibid.,* pp. 12, 105, 106.) And so on.[33]

All this means that the fundamental premise of Ogburn's theory is defined poorly, even self-contradictorily; for this reason alone it can hardly serve as a safe foundation for the subsequent propositions based upon it.

The second fundamental error of both — Marxian and Ogburnian — theories is a confrontation of the material and nonmaterial cultures as two separate entities or different classes of phenomena. It is an error, because, as we have seen, any object or trait or element of culture has always two aspects: the inner, its sociocultural meaning, which is its nonmaterial aspect; and the external or material aspect — vehicles

[30] Ogburn, *Social Change,* p. 74.

[31] *Ibid.,* pp. 36, 103, 269, *et passim.*

[32] *Ibid.,* p. 269, *et passim.*

[33] See R. K. Merton, "Civilization and Culture," *Sociology and Social Research,* Vol XXI, 1936, p. 104.

and agents — composed of inorganic and organic phenomena which incarnate, objectify, externalize or socialize the inner aspect, or sociocultural meaning.

These external vehicles belong to a culture only so far as they are the manifestation of the internal aspect. . . . Deprived of its inner meaning, the Venus of Milo becomes a mere piece of marble . . . a Beethoven symphony turns into a mere combination of sounds, or even into vibrations of air waves of certain length to be studied by physics, — and so on.[34]

Deprived of their inner meaning, tool, instrument, machinery, means of transportation, knife, hatchet, automobile, dredging apparatus, radio set, national flag, and so on, all cease to be objects of culture and become merely physical, chemical or biological articles, of certain physicochemical, mechanical, or biological composition. *A scientific idea,* when it becomes social and emerges from the mind of the person who conceived it into the social world, always objectifies itself in some "material" vehicles: in a speech (sound, air-waves), in a book, in a phonograph record, in a film, manuscript, instrument, apparatus, laboratory, scientific lecture, meeting, classroom, university, academy, institute, and in a hundred other — perfectly material — forms, even with great or little wealth and very material property (houses, land, money, etc.). As a variety of this process, a *technical* idea externalizes itself in the form of the machinery or instruments invented, and in the material possessions of the corporation that exploits the invention.

Similarly, a *religious belief,* on becoming sociocultural (that is, accessible to others) inevitably externalizes itself in the vehicles of sermon, pulpit, manuscript, book, printing press, music, ceremonies, religious statues, pictures, ikons; in building of chapels, temples, cathedrals, and in religious organizations, with all their material property and complexes.

An *aesthetic idea,* becoming social, incarnates itself in the vehicles of pictures, statues, ornamentations, architectural buildings, musical instruments, conservatories of music, stage auditoriums, a symphony hall, an exhibition palace, and in numberless other perfectly material forms, not infrequently in vast capital and wealth of the artist.

The heavy volumes of law codes and statutes, the policemen, judges, courtrooms and buildings, prisons, gallows, electric chairs, and other material instruments of punishment — these objects and institutions, with their paraphernalia, are a few of the many "material" vehicles of *juridical and ethical ideas and values.*

[34] See *Dynamics,* Vol. I, pp. 55 ff. See there the argument. Also see above, chaps. i, ii.

The same is true of *political or economic or social ideas, values, norms. Each of them, if conceived by an individual, cannot become social — that is, accessible to others — without some form of externalization or materialization* because (excluding telepathy and clairvoyance) we cannot convey to anybody anything of our inner experience — ideas, feelings, emotions, volitions — without externalization of it. Externalization means "materialization." It requires the use of conductors, vehicles, and agents (see Chapters One and Two). We know that any empirical sociocultural system has the "material" components of vehicles and agents.

On the other hand, no object or phenomenon, no matter what are its physical or chemical properties, can become an object or phenomenon of culture without having the inner aspect of meanings. When this axiomatic thing is understood, all the absurdity of the contrast of material (vehicles) to nonmaterial culture (meanings) as separate entities and classes or objects becomes evident.[35]

For this reason also, the dichotomy of Marx-Ogburn, taken in this form, is impermissible; therefore the conclusions they derive from it are doomed to be hopeless, so far as their validity is concerned. This we shall see further. Now we will turn to the next dichotomic variant:

B. *Dichotomy of the Technological vs. Cultural or Socioreflective.* Perhaps this dichotomy of Louis Weber, and partly of Marx-Veblen, will fare better than the Material-Nonmaterial division? Hardly, and for reasons similar to the dichotomy of the material *vs.* nonmaterial. These theories like to start with the old statement *primum vivere deinde philosophare* repeated by Goethe: "At the beginning was action" [36] and re-repeated recently by W. G. Sumner: "The first task of life is to live; men begin with acts, not thoughts." [37] For this reason they claim that man was first *homo faber,* and not *homo socius,* or

[35] From this standpoint, Ogburn's definition of culture is instructive. "Culture may be thought of as the accumulated products of human society and includes the use of material objects as well as social institutions and social ways of doing things." *Social Change,* p. 58. Logically it is as defective as the identical definition of a dog. "Dog may be thought of as the accumulated products of certain species and includes the use of legs as well as of tail and stomach." But leaving out this shortcoming, does this mean that social institutions do not use material objects, or that social ways of doing things do not assume material forms and deal with material objects? Or that material objects do not need their social use (inner aspect) in order to become a part of culture?

[36] See L. Weber, *op. cit.,* p. 123.

[37] W. G. Sumner, *Folkways* (New York, 1906), pp. 1, 2, 25, *et passim;* A. Keller, *Societal Evolution* (New York, 1931), pp. 208 ff.

thinking *homo sapiens*, and that action, practice, ways of doing things, or technique, preceded and do precede any thought, and is a phenomenon distinctly different from thought. Hence, the separation of technique, or the technical class of sociocultural phenomena from, and in contrast to, their nontechnical class. Is all this logically sound? First of all, there is not the slightest factual ground to prove that *homo faber* preceded *homo sapiens* or *homo socius*. At least, we know man only as *homo socius*, only as *homo sapiens*, at the earliest period of the known history of man; therefore there is not a scintilla of factual or logical evidence for the claim that *homo faber* preceded *homo sapiens* and *homo socius*. Logically, in order to be even the most primitive *homo faber*, man had to be, to some extent, thinking — in the primitive manner — *homo sapiens;* otherwise, he could not make or manufacture anything (since he is not considered to be guided by instinct; if guided by instinct only, then he is just an animal, an object of biology and not a bearer of culture). Some thought was needed to make even the simplest stone weapon to throw at an animal, or to use a stick to strike it, not to mention more complex operations. The argument in such a form is altogether inept.

Thus putting aside the priority of the emergence of *homo faber*, and turning our attention to the actual and known behavior of man, we can certainly claim that not always do men begin with actions: in *all their rational or semirational behavior, in all conscious actions*, they think (or thought before in regard to so-called automatic and habitual actions) and then act. It is unimportant whether their thought is good or not, whether it is "logico-experimental" or "fallacious"; what is important is that in all such actions they either think before acting, or think simultaneously with the action. And the portion of such rational, semirational, conscious purposive actions (preceded or accompanied with even Pareto's "derivations" thought) is enormous in human behavior.[38]

It is fallacious therefore to claim that uniformly or even prevalently thoughtless or blind action preceded thought; practice always precedes respective "theory" (however primitive); ways of doing things precede a mental idea, image, purpose and plan of these things; technique precedes the theoretical knowledge of the phenomena concerned, in-

[38] See L. Petrajitsky, *Introduction to the Theory of Law and Moral* (in Russian) (St. Petersburg, 1907); *Theory of Law and Ethics* (in Russian), 2 vols (St Petersburg, 1909); T. Parsons, *Structure of Social Action* (New York, 1937); P. Sorokin and C. Berger, *Time-Budgets of Human Behavior* (Harvard University Press, 1939), part iii.

cluding the properties, and expected effects of the technique itself. In its claim of universality, the discussed pragmatic argument is evidently fallacious. It elevates a partial class into universal rule.[39] Further, a mere blind and thoughtless action is not sufficient to become a real power of sociocultural change, to be "accumulative," and to influence increasingly all the other sectors of the sociocultural phenomena. If it were blind and erroneous, it would lead only to the perdition of the actors, and not to the accumulation of culture, experience, and knowledge. In that case, being a misfit action, a wrong technique, and inadequate practice, it does not have the properties of being "scientific," "true," "the real way to achieve the purpose based upon real knowledge"; it cannot be either accumulative, or an effective weapon with which to change the sociocultural conditions and the cosmic forces. Like any fantastic and illusory blunder, it is fated to disappear, and leads to the perdition of those who practice it. If the thoughtless action, like an instinct, happens to be adequate, fitted to meet the need, the result will be a development of instinct, and stagnation of the instinctively correct responses, and respectively the stagnation of the whole sociocultural life; but not an ever-changing culture, not culture itself, nor any social technique as distinct from the instinctive technique of animals. In that case, the human society would be a mere variant of the instinctive and stationary societies of ants and bees. In both cases (when the blind action is apt, and when it is not) the theory that 'men begin with acts, not with thought" cannot account either for the incessant change of culture, or for the accumulative character of the material or technical culture which it claims; or for the power of the technique itself (as thoughtless and blind); nor can it logically claim the time-priority of the technical change compared with thought change as a uniformity. In brief, the argument

[39] On the other hand, A. G Keller's argument that the "maintenance mores" are more testifiable in their "expediency" or "inexpediency" assumes that human beings are quite rational and according to the procedure of an inductive logic correctly test "expediency" and "inexpediency" of the maintenance mores — an assumption of a very questionable nature, even according to his own theory of an irrational and blind selection of the mores by a given society. Further, daily observation shows that the actual consequences of "expediency or inexpediency" of a political regime (for instance, of Communism), or a religious belief or law norm are believed and felt often as immediately and convincingly in the experience of the respective population as those of the maintenance mores. We should not forget also that no maintenance mores or economic order is possible without respective law norms and religious mores behind them. R. Stammler, L Petrajitsky have shown this clearly for economic law and order; F. de Coulanges, J. G. Frazer, Max Weber, C. Bouglé and many others for economic order and religion.

kills itself in its self-contradictions, and can be left at that, "to rest in peace."

Turning now to the dichotomic classification of the sociocultural phenomena into technical (or technological) and nontechnical (nontechnological); this classification itself is hopelessly untenable. *Any class of sociocultural phenomena, including the class of supposedly nontechnical phenomena, has its technical and nontechnical aspects,* just as any class of sociocultural phenomena has its "material" vehicles and "nonmaterial meanings" aspects. Technique means the way of doing things, including the use of instruments, tools, and the means for conscious and unconscious realization of certain objectives. Painting, sculpture, architecture, music, literature, drama, religion, science, law, ethics, economic, political, social organizations, all have their technique (good or bad, it does not concern us now), and cannot help having it. As long as all these sociocultural systems or complexes exist, they function; functioning, they adopt certain ways of doing things, and these ways are their technique, be it the technique of microscope or calculus, or of addition and multiplication, of syllogism, of the manner of prayer, of sacrament, of the Mass; or the technique of painting or of playing a symphony; of a baseball game, or of trying a criminal; or the technique of tax collection or revolution; of education or law-making; or of business operation or social work. In brief, any class of sociocultural phenomena has its technique, up to the technique of "technology."

Any *scientific system,* be it physics or chemistry, history or biology, has its technique of research, of study, of conservation and propagation. And in most cases, a very intricate, difficult, and complicated technique it is, requiring years of training. Meanwhile, science generally, and social sciences in particular, are, according to the criticized theory, supposedly nontechnical or nontechnological phenomena.

Any *religion* has likewise a vast technical element: technique of its prayer, its ritual, its meetings, its inculcation, its propagation, with the use of an enormous number of "material" vehicles, instruments, tools, and with a very rigid and intricate code of hieratic rules and norms of technical procedure in each particular case. And religion is supposed to be a nontechnical phenomenon.

Any *art,* be it music, painting, architecture, theater, literature, has again its own technique — even each master has often his own special method of creation of art objects; and years and years of training are necessary to master even a small part of this technique of art. And

art again is allegedly a nontechnical phenomenon. And so on and so forth.

To contrast technical with nontechnical phenomena as separate classes is no more sound than to contrast one side of my hand with the other, or one side of a cloth with the other (the objectifying vehicle to the meaning); and, in addition, to say that one side of it is leading in change, the other lagging; that one side appeared earlier than the other, is preposterous (see further, regarding this aspect, Chapter Six).

Put in such a form, the theory is certainly absurd. It may, however, be put in a different form, namely: that certain classes of sociocultural phenomena (with their technical and nontechnical aspects) are united into one system — for instance, economic and "technological" — while other classes of sociocultural phenomena — for instance, art, religion, science, ethics, and law — are united into another system, and these systems change differently. Such a setting of the problem leads us to the third variety of the dichotomic theories — Civilization *vs.* Culture — to be considered now.

C. *Dichotomy of Civilization* vs. *Culture; Sociality* vs. *Ideology.* Here we are confronted with considerable vagueness as to exactly what is meant by each class and of what "strains" — elements, components, subsystems — of sociocultural phenomena it is made up. A. Weber does not give any clear *fundamentum divisionis.* A. Coste, M. Tugan-Baranovsky, and R. McIver give it: it is the *principle of utility* or that of *values-as-means and as ends.* Is the principle valid? Does it serve as a reliable guide in the distinction as to which is which? I am afraid not. The first evidence of that is that each of these authors puts the same class of phenomena now in one, now in the other of their dichotomic classes. For instance, Coste puts beliefs and religion now in one, now in the other of his classes. So also does McIver. Science is now put by him into Civilization,[40] now into Culture.[41]

Then, on the same utilitarian principle, Coste puts beliefs into his Sociality class (corresponding to Civilization); McIver and A. Weber put religion generally into the class of Culture or Coste's Ideology. Thus, guided by the same principle, the authors use quite different "pigeonholing" of the sociocultural phenomena. Such inconsistencies, as well as the inter-author contradictions, are numerous through-

[40] See McIver, *Society, op. cit.,* pp. 403–404.

[41] McIver, "The Historical Pattern of Social Change," quoted, p. 41.

out their works. Such a shortcoming is not surprising, considering the nature of their criteria. The principle of utility or usefulness, by its very nature, cannot serve the purpose satisfactorily. If it is taken psychologically, which is what each man thinks is useful and what is not, we are swamped in a maze of individual fancies and differences and contradictions. Psychologically, an atheist regards religious functions as perfectly useless; a believer, on the contrary, considers them most useful and vitally necessary, helpful even in his business, for which reason he often makes donations to God in the form of certain additional prayers or promises.

Psychologically, Coste and McIver regard all theoretical science (natural, social, and humanistic) [42] and all the fine arts as devoid of utility, or as "values-as-ends." There are thousands of persons — scientists, artists, plain people — who, psychologically, decidedly disagree with such a diagnosis; in their opinion such sciences and arts are highly useful, in the narrowest sense of the term. Coste, Weber, McIver regard "technology" as useful and put it into the class of "Sociality" or "Civilization"; and there are many writers, thinkers, ordinary people and even unemployed, who deplore "technological progress," find it harmful, poisonous, creating "technological unemployment," depriving culture of beauty and health, and sapping the very vigor and vital force of mankind.[43] And so on.

Psychologically, there exists no uniformity of judgment as to what sociocultural phenomenon is useful and what is not; what is value-as-means and value-as-end. Some people play golf, solve crossword puzzles, go to church, study the Einstein theory of relativity, listen to the Symphony, engage in complicated inventions, become business men or professors, play the stock market and make money for their own purposes, as for values-as-ends. Others do the same as a means

[42] McIver regards "the association of the fine arts and sciences" "typical embodiments of values-as-ends," "The Historical Pattern of Social Change," quoted, p 41

[43] See, for instance, L Tolstoi's, M. Gandhi's, J. Ruskin's, Dean Inge's, utterances about it; or such works as those of G. Lombroso, *La rançon du machinisme* (Paris, 1931); R. A. Freeman, *Social Decay and Regeneration* (Boston, 1921); H Adams, *The Degradation of the Democratic Dogma* (New York, 1919); J L. Duplan, *Sa Majesté la machine* (Paris, 1930), D Rops, *La monde sans âme* (Paris, 1932); H. Dubreuil, *Standards* (Paris, 1929), H. de Man, *Au dela du Marxisme* (Paris, 1929); G. Duhamel, *L'humaniste et l'automate* (Paris, 1933); H. Bergson, *Les deux sources de la morale et de la religion* (Paris, 1932); Oswald Spengler, *Der Mensch und die Technik* (Munich, 1933); A. J. Toynbee, *A Study of History*, Vol. III, pp. 154–174; Vol. IV, pp. 39–56, *et passim* in all six volumes; and many places, even in such works as L. Mumford's *Technics and Civilization* (New York, 1935), and *The Culture of the Cities* (New York, 1938), or P. M. Schuhl's *Machinisme et philosophie* (Paris, 1938).

of striking up a friendship with such and such influential people, to make money, to obtain promotion, and the like. Here again no scientific solution is possible.

That these statements are not mere conjectures is shown by actual study of the relationships between the overt activities of individuals and groups and the motivation of these activities. Our study of the actual motivation of fifty-five overt activities of one hundred and three persons, shows, first, that there is no close and specific relationship between a given overt activity and a given motive, including the factor whether the activity is regarded as a means or end. The same overt activity, be it sleeping, eating, or civic, religious, aesthetic, or scientific in nature, is motivated in different people, and in the same individual, now by one, now by another motive or motives, and vice versa. The same motive, for instance, of "personal comfort," or "social," or "curiosity," manifests itself in several and quite different activities. Here are examples of the main motives of various activities: *Religious activity* has as its motives (with different persons and with the same individual at various times): "physical need," "personal comfort," "habit," "custom," "utilitarian and economic reasons," "coercion," "force of circumstances," "curiosity," "just for a change," and so on — practically all the motives of our classification. *Dancing activity* has as its main motives: "personal amusement," "social," "custom," "preparatory," "exercise." *Eating activity:* "physical need," "habit," "curiosity," "force of circumstances," and so on. Practically all fifty-five activities show a much more complex picture of motivation and its changing character than is usually realized. Likewise, they show that the same activity, even that of eating, now appears to be a mere means, now as an end in itself. Religious activity for some is end; for others, means; even for the same individual it is now means, now end.[44]

There is no possibility of maintaining the dichotomy criticized upon a psychological basis.

McIver realizes this; therefore he tries to shift the problem from the subjective-psychological plane to the objective-sociological one. He claims that such dichotomy, with the compartments of culture mentioned in each dichotomic class, is given sociologically, as an objective, superindividual, social reality. (See also reference to McIver on page 164.)

[44] See the detailed data in P. Sorokin and C. Berger, *Time-Budgets of Human Behavior* (Harvard University Press, 1939), part iii.

Is the claim valid? Considering, as it has been pointed out, that the author himself placed science, for instance, now in one, now in other groups, one can seriously doubt that. One can also question whether the "family, the church, the discussion group, the gossip party, the sports organization, the associations of arts and of sciences, the alumni associations, and certain forms of educational institutions are *typically* embodiments of values-as-ends," while "technological, the economic, the political systems" are "*typically* values-as-means." We know well that for many ordinary people and thinkers, from the Sophists, Sextus Empiricus, Lucian, Marsilio of Padua, Machiavelli, Pierre du Bois, up to a legion of sceptics, liberalists and radicals, the only justifying reason for religion and church is that they are socially useful: are good means to certain ends.[45] We know many people who marry (especially a rich partner) and start a family as a mere means to ends entirely outside the family.[46] A large number of persons regard exercise and sport activities as a nuisance [47] but as necessary means of maintaining their health. And so also with other associations mentioned. On the other hand, for many technological inventors, and possibly for the majority of the great inventors, invention itself has been the end, the self-value, and not a means to something else.[48]

This is still truer for many a scientist or scholar (in another place science is put by the author into the Civilization group), and their organizations. There have been many money-makers, business men, and builders of business empires who took business and money-making as an end in itself.[49] As for the political systems, one has to discount Plato, Aristotle and a host of the greatest writers on the State and government, who have taken the State and government as the end-value, as the condition and at the same time realization of the highest value — certainly as much higher and of much more "value-as-end" than McIver's gossip-sport-alumni association, and the like. These facts cannot be doubted.

But it may be objected that these facts present the situation still

[45] See the evidence for that in our *Time-Budgets of Human Behavior*, part iii.

[46] See the data, *ibid.*

[47] See diversity of motivation, *ibid.*, part iii.

[48] See F. Taussig, *Inventors and Money-Makers* (New York, 1915), where the real psychology of the inventors and their passion for their work is excellently documented Jos. Rossman, *The Psychology of the Inventor* (Washington, 1931), chap. x. Of 710 inventors asked about the motives of their inventions 193 cases indicate love of inventing; 267, financial gain; 118, necessity; 73, desire to achieve; 27, prestige; 22, altruism; 6, laziness; and so on. See Rossman, *ibid.*, p. 152.

[49] See Taussig, *op. cit.*, for the business man.

from a psychological rather than from a sociological standpoint. If so, we may ask what are the evidences that sociologically it is as claimed by McIver? Unfortunately he does not give any evidence, except the quoted dogmatic statement that each of these organizations and values is typically such as he claims. That is no evidence at all. The only course open to him is to demonstrate that an objective investigation of the enumerated classes of sociocultural phenomena shows that technological, economic, and political activities are always and everywhere utilitarian, while the family, religion, arts, science, philosophy, and so on, are uniformly and perennially devoid of the utilitarian character and usefulness. To prove such a contention is hardly possible. First, if the alleged useless or nonutilitarian classes of sociocultural phenomena were such, how have they survived through all the long ages of human history? Why have they not been eliminated long ago, since perennially useless things are always eliminated? Second, there are enough studies of even the most primitive religion and magic to show their exceptionally great utility in a number of ways: not only Plato, Aristotle, Ibn-Khaldun, G. Vico, St. Thomas Aquinas and other idealistic thinkers, but such sceptical or scientific investigators as Marsilio of Padua, Machiavelli, E. Durkheim, J. Frazer, G. LeBon, B. Kidd, G. Sorel, V. Pareto, C. Ellwood, Max Weber, F. de Coulanges, to mention but a few, have proven the utilitarian functions of religion unquestionably.[50] The same can be said, with a slight variation, of the arts, and especially of the sciences, of ethics, law, and of any class of the "culture" phenomena. And vice versa, not every form of technological, economic, or political activity and phenomena has been always and everywhere useful. If it were so, no "bad economics," "poisonous politics," and "detrimental technology" would ever have existed.[51]

[50] See especially such works as J. G Frazer, *Psyche's Task* (London, 1913); G. Sorel, *Reflection on Violence* (New York, 1912), pp. 133 ff., where he shows the usefulness of mythology. For other works, see my *Contemporary Sociological Theories*, pp. 54 ff., and chap. xii.

[51] A. Toynbee shows clearly that, if anything, technological progress has been associated with a decline of civilization, but not with its growth and improvement In spite of an exaggeration of this negative correlation by Toynbee, he lays down a sufficient body of facts to show that not infrequently technological progress has been an agency harmful to the growth or existence of civilization-culture and has been associated with the periods of disintegration and dissolution of his twenty-one civilizations studied, but not with the period of their growth and improvement. See his *A Study of History* (Oxford University Press, 1934–39), Vol. III, pp. 154 ff.; Vol. IV, pp. 39–56, *et passim*. The destructiveness of scientific technology in the present war is one of the cases of this kind.

Third, the category of usefulness, of utility, is so elastic, so indefinite by its very nature, that unless we confine ourselves dogmatically to "hedonistic" or a similar utility, we hardly can get an objective, even remotely adequate, concept of utility.[52] Still more difficult is it to define a utility useful to everybody, always, under all circumstances. Confinement to purely "hedonistic" utility is arbitrary; we have seen that in the history of human ethics the utilitarian and hedonistic ethics has been only one of the streams and far from the dominant one.[53]

From the standpoint of Ideational ethics, all the Sensate utilities are but perdition; the union with the Absolute and all that leads to it is the only real value; from the standpoint of Sensate ethics, the Ideational ethics and values are but superstition, obscurantism, and the like. In brief, any objective examination would show that sociologically there are no such things as useful and nonuseful classes of sociocultural phenomena as such; value-as-means and value-as-end as such. Still less is it an objective sociological fact that economic, political, technological and other classes are sociologically "means," while the gossip-party and sports organization are "ends." [54]

Finally, this dichotomy makes the same mistake that is made by the preceding ones. It selects certain classes of social phenomena and imputes to them, as such, the inalienable quality of being useful, or of being nonuseful; some are destined to be values-as-means, some others values-as-ends. Meanwhile, usefulness or nonusefulness, values as means and ends, are specifications that are not attached to any class of overt or other phenomena, by virtue of their chemical, physi-

[52] Even from this standpoint, as the endless struggle of various hedonistic theories of value and utility in political economy shows, the concept of even sensate or economic utility is still in *status nascendi;* economists are still looking for a definition acceptable to all of them.

[53] See *Dynamics,* Vol. II, chaps. xiii, xiv, xv.

[54] R. Merton tries to save the situation by postulating the "analytical" character of these dichotomic concepts Alas! One can assume and postulate whatever one pleases, for instance, that "analytically" there are "vegetables" as a species of plant organism, and "game" as a species of animal organism. And yet one would not find such species in reality or in any competent textbook of botanical or zoological taxonomy If one's categories are intended to be real, for any category to be adequate, it is necessary that the elements united in it have all the same characteristic(s) and that these characteristic(s) be essential, and, if several, be either causally or logically united with one another. One cannot style by the same term "water" H_2O, H_2SO_4, CH_3. If one unites all these into water, or the same class, his class will be like a grocery basket containing chocolate, meat, soap, floor wax, and what not. Such congeries do not make a real class, and no assumption — analytical or other — can help that. See R. Merton, "Civilization and Culture," quoted.

cal, or biological properties. As we have seen (see Chapters One and Two), the relationship between these properties, especially the material nature of the phenomena and these qualifications, is shifting, logico-meaningful, symbolic. A poor piece of wood (Australian churinga) may be a supreme value, under certain conditions, for certain people, and in a certain culture-mentality; a stick of wood with a piece of cloth — national flag — may be that and thousands of other phenomena, with the most different overt properties. And vice versa, the same material set of objects may be endowed now with supreme, now with subordinate, and now with negative value. It is enough to compare the Ideational and Sensate mentalities from this standpoint in order to see that. The theories criticized forget this and tell us: "This class by its very nature is a means-value; this is an end-value." Nothing like this is found sociologically and logically.

Sociologically, instead of McIver–A. Weber–A. Coste's dicta, we find three fundamentally different things: first, the above loose and shifting relationship between these categories (values as ends and means; positive and negative values) and the concrete classes of social phenomena (vehicles) to which they are attached or imputed by a given man or society or culture. Second, these concrete classes to which they are imputed, shift from man to man, from society to society, from culture to culture, from period to period in the same culture. Classes of sociocultural phenomena which are regarded as end-values in an Ideational culture are fundamentally different — practically opposite — from those in a Sensate culture. The same is true of the classes regarded as means-values, and is also true if we take a typical Communist or a typical pious Catholic. By virtue of the symbolic or loose liaison between the classes of phenomena (vehicles) and categories (meanings), such a shift is inevitable. There is no class of sociocultural objects which for all people, at all times, in all cultures, is always end-value, or always means-value. Third, even *within the same culture,* say, Sensate, practically *each and all of its main systems divide* (*sociologically*) *their own values into end-values and means-values, into positive and negative, resulting in a pyramid of values. Religion* has its end-value: God, union with Him, salvation of the soul — and its means-values: fasting, a pious life, donations to the church and to the poor, regular attendance at services, decent church building, and so on. *Science* similarly has its end-value: truth and real knowledge — and its means-values: from obtaining a good endowment for a university, to the possession of good laboratories,

library, instruments, technique of study, etc. *Art* has its end-value(s): beauty — and means-values, in the shape of brushes, canvas, piano, to the manner of acting a drama, etc. Likewise *Business;* its end-value (as business) is to carry on the enterprise successfully, and along the line of social service; its means-values are advertising, salesmen, organizers, workers, up to all the requisites for successful competition. So also with *Politics* and *Government.* Political activity and government have their end-values and their means-values, no matter what they are concretely, whether the ideal *summum bonum* of Plato's and Aristotle's Government, or victory in the next election for a given political party.

In each class of the sociocultural phenomena, all its values are not held as equal, but as stratified into a hierarchical pyramid, beginning with the negative and meanest of the means-values and ending with its final, supreme end-value. There is hardly an important sector of culture and society which regards all its values as equal, either all as mere means or all as mere ends, or which puts all of them on the same level. Likewise, there is hardly any important sector of culture which definitely subordinates all its values to those of another sector, for instance, all business values to the religious, or to "sport-family-gossip-party" values. Such a situation does not exist, especially in Sensate culture. What does exist in this respect is something very different, namely, subordination of all the values of all the sectors to one central — and intercompartmental — value of a *given type of supersystem of culture.* In Sensate culture, the value of utility is one of these central values, but it is thought of as being diffused through all its compartments, beginning with business, and ending with religion and sport and the family. It is not thought of as confined only to business, and as absent from art, science, religion, and so on. In Ideational culture, the value of God or the supersensory true reality is the supreme value: but again, this is not considered to be confined within one sector of such a culture; on the contrary, it is present in religious activities, in the art sector, the knowledge sector, in many practical activities, from altruistic business methods to military defence of the Kingdom of God and political activity. In both cases, the central or supreme value is present in some form, but it is not confined to any specific sectors of the culture, making some of them mere means, and some mere ends.

Such is the real sociological situation, instead of the imaginary one postulated by the criticized theories. Therefore, they do not have

any real basis on which to claim that sociologically their dichotomy is well grounded.

Thus all of the above dichotomic divisions of the total sociocultural world into two different systems is fallacious. No less fallacious, therefore, is the imputation to each of these divisions of a series of different characteristics, through which they allegedly differ in their functioning and change.

D. *Fallacy of the Accumulative and Nonaccumulative, Linear and Nonlinear Characteristics of Each of the Dichotomic Systems.* We have seen that all the dichotomists claim a series of differences in the functions and mode of change of each of their two systems. They assure us that the "technological," "societal," "material," "civilizational" system changes more regularly, is accumulative, is linear in its progressive "biggerness and betterness," diffuses earlier, easier, and over all cultures; while the other system ("ideological," "nonmaterial," "cultural") is neither accumulative nor linear in its development, nor is it universal in its diffusion, remaining "local" and limited to a given society or area. (Other differences between them, particularly the tempo and order of change, will be discussed further in Chapters Six and Seven.)

Are such statements valid? Logically, if the dichotomies themselves are questionable, these conclusions must be expected to be doubtful also. Factually, too, they appear to be inadequate. In order to prove this, we have to clarify the meaning of the above propositions. What is meant by saying that one of the dichotomic systems is accumulative, while the other is not? It may mean, first, that the technological, material, civilizational inventions and discoveries tend to accumulate *quantitatively*, in the course of time, to the total sum at a given period being added an additional number in each subsequent period, thus resulting in an ever greater increase or accumulation of these inventions and discoveries in the course of time. If such is the meaning of the statement, it is untenable, because *quantitatively* the same can be said of the creations and inventions in practically any sector of culture and society, and in the "ideological," "nonmaterial," "nontechnological," or "cultural" sectors particularly. To see that, it is enough to glance at the tables and curves given in the preceding volumes, particularly in Volume Two, and especially the tables and curves given in Chapter Seven of this volume. They show that quantitatively, for the period of the centuries investigated, (*a*) the number of natural science discoveries, (*b*) the number of scientists,

(*c*) the number of technological inventions, (*d*) the number of philosophers, (*e*) the number of musicians, (*f*) the number of religious leaders, (*g*) the number of business leaders, (*h*) the number of painters, sculptors and *literati* all tend to increase and accumulate in the course of time; and even more, all those curves belonging to both dichotomic divisions move almost parallel with one another. So far as any name left in history means that its bearer has made some contribution, added something new to the annals of history, so far *those curves testify definitely* that *all those sectors of the sociocultural world are "accumulative" in the course of time.*

No difference can be drawn, from this standpoint, between the two dichotomic divisions. If at the present time we have at our disposal much greater numbers of technological inventions than mankind had, say, five hundred years ago, we have also a much greater number of achievements and creations in the fields of art, philosophy, law, religion, and any other field of the "nonmaterial," "nontechnological," and "cultural" part of the dichotomic division. Five hundred years ago there was no Mozart, no Bach, no Monteverde, no Haydn, no Handel, no Beethoven — not to mention later musicians — in the field of music. We have their compositions, and we have preserved a great deal of the music that existed five hundred years ago or earlier. This music is probably preserved to a greater extent than many outdated technological inventions of the past.[55] How then is it possible to talk of the nonaccumulative character of the nonmaterial, nontechnological or cultural part? The situation is the same in literature. We have at our disposal most of the oldest and greatest creations, the great anonymous epics, legends and myths from the Vedas, Mahabharatas, Upanishads, Eddas, the Bible, Homer, Hesiod, down to the masterpieces of literature of the present time. So also with painting

[55] C. Lalo rightly says in regard to the technique of music: "In fact, is not our orchestra becoming larger and larger, the number of instruments greater and greater, and the combination of arts in the modern musical drama more and more complex? Each new means of expression adds itself to those which were possessed by the previous generation. In this way, art, like wealth, science, and what not, marches slowly but surely, progressing through a series of successive acquisitions. 'In music,' they say, 'there is no decadence,' [from this quantitative standpoint]. . . . Especially this accumulation is true of the material means of musical performance. These means are, in fact, similar to the instruments of labour, to wealth or capital, which can go on accumulating more and more." C. Lalo, *Esquisse d'une ésthètique musicale scientifique* (Paris, 1908), pp. 253 ff. Likewise, H. Berr rightly remarks: "Like technique, speculative science has always a tendency to progress and diffuse over wider and wider areas because its results are susceptible to accumulate and to consolidate (*de se totaliser*)." *Civilisation: Le mot et l'idée* (Paris, 1930), p. 141.

and architecture; with philosophy and religion; with law and ethics. At the present time we have an accumulation of most of the great and small religious systems that existed three or four thousand years ago; and we have, in addition, all the religious systems that have been created in the subsequent periods. The matter is so obvious and so unquestionable, that the criticized theories are quite untenable from this *quantitative* standpoint.

The theories may mean, however, by their propositions, something different from the purely quantitative — and untenable — meaning. They may mean not so much the quantitative as the *qualitative* aspect of the accumulation. In the field of Material culture (and its other variations) any new discovery or invention signifies an addition, the accretion of something new, unknown before; while in the field of the nonmaterial culture — art and philosophy, religion and law — all the accretions mean just a slight variation of the previously existing forms or patterns and do not indicate anything really new. Such an argument is more precise than the previous quantitative one. However, it also is faulty. Yes, the invention of the radio or airplane is certainly something new. But no less new is the creation of *Hamlet*, or the *Divine Comedy*, or *The Brothers Karamazoff*. No less new is the creation of Beethoven's *Fifth Symphony*, or Bach's *Mass in B-Minor*, or Wagner's *Tristan*, or Brahms' *Symphony No. 4*. The evolved styles of the *Romanesque*, the *Gothic*, or the modern *Reinforced Concrete* in architecture have all been new creations that did not exist before. So also are the creations of Dürer, Raphael, Rembrandt, Monet or Picasso new in the field of painting. In religion, the emergence of Christianity was not a mere repetition of the religions that existed previously, but the creation of a new religion, as different from the preceding ones as the radio is different from the telephone or telegraph, or an automobile from a steam-engine, or an airplane from a covered wagon. The same is true of the creation of any great religious system in the past or in the present. In philosophy, Plato's, Aristotle's, or Descartes' system was not a mere repetition of the previous philosophical systems; Hume-Kant's system not a variation of the Cartesian or Malebranche's or Berkeley's systems; the Hegelian system, again, was new in comparison with any previously existing systems. And this is so in regard to any creation in any field of culture. They all are new, otherwise they would not get into the annals of history; they would not be attributed to their creators; and these creators would hardly have left their names in the history of human

culture. All this is most axiomatic and need not be mentioned, if such theories were not offered seriously.

But, the criticized theorists may object, the new in the field of technological inventions is "much newer" than the new in the creations of the nonmaterial-nontechnological-cultural fields. This objection is also invalid. Any historian of science and technological invention knows well that in fact any important new invention — from a ship to a radio set, from Newtonian to Einsteinian mechanics — or any important new discovery in the natural sciences (if they are put into the field of the material-technological-civilizational sector) is the result of a long process, with a multitude of small discoveries made step by step, and the really new element in any important invention or discovery is comparatively a very modest one. "Surely the heroic theory of invention is abstraction." [56]

Similar is the situation regarding the creations in the field of nonmaterial culture (and its equivalents). They also rarely appear as thunderbolts from a blue sky, but gradually evolve, until they emerge as the great masterpieces that epitomize the previous smaller contributions. Without Bach, Stamitz, Mozart, Haydn, there could hardly have been Beethoven; without Hume, Kant; without previous Church Fathers, St. Augustine; and so on.[57]

However, if comparatively "newer new mutations" happen once in a while in the field of technology and science, no less do they happen also in the fields of art, philosophy, religion, etc., and in the field of art perhaps even more often than in the field of the Material culture and its equivalents. But even such "newest new" creations never appear as a sudden *deus ex machina,* but evolve in both fields of this

[56] V. G. Childe, "A Prehistorian Interpretation of Diffusion," *Independence, Convergence, and Borrowing* (Harvard University Press, 1937), p 6 See also S C. Gilfillan, *The Sociology of Invention* (Chicago, 1935); A. Rey, *La science dans l'antiquité,* 2 vols (Paris, 1930–31); H. Diels, *Antike Technik* (Leipzig, 1924); A. Reymond, *Histoire des sciences exactes et naturelles dans l'antiquité greco-romaine* (Paris, 1924); G Sarton, *Introduction to the History of Science,* 2 vols. (Baltimore, 1927, 1931); F M. Feldhaus, *Die Technik der Antike und des Mittelalters* (Potsdam, 1931); F. Enriques et G. de Santillana, *Storia del Pensiero Scientifico. Il Mondo Antico* (Bologna, 1932); A. Espinas, *Les origines de la technologie* (Paris, 1897); W Kaempffert, *A Popular History of American Invention,* 2 vols. (New York, 1924), and other works quoted in Volume Two, chap. iii of *Dynamics.*

[57] It is enough to examine any competent history of art· painting, sculpture, architecture, music, literature, and theater; any competent history of philosophy, of social and political theories, of religion, of ethical and juridical systems and theories, to prove this "graduality" and step-by-step progress of any important creation in these fields.

dichotomy gradually and continuously. This means that this interpretation of the theories criticized does not save them either.

But, the theorists may further say, in the field of the technological inventions, for instance, and the exact sciences, every important discovery and invention introduces a *fundamentally new pattern or principle,* while in the field of art, philosophy, religion, etc., there occurs but an endless repetition of the same — and very limited in number — main patterns and principles. Is the situation indeed such? It certainly is not. In the technological inventions, an enormous number of them use the same — and very old — patterns or principles, be it the principle of leverage, that of the wheel, or any of the other well-known principles discovered thousands of years ago. So it is in art, philosophy and religion: they repeat the principles of idealism-materialism, eternalism-temporalism, nominalism-realism, and so on. And so also in science: as has been shown in Volume Two of *Dynamics,* the main principles of science, like atomism, vitalism-mechanism, conception of time-space-causality, etc., are also old, are continually used, and enter, in one of their main patterns, into the scientific theories. On the other hand, so far as each discovery, or invention, or creation is new, it contains always, as shown above, some new elements in both dichotomic fields. So this attempt to save the theories is also fruitless.[58]

What then of truth remains in them? What interpretation can convey their validity? If the theorists should contend that in natural science and technological fields we have a continuous accumulation of facts and data, so also have we in the fields of history, sociology, law, ethics, political science, art, and any other fields of the nonmaterial culture. Aristotle had supposedly 163 constitutions at his disposal; we have several thousand of them; the social scientists of old had only a few statistics about social facts; we have almost unlimited statistical data about social phenomena. And so in other fields of the material and nonmaterial culture.

[58] From all these standpoints, it is particularly difficult to find any such differences between such classes of social phenomena as the forms of economic and political organizations put by MacIver into the class of "Civilization," and the forms of religions, gossip-party, sport, family organizations put by him into the nonaccumulative class of his "Culture." Certainly the main forms of economic and political organizations are hardly more numerous than those of religious, family, or sport organizations. The former are as little accumulative in the accretion of the new forms as the latter. In the accretion of the variations of the main forms, both classes show an inexhaustible variety and novelty.

A mere inventory of the facts and the data of the nonmaterial culture of the present time overtaxes the capacity of any single scholar or historian, or any group of them. None of us knows even a small fraction of the available facts.

If the theorists contend that the difference is that the discoveries and inventions in natural science and technology show a *"chemical cumulation"* in the sense of synthesizing in a new discovery or invention the elements of the preceding discoveries and inventions, while the creations in the field of the nonmaterial culture do not give such "chemical cumulation," such a defense is also baseless. What is Beethoven but a "chemical cumulation" or creative synthesis of the elements of music of Bach, Stamitz, Haydn, Mozart, Handel, to mention but a few of his predecessors? What is Christianity but a creative synthesis of the elements of Judaism, Neo-Platonism, Mithraism, and other religious beliefs that existed before it? What is Auguste Comte but a synthesis of "Catholicism minus Christianity" (as Huxley put it), of Turgot, Condorcet, St. Simon, J. de Maistre and other "elements" existent before him? So it is also with Phidias or Raphael, Rembrandt or Michelangelo, Kant or Hegel, Aristotle or Plato, St. Thomas Aquinas or Herbert Spencer.

If the criticized theorists try to find salvation by claiming that in the field of material culture (and its equivalents) we have a *selective* accumulation, in the sense that any material system accepts and admits some new elements and rejects others, the claim is futile, because, as we have seen, *selectivity is an immanent trait* of any sociocultural (and other) system (see Chapters One and Two). The medieval Ideational supersystem of culture, literature, and philosophy at its vigorous stage rejected almost all the materialistic systems of philosophy; any sexual and erotic novels; any sensual art creation. On the other hand, any predominantly Sensate system of culture rejects most of the Ideational forms in its subsystems, and opens wide the door for Sensate paintings, sculpture, literature, philosophy, etc. We do not expect that in an age of Sensate culture the masterpieces of literature will assume the form of the *Divine Comedy*. In any sociocultural system an adoption and rejection of new elements is always selective (see above, Chapters One and Two).

Then there remains only one meaning in the theories criticized, namely: that *accumulation in the field of the material-technological-societal-civilizational systems is progressively more and more perfect, while in that of the nonmaterial-ideological-cultural systems it is not*

progressively better. In other words, the theories are reduced to the contention of the existence of linear progress in the field of material-civilizational culture, and its denial in the field of the nonmaterial-cultural part of the sociocultural phenomena. That is one of the main meanings of the theories analyzed.

Can they find refuge in such an interpretation? Hardly. The first doubtful trait of such an interpretation is that the theories turn out to be not so much theories of social change, as theories of progress. Where progress is involved, a subjectivity of valuation becomes inevitable, and with it, the arbitrary subjectivity of the theories themselves. Indeed, as soon as they contain such statements as "better," "more perfect," and the like — and all the theories do contain such judgments of value — they become open to attack and disagreement with any opinions whose criteria of the "better," and "more perfect" are different from those of the authors.[59]

From the standpoint of the inventors the latest model of a machine-gun or of a bomber airplane is more perfect, because it can kill more people than the earlier model of the machine. From the standpoint of persons who denounce killing generally, and who are the victims, the latest models are much worse than the earlier, and the invention of machine-guns and bombers is a long step toward hell instead of toward heaven. Their position is at least as valid as that of the inventors, with their "more perfect" machine-guns or other instruments of death.

The second weakness of this claim is that it is factually invalid. If there is a progressive "perfection" in one field, there is no less of it in the other. Yes, after the invention of the automobile and airplane, we supposedly do not want to — and do not — return to the age of horse-and-buggy transportation. But after the Copernican system, we do not go back to the Ptolemaic or Eratosthenes cosmographic system. After the mathematics and physics of the twentieth century we do not return to the mathematics and physics of the Greek Eleatic school. After the great religions of the world, we certainly do not want to — and do not — return to the "primitive" totemic, animistic, and fetishistic forms of worship. After Bach, Mozart and Beethoven we can hardly return to the mere plain chant or to the

[59] In regard to the theories of W. Ogburn, this subjectivity is well stressed by W Woodard, "Critical Notes on the Cultural Lag Concept," *Social Forces*, March, 1934, pp 388–98; by W Wallis, "The Concept of Lag," *Sociology and Social Research*, May–June, 1935, and by other authors indicated in the next chapter.

elementary polyphonic music of the early Middle Ages. After Raphael, Michelangelo, Rembrandt and the later great masters in painting and sculpture, we do not go back to the drawings of the primitive geometric or even visual style in these arts. After the great classics of literature of the last few centuries, we can hardly revert to the literature of a primitive people. The situation is similar in regard to the forms of social, economic, political, juridical organization and theory. After Mommsen, Gibbon, and other great historians, we do not return to the fantastic mythology and fables of the earlier history. After social sciences as they exist today, we cannot return to their substitutes among the primitive peoples. In brief, so far as the mere fact of not returning to previous forms is a criterion of progressive perfection, such a nonreturn takes place in both parts of the dichotomic divisions.

But, the criticized theorists may say, in the field of the nonmaterial culture, returns to the previous forms sometimes do occur; for instance, in contemporary art there is a reversion to "primitivism," and in religion there occurs a relapse into an "ancient religion." In literature also such "relapses" happen. In law, your own data (Volume Two, Part Two) show that the recent criminal codes are returning in some ways to the pre-Liberal provisions and principles. Such returns do not happen in the field of technology or science. There, a later and "more perfect" theory or invention drives, once and for all, the previous forms out of existence.

The argument is again fallacious factually. Not infrequently we drop an entire set of the most modern inventions and gladly return to the technologico-civilizational forms of existence of an earlier and less perfect sort. For instance, an enormous number of persons do that every summer, and are glad to do it, and regard their "rough and wild vacation time" — in the woods, mountains, on lakes, without cars, radios, telephones, electricity, etc. — as their happiest time. Such willing relapses into a more primitive civilization are rather more common in the field of "civilization" than in that of "culture."

Side by side with these, there happen also nonvoluntary, coerced relapses into the older forms, as a result of some social catastrophe, whatever its causes. Many a complex civilization was wiped out and replaced by a more "primitive" one. This happened with the Egyptian civilization several times during its existence; also with the Creto-Mycenæan civilization; with pre-Hindu and Hindu civilizations; with the Graeco-Roman, and with a number of others, especially in the

Orient. They had an "advanced civilization" and a "refined material culture" at one time, and then relapsed into less advanced stages, from this standpoint.

In separate sectors of sociocultural phenomena, which are classed as "civilization," or its equivalents, such relapses are rather common. Economic life incessantly fluctuates between depression and prosperity, higher and lower standards of living; and sometimes its downward plunge is enormous and lasts for centuries (see the data in *Dynamics,* Volume Three, Chapter Seven). Likewise, from the standpoint of its organizational forms, not infrequently it relapses from the latest to the earlier form, say, from credit economy to the economy of barter, as we can witness at the present time; from international economy to that of national autarchy; from money-economy to that of the natural system; from a contractual economy to that of a compulsory one; and so on. All these relapses are going on at the present time; and they have happened many times before. The same is true of *political systems and systems of government;* monarchies have been driven out by republics or tyrannies, and vice versa; autocracies have been endlessly alternating with democracies; theocratic régimes with secular ones; familistic régimes with the contractual or compulsory, and vice versa (see the facts in *Dynamics,* Volume Three, Chapters One to Eight).

Even the purely *technological sector* has not been exempt from these relapses. How many technological inventions have not immediately been accepted and have had to wait sometimes decades and even centuries before they were reinvented and put into practice. Printing has been reinvented again and again, in China, Rome, and throughout Europe. So also has writing. So also have the arch and dome in buildings; the use of the mill, of the bow, the taming of the horse, the hollowing out of the canoe, the steam-engine (discovered long ago in the Hellenic world); and so on and so forth. The same is true of the rediscovery of many natural science theories and laws.[60] How many technological inventions practiced have later been forgotten and replaced by the "less perfect" ones. Each case of the decay of any great culture — be it Egyptian or Hindu, Sumerian or Babylonian, Creto-Mycenæan or Chinese, Arabian or Byzantine, Roman or Pe-

[60] See T. F. Carter, *The Invention of Printing in China* (New York, 1931); W. J. Perry, "The Disappearance of Culture," *The Eugenic Review,* July, 1924, pp. 104–113; W. H R. Rivers, "The Loss of Useful Arts," *Westermarck Anniversary Volume* (London, 1912); E. A. Freeman, *Comparative Politics* (London, 1873), pp. 16–32.

ruvian — signified a loss of many "most perfect" (for the time) technological inventions and their replacement by less perfect ones.[61]

When all such facts are remembered — and they are far more numerous than one usually realizes — the relapses from the "linear perfection progress line" in the field of material culture and its equivalent parts would appear at least as common and frequent as in that of the nonmaterial culture. The direction of change in one has not been more linear than in the other.

This conclusion is reinforced by the hidden fallacy of the argument of the dichotomists and "technologists," in favor of the linear progress of the technological or material part of culture. When they say that such a linear trend is evidenced by the evolution of technique from the Paleolithic through the Neolithic, the Copper, the Bronze, the Iron, to the present Machine Age, the argument sounds convincing; and the process certainly appears to be linear and progressive. However, when we study the process more carefully, the argument loses its charm and the linear evolution of technology becomes not linear at all. A. J. Toynbee discloses the fallacy. He rightly remarks, first, that the actual process does not represent a series in which each subsequent technological age drives out the preceding age, but a perennial coexistence of the previous ages side by side with the later age.

> Scandinavia may remain in the Stone Age for thousands of years after Egypt or Shinar, or even the less distant Aegean, has taken to bronze. . . . Even at the present day . . . we can still find living representatives of every stage of technique, from the recent machine-age technique . . . back to the stone-age technique practiced by the Esquimaux and by the Australian black fellows.[62]

The situation has been still more common in the past. This means that the whole process of the technological evolution is not a linear process in which, after the discovery of the later age in some societies, the preceding ages and their technology disappear, but the process of accumulation and branching of various ages, which continue to coexist, to a degree, side by side. In such a perspective, the evolution of technology does not differ at all from the evolution of the nonmaterial culture. After the creation of the great religious, artistic,

[61] See *Dynamics*, Vol. II, chap. iii, where the nonlinear curves of the movement of scientific discoveries and technological inventions in the history of Arabia, Greece, Rome, and separate European countries are given.

[62] Toynbee, *op. cit.*, Vol. III, p. 157.

ethical, or scientific systems in some societies, these "more perfect" systems have spread, but they have not eliminated entirely the previous — more rudimentary — systems; these continue to coexist, to a degree, side by side with the "more perfect" systems, just as the Machine or the Iron Age continued to coexist with the Bronze, or Copper, or even the Stone Age, in various societies, and even in the same one, among its different strata and individuals.

Second, "there is not, and never has been, any such thing as *The Machine Age* or *The Paleolithic Age,* with a capital letter." "The older techniques, from flint-clipping to iron-smelting inclusive . . . have been invented a number of times over by different societies in different times and places." [63] This means again not a linear, and not even a multilinear evolution, but a "curvilinear-multilinear," resembling again the "evolution" of a large number of the nonmaterial systems. The more so that in both cases many a society never reaches, and never did reach, say, the Iron or Machine Age at all,[64] as many of them did not and do not reach "higher" levels of the nonmaterial values of a great religion, great art, great philosophy, ethics, or science. In both evolutions of material and nonmaterial values, the "trajectory" is very similar, without being strictly linear in either, but being "curvilinear-multilinear" in both.

The actual "evolution" in both fields represents not one chain made up of different links joined together one after another, but a series of various chains, some beginning with the Paleolithic technique and mentality and not stretching beyond that age; others stretching farther, some to the Neolithic, some to the Iron, some to the later — material and nonmaterial — ages, with few and very limited groups (even in our society) reaching the highest levels of technology as well as the highest levels of science, religion, arts, ethics, and other nonmaterial systems. On the other hand, different societies start also at different ages in both fields; some start at the "primitive" level, some at more advanced, some at the most advanced, in both fields of culture. Likewise, different societies do not pass through all these ages (in material and nonmaterial fields), but some skip various intermediary ages, and pass directly from, say, the Bronze to the Machine Age, from the Stone to the Iron Age, from a primitive religion to Christianity or Buddhism, from primitive science to the full-fledged science

[63] *Ibid.,* p 157.

[64] The Egyptians did not transcend the Bronze Age, the Mayans the Stone Age; and so on.

of today, from the primitive or "little advanced" stage in law and ethics to the latest decadent ethics and law of the twentieth century. When all these facts are considered, there remains very little of linear evolution in all its varieties: unilinear, multilinear, spiral, branching, oscillating (see for the main forms of linear conception, Volume One, Chapter Four of *Dynamics*). If something remains, it is equally applicable to the material and nonmaterial "evolution" (regarding linear evolution, see Chapters Fourteen and Fifteen).

Add to this the fact of the specificity and intermittency of the technical or nontechnical achievements of any given society. The Neolithic man created a better stone technique than the Paleolithic, but lost something from the visual technique of painting created by the Paleolithic man. Polynesians created a remarkable technique of navigation, while the Hebrews created a great religion and religious technique. Spartans were better soldiers, so far as military technique is concerned, than Athenians; but the Athenians were more gifted in the development of the technique of the fine arts (painting, sculpture, architecture) and the technique of logical thinking. Supposedly the most primitive Australian bushmen invented a remarkable weapon — the boomerang; while their religion is about the crudest possible. Likewise, many regard the religious beliefs of the Egyptians as childish, while crediting them with remarkable achievements in several fields of technique. "There is no correspondence, nor a common measuring stick between the material status of a civilization and the mental state attributed to it on the basis of its beliefs and social institutions." [65]

None of the single societies has passed "linearly" through all the gradual series of the techniques, in all the fields of human activities; nor have all the societies of the past and present done that. In this sense, there has been no linear evolution in technical or nontechnical parts, through whose stages all the societies have passed or are passing. For any given society, a greater part of the techniques remains unadopted, uncultivated and unused. Only in a purely abstract sense can one think of some linear tendency general to the whole of mankind; but in that abstract — and unreal — sense, such a tendency is present in material as well as in nonmaterial parts of culture.[66]

Thus, when one begins to analyze the validity of the theories, they

[65] L. Weber, "Civilisation et technique," quoted, p. 136. See there other facts of similar unrelatedness. See especially Olivier Leroy, *La raison primitive* (Paris, 1927), where an abundance of such facts is given.

[66] See Toynbee, *op. cit.*, Vol. III, pp. 157 ff.

do not stand the slightest test and appear to be untenable, whatever interpretations we give to them. The claimed difference in the change, and in the direction of the change, of the two dichotomic divisions is fictitious, when it is interpreted quantitatively or qualitatively, in all the main shadings. The conclusion is that none of the differences — accumulative-nonaccumulative; linear progressive-nonlinear and cyclical; selective-nonselective; following the line of perfection and not following it — none of these differences between material and nonmaterial, civilization-culture and their equivalents, turn out to be valid. If the dichotomies themselves are artificial (not real), the differences claimed should be fictitious also. And factual test confirms that.[67]

E. *Universality of Diffusion of Material Culture or Civilization and Local Character of Nonmaterial Culture Diffusion.* Finally, in order to end this analysis, there remains the last difference between the dichotomic fields, namely, that Material culture (or Civilization or Sociality) is universal in its character, more easily diffuses among all kinds of societies and culture, and is adopted and accepted by all of them, while the nonmaterial culture or "Culture" remains, and is bound to remain, a purely local phenomenon, incapable of diffusion over different cultures, no matter how strong and intense is their interaction. We are told that the latest developments in the steam-engine, automobile, airplane, radio, machine-gun, poisonous gas, electricity, and so on, diffuse over the whole world, are accepted by all cultures

[67] G Tarde analyzed the problem much better than any of these theorists He indicated correctly that there are "two distinct kinds of inventions or discoveries. those that are capable of indefinite accumulation and those that, after a certain degree of accumulation has been reached, must, if progress is to continue, be replaced." Farther on, he correctly indicated that such indefinitely accumulative and limitedly accumulative elements are found in practically all fields of culture. In language, the words are capable of being indefinitely accumulated, while the grammatical rules are not; they are limited in their accumulation. "Religions have also, like languages, two aspects. They have their dictionary of narrative and legends, and their religious grammar of dogma and ritual. The former is composed of Biblical or mythological tales, of histories of gods and demi-gods, of heroes and saints, and it can develop without stop; but the latter cannot be extended in the same way." After the theological dogma of the religion is established, "a moment comes when no new dogma can be introduced which does not partly contradict the established dogma. . . . What is true of religion is also true of science." Its facts and observations can indefinitely accumulate. But its theories cannot increase. They would either, with variation, repeat themselves, or, like a new religion, have to make a fresh start, with a fresh theory. So it is also, with law, government, industry, technique, and arts Each of these fields has its indefinitely accumulative aspect and its aspect of limited accumulation. In developing these ideas, Tarde was a much better observer and thinker than the authors of the above dichotomic theories. See G. Tarde, *The Laws of Imitation*, quoted, pp. 174 ff.

and societies, are universal, and diffuse easier and earlier than the nonmaterial culture, which is not and cannot be universal at all. At first approach, the argument strikes one as quite convincing. But as soon as it is tested, it is found to be hollow. Why? For the simple reason that the nonmaterial is hardly less capable of being universal, diffuses often no less, but more, successfully than the material culture; and diffuses often first, while the material culture follows it. Sometimes only the nonmaterial culture diffuses while the material culture does not (see further, Chapter Five).

For the sake of brevity, reference to a few contemporary facts is sufficient to show that. Yes, since the end of the nineteenth century, many a new technological invention has spread over the whole planet: automobiles, airplanes, radio, and many others. But since the World War of 1914 to 1918 such quantities of nonmaterial culture as Communism, Fascism, Totalitarianism, jazz music, certain forms of dancing, have also diffused over the whole planet; and if we measure the spread and universality of the diffusion by the number of individuals and groups who accepted and who use the above material and nonmaterial complexes, it is likely that Communism, Fascism and Totalitarianism spread more widely and in a shorter period of time than the automobile, or airplane, or practically any modern technological invention. In other words, the supposed nonuniversal "Cultural" traits are at least as universal as the supposed universal "Civilization" traits. The Bible is evidently nonmaterial culture; and yet it is hard to find any technological invention that is diffused *urbi et orbi* as much as the Bible. So also with the works of Shakespeare and Beethoven; the Confucianist and Platonic philosophy; the use of lipstick and the bobbing of hair; Monarchy and the Republic; Socialism and Progressivism; monogamic and polygamic family life; styles in fashion, art and Parliamentarism; evening dress and theosophy. The spread of Hinduism, Buddhism, Christianity, Mohammedanism, are further examples of the widest diffusion of nonmaterial culture in the past. The progress of the Syriac alphabet from Syria up to the Mongols and Manchus of Asia; of the Hellenic patterns of art from the Graeco-Roman to the Hindu world; the diffusion, adoption or independent invention of very similar moral codes among an enormous number of primitive and historical societies of the past and present; [68] the presence of an enormous number of similar political

[68] In reference to the members of the same society, the main moral commandments and also the main crimes are similar, almost identical, in the codes of Judaism, Hinduism,

institutions, similar forms of marriage and family life, religious beliefs, forms of social organizations, mores and manners among a large number of societies of the past and present, often separated by wide areas from one another [69] — all these instances of the widest spread or independent invention of similar values of nonmaterial culture among hundreds and thousands of different tribes, societies, and nations are eloquent evidence of the ability of the nonmaterial values to diffuse or to ground themselves among the most different cultures and peoples. This fact alone makes the claims of the dichotomist theories entirely invalid.

On the other hand, many a purely technological invention did not spread in the past (and does not spread in the present) beyond the society that invented and had an urgent need for it. Polynesians and Eskimos invented the ingenious technique of navigation perfectly fitted to their conditions. Other societies which did not live in the milieu of a sea or ocean, but lived, for instance, in mountainous regions, did not adopt it and remained untouched by its invention. It was not needed by them, and was therefore neither adopted nor invented. Assyrians and Spartans invented (or adopted) an excellent technique of military organization. Many societies which did not need it were untouched by it and did not adopt it. The technique of heating a building by electricity, oil, or gas, or the construction of

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Buddhism, Christianity, Confucianism, Taoism, Mohammedanism, and almost all the historical and primitive societies. In regard to crime, see *Dynamics*, Vol. II, chap. xv, especially pp. 576 ff. See also, regarding the similarity of the moral codes, *ibid.*, chaps. xiii and xiv. See also L. Hobhouse, *Morals in Evolution* (London, 1923); E. Westermarck, *The Origin and Development of Moral Ideas* (London, 1906), 2 vols.

[69] For instance, such a culture trait as "Hereditary government" is found among 90 different primitive societies, in the sample of Hobhouse-Wheeler-Ginsberg; as "Personal government" among 80 societies, "Matrilineal descent" among 75; "Patrilineal descent" among 84 different tribes and societies "Slaying the vanquished prisoners" among 105; and so on See L. T. Hobhouse, G. C. Wheeler and M. Ginsberg. *The Material Culture and Social Institutions of the Simpler Peoples* (London, 1915). See many instances of such similarity in the nonmaterial traits of the cultures of different peoples and societies in J Mazzarella, *Les types sociaux et le droit* (Paris, 1908), and in the volumes of his *Studi di etnologia guridica* (Catania, 1903). Examples of such wide diffusion or invention of similar cultural systems or traits are found in practically any competent text on cultural anthropology, ethnology, and sociology; and they are found in the field of beliefs, myths, poetry; in forms of family life and marriage; in forms of political organization; war and peace; magic and rituals; patterns of arts and ceremonies; ethical norms and mores; in practically any field of so-called nonmaterial culture. In view of this undeniable fact, one can only wonder that the dichotomist theorists set forth their claim seriously. See also M. Mauss, "Civilisation: Éléments et formes" in *Civilisation, le mot et l'idée* (Paris, 1910), pp. 84 ff.

buildings capable of retaining the warmth within the house did not, and does not, spread much over peoples living in tropical and subtropical regions. On the other hand, the technique of cooling a house does not enter the Arctic regions, which do not suffer from the heat. The technique of fishing does not diffuse over societies living in regions that do not have streams or lakes, or water with fish; the technique of hunting over populations that do not hunt, and do not have animals to be hunted; the technique of perfect irrigation among populations which do not need it; the technique of perfect fruit-growth over populations that do not grow fruit trees; the technique of efficient advertising and salesmanship in the societies that do not produce any surplus of commodities, or which have a noncapitalistic system of economy; and so on and so forth. All this means that whether the cultural value be material or nonmaterial, if it is needed by different societies, it tends to diffuse and to be independently invented by them; if it is not needed, it will not be adopted, nor spread, nor be invented there, for the simple reason of a lack of its need. The facts show that in this respect the material values in no way monopolize the privilege of being more needed than the nonmaterial values. The facts testify against the theory that *all* the material values are needed by all the societies, while *all* the nonmaterial values are not needed by any except the society in which they were created. The real situation is that among both kinds of values — material and nonmaterial — there are some that are needed by a large number of societies, therefore they are widely adopted (or independently created in various societies); and there are material and nonmaterial values that meet only the local need of a given or of a few particular societies. As such, they remain "parochial" values and do not spread over different societies and areas. The thesis of the dichotomists is untenable.

The defenders of the criticized theories say that though the nonmaterial culture may diffuse as widely and speedily as the material, its diffusion is much less real because the Communism and the Christianity of the Russians, the Chinese, the Negroes, the Hindus, the Abyssinians, the French, the Americans are similar only in name, while in their real character they represent something very different among all these groups. True. But as we shall see in Chapter Five, the same is true of the diffusing material objects. Why? The answer is in the following general proposition: *Any culture trait (or system), no matter whether it is material or nonmaterial, when it dif-*

fuses from one group to another undergoes a transformation in its use, meaning, value, character, when the groups are different in their culture; and the greater the difference, the greater the change it must undergo.[70] Only in passing between similar groups can the migrating congeries or system continue without a modification in its qualities, functions, use, and so on. An automobile seems to be the same automobile in New York or in the hands of a bushman in Africa; and yet the most superfluous test would show that it is different: it is operated differently (in some cases outrageously); it is used for different purposes; its value and meanings are different; its troubles and repairs are different. In brief it differs in these two cases no less than the baptism of a New Yorker and the aforesaid bushman.

Thus, the preceding lengthy analysis of the dichotomic theories in all their important variations and aspects (except one considered in the next chapter) leads to the conclusion that they show themselves to be invalid, logically and factually. So much then, for them.[71]

IV. Conclusion

On the preceding pages it has been shown that: No culture of a given area or society is in its totality integrated into one — and only one — system. Now we have shown that the dichotomic theories are also wrong, no matter how large or small is the area of the total culture considered. Likewise, it has been shown that no culture of any area represents a mere congeries without any trace of any system among them.

It follows, therefore, that any study of the change of the total culture of a given area should first ascertain which systems and what congeries are included in it; second, how various singular congeries change; third, whether the systems are unrelated or related to one another; fourth, if they are unrelated, how many there are, and how each of them changes; fifth, if they are parts of a larger system, to

[70] One can easily see that the proposition is a partial case of the general principle of selectivity of any sociocultural system If any system is selective, it accepts some and does not accept other traits Those which it accepts must be changed if they are notably heterogeneous in relation to the system, and the greater the heterogeneity the greater must be the modification When it is too great, the system does not ingest it at all. See further, in Chapter Five

[71] It is therefore, hardly incidental that A. Weber, who only vaguely outlined his dichotomic theory of "Culture and Civilization" in his previous works, does not develop it at all, and hardly mentions it in his latest work, *Kulturgeschichte als Kultursoziologie* (Leiden, 1935), as he would be expected to do. Such a neglect is perhaps due to the fact that there is no strong ground for its development.

find such a system, and study how this larger system changes, and, with it, its subordinate systems. When these tasks are completed, we obtain an approximate knowledge of the change of the whole (total) culture of the given area. Otherwise, without a separation of the congeries from the systems, and the systems from one another, there is little chance of obtaining any valid knowledge of the change of the culture. If it is treated as a mere congeries of isolated traits, the result would be similar to the reading of a book, seeing in it only letters, and not noting either the words made from the letters, or the phrases made from the words, or the paragraphs or chapters of the book. Such a reading is stupid. If it is treated as one system, such a procedure is similar to the conclusion that since all books are made up of the same letters, all books are identical and say the same thing, and represent the same system. If it is treated in the way of the above dichotomic division, it will remind us of the assumption that all books consist only of two parts: and that the first parts of all books are similar to one another (material culture), while the second parts are also identical in all books (nonmaterial culture). In the case of the book, the absurdity of these procedures is evident. In the study of cultural and social change, it seems to be not properly realized as yet. It is time to do so. Otherwise, we are doomed to wander fruitlessly in the sterile round of a mere descriptive cataloguing of isolated events and traits (mere sociocultural letters), as some historians and ethnologists do, which adds little sense to the meaning and comprehension of the great book of the life of society and culture; or to construct purely fictitious generalizations which miss all the real diversity and richness of sociocultural processes.

Chapter Five

GENESIS, MULTIPLICATION, MOBILITY, AND DIFFUSION OF SOCIOCULTURAL PHENOMENA IN SPACE

I. The Problem of Uniformities in Sociocultural Change

The preceding chapter established two general uniformities in the change of any total culture, namely: that the change proceeds differently in sociocultural systems and in congeries; and that in systems all the compartments change together in any important movement. The propositions valid for the systems are inapplicable to the congeries, and vice versa. Now we can take a series of further steps and inquire: Are there more specific and more definite uniformities in the change of the systems as well as in that of the congeries? If so, what are they?

Guided by the concept of the four main directions of any change or process — spatial, temporal, quantitative, and qualitative [1] — we can inquire: (1) Are there some uniformities in the genesis, multiplication, mobility, and spread of sociocultural phenomena *in space?* (2) Are there any *time* uniformities in such a change? (3) Are there any *quantitative* uniformities in the field? (4) Finally, are there any *qualitative* uniformities?

It goes without saying that the empirical sociocultural world is in an incessant flux. *Spatially* — the cultural objects and values are continually moving and changing their positions in physical and social space. *Qualitatively* — they change in thousands of ways: the new becomes old; the strong, weak; the bright, dull; and so on. *Quantitatively* — they now increase, now decrease, now remain constant; be they certain crimes, fashions, beliefs, styles, or what not. From the standpoint of *time* — they change now synchronously, now with some lag; now with accelerating, now with retarding velocity. The problem is to find what, if any, uniformities exist in these changes.

As to the question concerning the existence of uniformities in sociocultural change, it has already been answered positively, through re-

[1] See *Dynamics*, Vol. I, chap iv.

jection of the contentions of the Atomistic and Anti-Uniformist position (see Chapter Three). On the other hand, one should be careful to avoid the blunder of the manufacturers of pseudo uniformities produced so easily and in such a profusion in the past as well as in the present. In order to avoid this common error, an investigator should be overcautious rather than exuberant in his claims for uniformities. This overcaution means, first, one should be as critical as possible in regard to the validity of any uniformity claimed by its discoverers. Only the uniformities that stand a rigid test are valid uniformities. Second, even in regard to valid uniformities, one should not exaggerate either their rigidity, their universality, or their unexceptionableness. The point is that most — and possibly all — uniformities in sociocultural change are never quite rigid, without exception, and amenable to a precise mathematical formulation. They are rather of a prevalent rule or pattern, almost always having exceptions. As such, they are notably different from the more precise uniformities in the physicochemical changes. Furthermore, sociocultural uniformities of change are rarely, if ever, absolutely *universal or unlimited*, valid for any culture-complexes of any time. As a rule, they are *limited uniformities*, valid only for certain cultural configurations of a given period or area.

A large number of uniformities have been set forth as unlimited or universal, like the statements: "All sociocultural phenomena originate, grow, and decay"; "In the course of time they all undergo progressively increasing differentiation and integration"; "All are accumulative in their change and display a progressively accelerating tempo of change"; "All have a dialectical rhythm of thesis, antithesis, and synthesis in their change."

Put in such an unlimited form, they almost always exceed the legitimate limits of their validity, and turn into pseudo uniformities. A limited formulation of the same uniformities is expressed in the form: "Only a certain class of the sociological systems, but not congeries, originate, grow and decline"; "Only within certain time and space limits do certain sociocultural systems (but not congeries) display increasing differentiation and integration, and, the limits reached, they reverse the trend"; "Only the sociological systems of a certain kind change according to the Hegelian three-phase rhythm, while others have different rhythms (two-phase, four-phase, and so on)"; such a limited formulation makes them more valid and accurate. Therefore, in a study of the uniformities of sociocultural change, it is exceedingly

important to point out the limits of their validity, and, as a rule, to avoid unlimited formulas.

Viewed in this modest setting, a number of approximate uniformities are certainly observable in sociocultural change. Let us now turn to their study.

II. Uniformities in Mobility, Multiplication, Displacement, and Circulation of Cultural Phenomena in Space

We shall begin our study of uniformities with those given in the field of genesis, multiplication, mobility, and spread of cultural phenomena in space (physical and social). Aristotle has brilliantly demonstrated that local motion or displacement of the phenomenon (the subject of the change) in space is the primordial, primary, and simplest form of change. All other motions or changes — quantitative or qualitative — are derivative from it and cannot occur without a local displacement, or motion in space. It can exist without other forms of change, while the others cannot occur without it.[2] So far as this form of change embraces not only motion in space, but also what in mechanics is called displacement, it is the simplest form of change, from the standpoint of mechanics.[3] After this form of change is studied, we shall pass to the more complex — qualitative and quantitative — change of culture in time.

It goes without saying that sociocultural phenomena are changing their positions in physical as well as in social space. They incessantly migrate, circulate, and shift from place to place, from one group to another, one class to the other, to and fro, up and down, in the differentiated and stratified sociocultural universe.[4] An automobile and Lenin's Communism; short skirts and bobbed hair; bathtub and radio; jazz and lipstick; the theory of evolution and a Beethoven symphony; protective tariff and theosophy — these and practically all

[2] See Aristotle, *The Physics* (Loeb Classical Library edition. New York-London, 1929), Bk. VIII, chaps vi, vii, viii, ix, pp 338 ff ; "De Mundo," chaps iv, v, vi; *The Works of Aristotle,* translated under the editorship of W D Ross (Oxford, 1931), Vol. III.

[3] "Displacement differs from motion in that it excludes the notion of time." L. Lecornu, *Le mécanique. Les idées et les faits* (Paris, 1918), p 19; P. Appel et S. Dautheville, *Précis de mécanique rationelle* (Paris, 1921), chaps i, ii; J. C Maxwell, *Matter and Motion* (London, 1882), p 20.

[4] See an outline of social space in my *Social Mobility* In that work I concentrated on the mobility and circulation of individuals and social groups, paying little attention to that of sociocultural things and values Here I am dealing — very concisely — with some of the aspects of the latter problem A systematic conception of sociocultural space is given in my forthcoming *Sociocultural Causality, Space, Time.*

cultural objects and values shift from the United States to China; from Vienna to Sydney and Calcutta; from Detroit to Moscow; from the upper classes to the lower; from the city to the country; from the nobility to the proletariat; or vice versa. The sociocultural universe is like an ocean with a multitude of ice-cakes incessantly floating and drifting upon it; now slowly, now tempestuously; now in small pieces, now in giant icebergs (big systems), and again in whole ice-fields (vastest supersystems).

This spatial migration and circulation of cultural phenomena embraces a series of different processes: (1) *A spatial migration of a given cultural object,* a certain automobile or religious relic or rare book, that moves from one place to another in its material form. Having moved from A to B, it is no more at A and is now at B. Such a phenomenon always means a pure migration of materialized value in its objectified shape. (2) *Multiplication and spatial spread (migration) along certain routes, in certain directions, and over certain inhabited areas, of certain cultural phenomena.* In contradistinction to a mere spatial migration of a given object, this process is more complex: it involves not only a mere spatial migration, but a multiplication of a given cultural value in many copies, and a distribution (migration in many directions) of these copies over certain areas of population.

In this case a cultural value remains at A, and does not disappear from there, as in the previous case, while other copies of it move from A to B, C, D . . . N. What is called *diffusion* always means this second process, implying multiplication of the same cultural value in many copies, and the spread of these copies. This process has two forms: multiplication of the value in *one center* and spread from that center — for instance, the manufacture of cars at Detroit and their spread from Detroit; and multiplication in *several centers* and spread from these centers. The gospel of Communism may be spread through pamphlets manufactured in Moscow only, and, through Moscow Communist agents only, sent over the world. But it also may be spread through pamphlets manufactured in different centers (Moscow, China, America, etc.), and distributed through the local agents of those areas.

A cultural value may be broadcast by radio from one station, or circulated by one newspaper only; or from many stations and by many newspapers. The net result in both cases (one and several centers) is multiplication, migration, and diffusion of the value over certain populated areas. Subsequently we shall deal mainly with the spatial

migration of cultural phenomena of the second type, involving multiplication.[5]

The main problems to be considered here are as follows: (1) *What are the roads or lines along which the social things and values move or drift* in social space, *horizontally,* from group to group, man to man, one inhabited place to another; and *vertically,* from one stratum to another, from the lower to the higher class, or vice versa? (2) What are the *directions of* this movement? Is it one-sided, say, from the city to the country, from "civilized" to "uncivilized" people, from the upper to the lower classes, or is it a two-way current? If so, do both streams carry similar values, or are they different? If they are different, in what does this difference consist, and is there any uniformity in it? (3) In each given society, *what social classes are the main innovators (creators) and importers of new cultural values into its culture; are they mainly the upper and middle classes, or are they predominantly the lower classes?* What uniformities, if any, are shown in this field? (4) Do cultural objects and values travel only in the form of singular traits or the simplest elements of culture? Or do they shift also by the groups of congeries and by small and vast cultural systems? (5) What happens to *the cultural elements, congeries, or systems in the process of their circulation? Do they change? Do they break into pieces? Do they consolidate with one another, in this process of drifting? Do they clash and destroy this or that "floating" section?* (6) As a special case of this general problem, *what happens when two vast cultural continents come into contact with one another, as a result of either spatial expansion of one or both, or a "continental migration" of one?* (7) Considering that, on the basis of common observation, some cultural object-values have a great "success" and become "best-sellers" in their multiplication and spread *urbi et orbi,* while others remain "sedentary," "poor sellers," at the place where they appear and either do not multiply or spread, or do so very modestly — we can inquire what the reasons for it are. Why does one book, composition, or picture become a "best-seller" while another does not? Generally, why do some value-objects move fast and multiply, achieving success everywhere, while others do not? As a specific case of that, why does it happen that a given object-value,

[5] However relevant is the distinction between diffusion, borrowing, imitation, and other related processes, for our purposes it is unessential, therefore we shall pay little attention to these differences, covering by the terms diffusion, migration, spread, all these varieties, but specifying other distinctions more relevant for our purpose.

being "unsuccessful" in a given culture area, is highly "infective" in another? Why does it not move and spread at a given period, while it does so at another period, often a long time after its creation, and vice versa? What are the reasons for such contrasts? (8) When a given cultural value multiplies and spreads in social space, *are there some "normal curves" of such a growth and spread?* If there are, what are they? (9) When cultural values (congeries and systems) of one culture come into contact with another culture, *what kind of values penetrate and spread first in the infiltration:* are they economic, technological, political, religious, or some other one of the values? Is there any uniformity in this field? (10) Finally, *where and how do new cultural values, particularly great systems and supersystems, originate,* and *do the centers of their genesis shift in social space from area to area, from society to society?* This last question logically should be the first, because in order to shift and spread from place to place, cultural values must be somewhere originated and created; however, for the sake of convenience, it will be discussed last.

Those are the main questions to be discussed in this chapter. They do not exhaust the important aspects of the circulation and multiplication of social values and objects in social space, but they embrace a considerable part of these aspects and can serve as an easy introduction to the main problems of this work.

III. Routes of Travel of Cultural Objects, Phenomena, Values

Putting aside for the moment the social and other conditions to be discussed further, let us state that man-made or man-modified objects and values travel along the lines of man's travel, communication, and contact. This uniformity is evident and needs no proving. Any cultural value-object moves either directly by the agency of a human being or by the man-made means of *contact and communication.* Therefore the lines of the roads traveled by men and used as the means of communication are the lines of travel of the cultural object-values. A path in the mountains, a caravan road in the desert, a highway for wagons, horses, or cars; rivers, lakes and sea routes navigated by canoe, boat, or ship; railroads and routes of airplanes; lines and networks of telegraph, telephone, radio; such are the main channels through which the value-objects move, travel, and spread *horizontally* from place to place, man to man, group to group, in social space. The channels of communication and contact are likewise the lines of

circulation of the value-objects *vertically,* from one stratum of society to another. Such channels are the agency through which the people of the lower and higher classes meet one another directly, or where they come in touch with the objects and values of each stratum. Such a channel may be the household of the lord, for his valet, servants, and tenants; and these, in turn, for the still lower classes.[6] It may be a library or church, the store, community fair, community playground, theater, movie, radio, if they are attended or patronized or possessed by various classes; it may be the battlefield, or any other *locus* where the different strata meet together. It may be a set of any object-values

[6] The servant class "acted as somewhat of a buffer between classes, and were one of the most important forces in acquainting the lower classes with the ideas and habits of those above them. The fact that the servants of the rich were constantly recruited from the laboring classes, and as often sank back into them, made for a large amount of contact between the servants and their less fortunate brethren In this capacity they were one of the chief agencies for spreading the upper-class luxury among the lower classes" E L Waterman, *Wages and Standard of Living of English Labor, 1700–1790* (Radcliffe Thesis, 1928), pp 7–10, also pp 276 ff

This observation is stressed again and again by practically all competent investigators of the vertical displacement of the standard of living, of fashion, dress, certain manners, beliefs, etc In the phenomenon of "aping one's betters" the role of the servant class has been particularly conspicuous In other cases, for instance, of imitation and vertical displacement of luxuries from the aristocracy to the bourgeoisie, the migration of the fashions, habits, etc of the aristocratic classes to bourgeoisie, and from it to the lower classes, or vice versa, has proceeded again through the contact-lines and agents that were the "go-betweens" for these classes

See facts and data in regard to vertical migration of words, phrases, expressions, slang, etc., in R de la Grasserie, *Etude scientifique sur l'argot et le parler populaire* (Paris, 1907), pp 2 ff , *et passim;* A Niceforo, *Essai sur les langages . spéciaux, les argots et les parlers magiques* (Paris, 1912), in regard to various habits, luxuries, dress, fashions, beliefs, etc . A Challamel, *History of Fashion in France* (translated from French) (London, 1882), pp 38–40, 57, 64 126, 167, *et passim;* G Hill, *A History of English Dress* (London, 1893), Vol I, pp vi ff , *et passim;* K R. Greenfield, "Sumptuary Law in Nurnberg," *Johns Hopkins Studies,* Vol 38, No 2, 1918, pp 49–51; F. E Baldwin, "Sumptuary Legislation and Personal Regulation in England," *Johns Hopkins Studies,* Vol 44, 1926, pp 21–33, 38 ff , C Booth, *Life and Labor of the People of London* (London, 1897), Vol IX; John Wade, *History of the Middle and Working Classes* (London, 1834), pp 20–26, P Kraemer-Raine, *Le Luxe et lois somptuaires au moyen-âge* (Paris, 1920), pp 9–10, 19, 24 ff , 51 ff , 93 ff , *et passim;* W M Webb, *The Heritage of Dress* (London, 1907), chap. xv ; C C. Zimmerman, *Consumption and Standard of Living* (New York, 1936). Finally, G Tarde, in his *Laws of Imitation* (translated by Parsons, 1903), made several sound generalizations in this problem See Chapters Six and Seven.

The enormous role, in the vertical migration of culture patterns and elements, of such agencies as movies, radio, and newspapers, through which different social strata, upper and lower, come into contact with fashions, patterns, forms of conduct of the different classes, is evident, and needs no comment The same is true of school, church, and other channels of vertical circulation of individuals, discussed in my *Social Mobility,* Chapter Eight.

used by one class but exposed to the perception of the other classes (palace, house, museum, etc.). The costume, bathtub, radio, carriage, hair-bob, song, doctrine, belief, and what not of one group exposed to the perception of persons of the other classes, would tend to be "imitated" by those who came in touch with them most frequently, unless there were special taboos, prohibitions, and other conditions of dis-affinity, of which something will be said later. Other conditions being equal, the *cultural objects and values circulate up and down also in a given stratified society along the lines of most frequent communication and contact of the members of different strata.*

Wherever the given cultural element (value or object) is originated, from that *locus* it tends to spread, and it travels along *the lines of communication and contact* which radiate from that center; and only later, more slowly, and less successfully, does it move in the regions and areas which are isolated, not connected, or connected less closely by the lines of communication and contact with that center, no matter how near or remote from it they are territorially. Whether the cultural element be a language, belief, cult, theory, custom, norm, material object — automobile, merchandise — even a disease,[7] or what not, it flows along these lines and "inundates" or spreads among the population living in the areas crossed by or adjacent to these lines of communication, travel, and contact. Along these lines the stream flows often hundreds and thousands of miles, leaving untouched or barely affected the populations much nearer to the center geographically, if they are not connected with it by the lines of communication and contact, or connected much less thoroughly. This explains why, in the

[7] Movement and spread of epidemics of plague and other infectious diseases follow the same rule and give particularly illuminating material for our purposes. See detailed and rather carefully mapped routes of the spread and movement of the great and small epidemics, horizontally, from place to place and vertically, from stratum to stratum, in the following works E. A. Wesley, "The Black Death of 1348," *Proceedings of Liverpool Literary and Philosophical Society*, Vol 60, 1907; C Creighton, *A History of Epidemics in Britain*, 2 vols. (Cambridge, 1891–93), Vol I, chaps iii, iv, *et passim;* Vol II, *passim;* M. Greenwood, Jr., "On Some of the Factors Which Influence the Prevalence of Plague," *Journal of Hygiene*, Plague Supplement, 1911, Vol. I, chap. 45; M Greenwood, "Factors That Determine the Rise, Spread, and Degree of Severity of Epidemic Diseases," *XVIIth International Congress of Medicine*, 1913, sec. 18, pp 49–80, W. G. Bell, *The Great Plague in London in 1665* (New York, 1924), *passim* and pp 39 ff ; J Brownlee and M Greenwood, "Epidemic," *Encyclopaedia Britannica*, Vol. VIII; "Plague," *ibid*, Vol XVII.

For the spread of a recent innovation of the radio amateurs in the United States, see R. V. Bowers, "The Direction of Intra-Societal Diffusion," *American Sociological Review*, December, 1937, pp 826–836 (though the character of the census data with which Bowers operates does not permit any very accurate analysis).

past, the new cultural elements spread mainly along the paths, caravan routes and other roads, and in the maritime regions which were on the maritime routes; why, in the past as well as in the present, the city has been a much more efficient center for sending as well as for receiving the new cultural elements than an *isolated rural area:* the number, convenience, and length of the lines of communication, contact, and travel of the city are generally much greater than those of the rural area;[8] why the many isolated, mountainous, desert, or forest populations have been passed by and untouched by an enormous number of such cultural streams and therefore remained more "stationary" and "unchangeable" in their culture; this explains these and thousands of other phenomena.

Any theory which claims that the cultural elements tend to spread concentrically from the center of their origin, moving to the first

[8] Concrete examples of this are given by the routes of diffusion and travel of a new religion (for a given country). A study of the diffusion of the Oriental and foreign cults in the ancient Græco-Roman world (the cults of Cybele, the goddess of Mâ-Bellona, Isis, Osiris, Mithra; the cults of Syria and Persia, and others) shows they spread first and most among the urban population, along the lines of the maritime routes, in maritime cities and ports, and among those classes who, like legionaries, merchants, intellectuals, government officials, were in direct contact with or on the route of travel of these beliefs and religions. See the facts in J F Toutain, *Les cultes paens dans l'empire romain,* 3 vols. (Paris, 1907–20), Vol. I, chap. i, Vol II, pp. 30, 58, 65, 159, 255, 266; Vol III, pp 103, 109, 113, 183, 425, 438, F V Cumont, *Oriental Religions in Roman Paganism* (Chicago, 1911), pp 53, 56, 83, 201, 281, F V Cumont, *The Mysteries of Mythra* (Chicago, 1910), pp. 34, 40, 45, 63, 69, M I. Rostovtzeff, *Mystic Italy* (New York, 1927), pp 7–11, 30–31. See the general treatment in P. Sorokin and C. Zimmerman, *Principles of Rural-Urban Sociology* (New York, 1929), pp 48 ff, and chaps xvii, xviii. Sorokin-Zimmerman-Galpin, *Systematic Source Book in Rural Sociology,* 3 vols. (Minneapolis, 1930–31), Vol I, pp. 233–259, Vol II, pp 373–380

What is said of the routes of migration of beliefs can be said, with a respective modification, about practically any other cultural object, value, or phenomenon An example of the routes of diffusion of tobacco or coffee can be found in R U Sayce, *Primitive Arts and Crafts* (London, 1933), chaps 6, 7; of other traits in W I Thomas, *Primitive Behavior* (New York, 1937), chap xvi

For the same reason, in the maritime and steppe regions the given cultural trait spreads along the coasts and the border regions of the steppe or desert, with the lines of communication going in different directions and reaching the coast as well as the inside and borderline settlements of steppe or desert. A good example of this is given in the diffusion of language in such areas Greek navigators spread Greek, in the past, along the shores of the Mediterranean; the Malayan navigators, over the region of the Malayan archipelago; so also did the Polynesian sea-travelers. Berbers, Turks, Arabs, and other nomadic people diffused their languages in and along the borders of the steppes or deserts they inhabited and traveled over A J. Toynbee rightly remarks that "because 'Britannia rules the waves' — or did rule them for a century or so — English has latterly become a world language." A. J. Toynbee, *A Study of History* (Oxford University Press, 1934), Vol. III, p. 391.

adjacent concentric area around the center, then to the next, and then to the next, and so on,[9] is fallacious in general, and can be accurate only for cases where the lines of communication and contact from that center radiate with equal frequency and convenience in all directions, and when the culture of all the groups around the center is identical, and where a series of certain other conditions is present. Such a situation is, for the past as well as for the present, a rare exception rather than the rule; therefore the theory can in no way claim to be a general rule.

The same can be said of the theories claiming that in the course of time the cultural stream proceeds from south to north, or from the East to the West, or from the West to the East; from mountains to plains, or from plains to mountains.[10] If the *lines of contact and communication* lie in such a direction from the center of origin of a given cultural element or system, as sometimes they do, then such a direction of the stream of the cultural values occurs; if they lie in the opposite or different directions, as more often they do, then the direction becomes opposite or different from the assumed one. No uniformity exists.[11]

[9] Recently C Wissler insisted particularly upon such a "law of diffusion" "A culture trait spreads over contiguous parts of the earth's surface, and so does a somatic trait The universality of this phenomenon is obvious We may, therefore, formulate these observations as law, that anthropological traits tend to diffuse in all directions from their centers of origin" C Wissler, *The Relation of Nature to Man in Aboriginal America* (New York, 1926), pp 182–183 Even in application to the traits of the "primitive cultures," with which Dr Wissler deals mainly, his generalization has been shown to be wrong. Still more fallacious is it in application to the areas of "complex cultures" See its factual criticism in R Dixon, *The Building of Cultures* (New York, 1928), pp 69 ff , F Boas, W. D. Wallis and several other anthropologists have given in their reviews of Wissler's work further factual criticism of the theory. In application to complex cultures, his "law" is almost entirely void Only in the conditions indicated in the text on this page it finds itself realized once in a while See E C McVoy "Patterns of Diffusion in the United States," *American Sociological Review*, April, 1940

[10] See S C. Gilfillan, "The Coldward Course of Progress," *Political Science Quarterly*, 1920, pp 393–410; V. Stefansson, *The Northward Course of Empire* (New York, 1922), P Mougeolle, *Les problèmes de l'histoire* (Paris, 1886), pp 97–106; *Statique des civilisations* (Paris, 1883), *passim;* R Mewes, *Kriegs- und Geistesperioden im Volkerleben* (Leipzig, 1922), chap 32; F Stromer-Reichenbach, *Deutsches Leben. Was ist Weltgeschichte* (Lhotzky Verlag, 1919); E. Sasse, "Zahlengesetz der Völkerreizbarkheit," *Zeitschrift d Königl. Preuss Stat. Bureau*, 1879

[11] See general criticism of these theories in my *Contemporary Sociological Theories*, pp. 106 ff See also some critical remarks in G Mosca, *The Ruling Class* (New York, 1939), pp. 8–13. The controversy of the direction of civilization and art from the East to the West (E Smith, De Morgan, Montelius, Hoernes, Sophus Müller, Mewes, Sasse, and others), or from the West to the East (S Reinach and others) has been one of the most sterile and fantastic Both opposite claims, and also the claims of the northward or southward movement of culture in the course of time, do not stand the slightest test of facts or of logic See W Deonna, *L'archéologie* (Paris, 1912), Vol II, pp. 193 ff

IV. Directions of the Streams of the Cultural Elements

The problem of the routes of travel of cultural elements is different from that of the direction of this travel: along any physical route man can move either from A to B or from B to A. They say in mechanics any direction has two "senses." In the multidimensional social space, any "route" of movement of cultural objects and values has also at least two "senses," from A to B and from B to A. The question arises therefore: do the cultural streams move with equal rapidity and strength from A to B and from B to A, along a given social route, or do they move only one way from A to B and never from B to A? Do, for instance, the cultural streams move regularly from "the more to the less civilized groups" and rarely or never from the less civilized to those more civilized? Does the stream flow regularly from "the city to the country," or does it go in both directions?

In the vertical circulation does the cultural stream flow always from the upper — the rich, the aristocratic, the privileged, the educated — toward the lower classes (the poor, the ruled, the disfranchised, the uneducated), or does it flow simultaneously in both directions? What is generally the situation in regard to any route between two social centers united respectively in social space by a line of communication and by a flow of cultural objects and values? Can some relatively general rules be formulated here?

There is no doubt again that in the concrete multiplicity of these processes, there is a variation of the situation in various cases. In spite of this, it is possible to formulate a few propositions which sum up the most frequent uniformities in the field.

A. The first of such propositions is that the *direction of any current of cultural values running from one locus in social space to another is hardly ever one-way: it is almost always two-way;* if it flows from A to B (from the city to the country, from the more civilized to the less civilized cultural areas, from the aristocracy to the slaves, from a castle to the peasants' huts, from the United States to China, from the rich to the poor, from a given group or area to another) there normally is also a counter-current from B to A; from the country to the city, the savages to the civilized, the slaves to the aristocracy, and so on.

B. Second, *the character and the nature of the cultural objects carried by both currents depend upon many circumstances.* Specific important cases here are as follows: (*a*) The stream from the urban-

upper-civilized centers carries mainly the "finished" and "formed" objects and values which as "finished" enter the culture of the rural-uncivilized-lower classes; while the opposite current consists mainly of the raw and unfinished material to be shaped and molded in the urban-upper-civilized centers. So far as "finished and formed" mean, in most of the cases, a cultural *system*, and "unfinished and raw" signify mainly *congeries*, the above proposition can be formulated in the sense that from the urban-civilized-upper centers flow mainly cultural *systems*, which as systems enter the centers by infiltration, while from the rural-uncivilized-lower centers flow mainly values which as *congeries* enter the upper-civilized-urban cultures, no matter whether they are systems or congeries in their native culture. For this reason, the first stream exerts more efficient effect upon the culture of the lower-rural-uncivilized centers than the second does upon the culture of its inflow. In this sense and for this reason, the first stream may be regarded as more powerful than the second. (*b*) If both centers do not have the rural-urban, upper-lower, civilized-barbarian contrast in their cultures, then the above difference in the content of the two streams does not occur and the nature of the objects and values circulated is determined by many local conditions; respectively, the contrast in the remodeling efficiency of the streams in regard to the culture which each of them enters, does not take place, at least as conspicuously as in the case "a." (*c*) The efficiency of each stream however may be quite different, regardless of the finished and raw forms of the values, if one current is backed by *force* and is imposed coercively upon the culture of the other center, while the latter does not have such a backing. The coercive imposition may here play the role of a factor which gives an additional advantage to the current coming from the culture of the conquerors and "great powers."

A few comments upon these propositions are not out of place. Why normally does any current going from A to B have a counter-current running from B to A?

The reason for the first proposition is that if such a current exists, the centers are in a process of interaction or in a contact. Any contact, with the exception of that between the dead (say the works of Plato, Beethoven, Shakespeare, etc.) and the living, is almost always two-sided: if one party conditions tangibly the change of the other, the second also influences, to some extent, the first party, no matter whether the party is man, group, or a cultural complex or conglomeration. If the products of one area flow into the other, something — products,

money, or services of men — of the produce and culture of this other area has to flow into the first. Any commerce is the giving of something for something, exchange; therefore, by virtue of this axiomatic proposition, applicable not only to economic goods and trade in a narrow sense, but to practically any contact or commerce or interaction, the two-way movement of the streams is a logical necessity. The factual data corroborate it, *urbi et orbi*. Whatever are the centers between which there is a stream of the cultural values flowing, the stream always consists of two currents, one flowing from A to B, the other from B to A. Human agents, the press, radio, telephone, manufactured products, money, mores, and values of the city, incessantly flow to the country; from the country flows incessantly the stream of rustics, farmers, agricultural products, and other raw materials, beliefs, mores, tastes and so on, to the city. In most cases this stream is probably not so powerful as the first; and yet, its presence is unquestionable.[12] If missionaries, army men, business men, and other human agents of a more civilized country bring into a less civilized one elements of the culture of their own country and introduce them there, the same agents, remaining in the "less civilized" country, cannot escape being influenced by it, to some extent, and of importing into the more civilized country some elements of the culture of the less civilized country: some of its merchandise, ivory, metals, minerals, art-objects, mores, values — material and immaterial. Whether we take the history of the contact of the United States of America and China, Europe and China, England and India or Melanesia — Europe or America, on the one hand, and any of the so-called "backward peoples and cultures" on the other — everywhere this phenomenon is evident, tangible, and unquestionable.[13]

The same is true of the past. If Athens or Rome, in their golden days of expansion, spread and introduced their cultural values to many countries, they were, in turn, the recipients of the wealth, agricultural produce, human material, art-objects, and cultural values of these countries. The Roman world, beginning with the first century B.C., was inundated by the population, wealth, mores, beliefs, and other cultural elements of these, especially of the Oriental countries, to such

[12] See Sorokin-Zimmerman-Galpin, *Source Book*, quoted, Vol III, particularly.

[13] As an example see the detailed historico-sociological analysis in G. H. Danton, *The Culture-Contacts of the United States and China* (New York, 1931); H D. Lampson, *The American Community of Shanghai* (unpublished Ph.D. thesis, Harvard University, 1935).

an extent that the culture and population of the Græco-Roman world itself were greatly changed. The same happened in the Middle Ages between the cultures of the East and West, when contact was established. With a proper modification, the same can be said of the vertical streams. No aristocracy coming in contact with slaves can escape being "infected" with some of the elements of the culture of the slaves. Controlling them, it is, in turn, in some form and to some degree, conditioned and controlled by the slaves.[14] If the lower classes receive continually a stream of cultural objects and values descending upon them from the upper classes, the culture of the upper classes is also a recipient of the cultural elements of the lower classes, such as folk-songs, fairy tales, legends, patterns of ornamentation, jazz music and the spirituals, various beliefs and mores, not to mention human beings and the economic services and values supplied by these strata to the upper-class culture. The streams may not be equal, but both are there.[15] Even the caste-society, where such a two-way movement is least possible, is not exempt from this rule; even there the elements of culture of the Sudras or the outcasts flow upward into the stratum of the Brahmins. Still truer is this in regard to other, less rigidly stratified societies and cultures.[16]

As to the second proposition, one is tempted, at first glance, to formulate it in quantitative terms, in the sense that the stream from

[14] G. Tarde rightly remarks "When two men are together for a long time, whatever may be their difference in station, they end by imitating each other reciprocally, although of the two, the one imitates much the more, the other much the less The haughtiest country gentleman cannot keep his accent, his manners, and his point of view from being a little like those of his servants and tenants For the same reason many provincialisms and countrified expressions creep into the language of cities, and even capitals, and slang phrases penetrate at times into drawing-rooms" G Tarde, *The Laws of Imitation* (New York, 1903), pp 215 ff.; see also pp. 371 ff

[15] A concrete example is given again by the study of the circulation of the fashion of dress. If the lower classes or the rustics or the aborigines often imitate the upper-urban-civilized dress, these classes use the raw material produced by the lower-uncivilized-rural classes; sometimes even the patterns of the dress of these classes This happens especially in the periods of a decline of the upper-urban-civilized strata. See the facts in this last case in W M. Webb. *The Heritage of Dress*, quoted, pp 223 ff

[16] As mentioned, only the stream flowing from the dead or from the past to the present or the future is not influenced by the opposite stream, from the living to the dead, from the present to the past But even such a stream in its perambulations is greatly conditioned by the living, the present, and the future. we cannot influence Plato, Aristotle, or Homer, but whether the cultural values created by them penetrate our culture, and if so, what interpretation is given to them by a given culture, and what evaluation they find there, is certainly determined by the presence of the given culture; and with its change, the values undergo a respective change In this sense, the living present modifies the creation of the past and controls it, to a tangible extent.

the upper classes or the city or the "more civilized" country is stronger, greater, ampler, and carries a greater number of objects and values than the opposite current. However, such a proposition is very questionable. The point is that we do not have any measuring stick for saying that a thousand lipsticks, or a hundred pounds of nails, or ten radios flowing from the city to the country or from the civilized country to the "savages" is a greater quantity than a hundred bushels of grain, or potatoes, or nuts, or ten leopard skins, or one ton of elephant ivory which enters the city, the civilized country, from the rural area or the savage culture. Still less can we "measure" and say that the spread of the Christian religion by the missionaries among the natives is a more voluminous, larger, greater quantity than an introduction by the missionaries into the civilized country of some of the tunes, or art-objects, or "idols," or treasures of the savages. For these reasons such a quantitative proposition is untenable.

Instead, the proposition given above seems to be much nearer to the reality. It says that the stream from the upper to the lower classes, from the city to the country, from the more to the less civilized center, consists mainly of the *finished* objects and values or systems that enter it and function there as finished products, as systems, while the opposite stream brings mainly the *unfinished or raw* material, or congeries, which is to be finished and shaped, turned into a system in the city, the upper class, the civilized center. This material in the opposite (lower, rustic, and "savage") cultures may be functioning as finished, as system, but in the culture of the upper, urban, and civilized centers it becomes mainly a raw material or congeries to be reshaped, polished, and turned into a system. Indeed, the city or the upper classes or the civilized country send mainly the "finished products" — from nails, lipsticks, knives, plows, sewing machines, gasoline, kerosene, sugar, candy, tractors, up to the books, newspapers, radios, a religious creed, political ideology, scientific theory, certain games (baseball, football, bridge, crossword puzzles), songs, fads, fashions, and what not. Whether the values are "material" or "immaterial," they consist mainly of these "finished" forms, small or large systems, ready for use and "consumption" without any essential remodeling, manufacturing, or conversion into something entirely different. And vice versa. The opposite stream brings into the city, aristocracy, civilized country mainly that which is raw material for these centers, which they remodel, manufacture, give new form, new shape, new meaning and value. Whether the raw material

consists of the slaves, serfs, unskilled labor imported from certain countries; or of manganese, iron, gold, wheat, fruits, furs, ivory; or of certain folk-tunes, customs, ornamentation, patterns of drawing, sculpturing, dancing; or a certain belief, conviction, ceremony, or ideology — practically all these are rarely used in their "native" form, but are molded, manufactured, machine-turned, reshaped, remodeled in these cultures into a system, into something very different from what they were in their native "raw" form. This does not preclude a part of the currents from the city, the aristocracy, the civilized country from consisting also of "raw" material for the other countries, though some of these materials may be used as finished products in the upper classes, or urban and civilized centers. But such a return is ordinarily a minor part of the current; in this sense, it is an exception, not the rule.

When the proposition is properly understood, it makes clear several things which jump to the attention of an observer of these currents; it makes comprehensible even the temptation to put the matter in the above quantitative terms. If the products and values of the upper-urban-civilized centers enter the lower-rural-savage cultures mainly in finished form, or systems, they are not lost there for an observer; as finished individualities they are visible all the time; they visibly enter and circulate there, and visibly modify, reintegrate or disintegrate the native-rural-lower cultures. In other words, they travel as a strong, powerful, and vigorous stream which is not lost, but which rushes into, and changes effectively, the cultures of their inflow. Hence the temptation to put the matter in these terms: such a stream is more voluminous quantitatively and more powerful operationally, than the opposite current. The latter is, in a sense, lost in the higher-urban-civilized centers. Since it brings mainly the raw material which is reshaped in these centers and is given a new form, or a form for the first time — which is made in the image and likeness of the forms of these centers — it becomes "invisible" in its entrance and circulation. It does not add visibly any new heterogeneous element to these cultures; it seemingly does not reshape and reintegrate them; it is just a material which is molded into new systems by these centers, along their own patterns. Hence the impression that the stream is less ample and powerful than the opposite stream. In a sense, such an impression is justified: the current does not exert indeed such kinetic effects as the opposite current. The proposition thus explains this accurately and satisfactorily. Any investigator and observer of the "influence" of the

city upon rural culture, of the United States and Europe upon the Tasmanians, Melanesians, even upon China and India; of upper-class culture upon that of the lower strata of the same society, can hardly question its validity; the existing data support it amply.[17] In the light of the proposition, it is comprehensible why, from the standpoint of an observer, the cultural stream flowing from the upper classes molds and influences, or — in G. Tarde's terminology — is "imitated" by, the culture of the lower classes, more than the opposite current shapes the culture of the upper classes; why the same is true of the currents flowing from the urban to the rural, from the more civilized to the less civilized cultures. The reason is the difference between the streams consisting of the "finished" and "raw" objects and values.

The rule naturally has exceptions. One of these is that *in periods of decline of the urban centers, of the upper classes, of the given civilized culture, the content of the streams may be changed: the streams coming from these centers may carry the objects and values which may be accepted in the centers of their destination not as a finished but as a raw or decadent material, while the content of the opposite streams may be perceived as the finished.* In such periods, in Tarde's terminology, the urban, upper, civilized centers begin to "imitate" the culture of the rural, lower, less civilized countries.[18] Hence the "lower" stream becomes more powerful than the other. But even in such cases — and they have occurred indeed from time to time — the exception is rather fictitious, because the rule that the current consisting of the finished products tends to be more powerful than that of the raw material, continues to operate here as well as under normal conditions. The exception concerns only the change of the place to which the currents carry the finished and the raw products. Otherwise, the rule remains unchanged.

[17] In the period when the Oriental — Chinese, Arabic, etc. — cultures were more civilized than the European, Europe borrowed from them mainly finished products, such as the alphabet, Arabic numerals, anatomical charts, block printing, the mariner's compass, silk, tea, porcelain, playing-cards, gunpowder, scientific astronomy, even Aristotle.

[18] G Tarde states that in the periods of decline of the upper class, the lower classes imitate it especially strongly. This statement is rather fallacious. See G. Tarde, *The Laws of Imitation, op cit.*, pp 224 ff. A J Toynbee rightly outlines the fact but wrongly ascribes it to the state of the *total* disintegration of the civilization. Meanwhile, the given aristocracy of the culture often declines and is replaced by a new one, without any fatal and irremediable disintegration of the respective society or culture See A J. Toynbee's transformation of the imitation (Mimesis) in such periods in his *A Study of History* (Oxford University Press, 1934-39), Vol. IV, pp. 131 ff., Vol. V, pp 20 ff., 430 ff., 441 ff., Vol. VI, pp. 86 ff.

Here are a few examples of this uniformity. In the declining period of the Roman aristocracy, the upper classes, beginning with the emperor, developed such an imitation.

> Amid all the elaborate luxury and splendour of indulgence there was a strange return to the naturalism of vice and mere blackguardism. A Messalina or a Nero or a Petronius developed a curious taste for the low life that reeks and festers in the taverns and in the stews. Bohemianism for a time became the fashion. . . . The distinguished dinner party, with the Emperor at their head, sallied forth to see how the people were living in the slums. . . . In the fierce faction fights of the theatre, where stones and benches were flying, the Emperor had once the distinction of breaking the prætor's head.[19]

Nero aspired to become the popular artist of the mob; Commodus, Caracalla, Caligula, Gratian, and other emperors imitated the Roman proletariat or "barbarians" in their dress, amusements, sport, tastes, and many manners, beliefs and superstitions.[20] So did the aristocracy generally. A wave of "vulgarization and proletarianization" arose within the upper classes.

Later on, with the increased decline of the upper classes, especially after the end of the third century A.D., many cultural values of the pagan aristocracy fell down in the scale of values and were either discarded, or, when moved down to the lower classes, were used not so much as a finished product but rather as raw material. This concerns, first, the pagan religion, philosophy, and science, still fostered within the upper classes and among pagan intellectuals. In the rising tide of the Christian culture, which originated and grew mainly from within the lower classes (up to the moment of legalization of Christianity and later on), and from Oriental sources, the elements of the pagan religion and philosophy either died out or entered the Christian religion only as raw material to be used in a refashioned form by the early Christians and early Church Fathers. On the other hand, the Christian beliefs moved up from the lower to the upper classes[21] and entered these

[19] S. Dill, *Roman Society from Nero to Marcus Aurelius* (London, 1905), pp 73 ff

[20] *Ibid.*, pp. 74 ff.; Otto Seek, *Geschichte des Untergangs der Antiken Welt* (Stuttgart, 1921), Vol. III, p. 301. See other facts in A. J. Toynbee's *A Study of History*, Vol. V, pp. 452 ff.

[21] "Up to that period all progress in religious thought had proceeded from the highest circles of the [Graeco-Roman] society. . . . The Oriental cults, on the other hand, emanated and diffused from the dregs of the population. In Rome the first followers of Isis were the demoralized and prostitutes The worship of the Great Mother and of Mithras was recruited first from slaves, pirates, and soldiers. . . . The leadership in religion slipped from the hands of the upper classes . . . and the lower classes now

upper strata as the finished system, admitting of no substantial remodeling and reforming.[22]

The same can be said of many other cultural values of the upper classes of the decaying Roman Empire in the centuries from the fourth to the eighth A.D. They also were either discarded, or, as they went down into the masses, became just raw material for the finished products of these classes. A similar reversal of the cultural currents occurred in the periods of decline of a given aristocracy in other cultures: Chinese, Babylonian, Hindu, and others.[23]

The eves and the periods of great revolutions give further corroboration to the statement. On the eve of a revolution, the upper classes usually begin to import from the lower classes or from the "savages" many of their values, and try to use them as the finished product. The fashion of Rousseauan idyllic pastoralism, shepherdism, the sugar-coated *paysans* in the French nobility of the pre-Revolutionary period, even its "aping the dress fashion of peasants," is a typical example of that.[24] Likewise, a fashion of "primitive exoticism" and "primitivism," generally pervading the upper classes of such a period, illustrates the

imposed their superstitions upon the upper ones. . . . Even philosophy . . now was contaminated by the popular religion and soon began either to defend or explain the very thing which, some time before, philosophy had fought and undermined." O. Seek, *Geschichte des Untergangs der Antiken Welt, op cit*, Vol III, p 138

Similar transformation and reversal of the current occurred in the field of scientific theories See P. Duhem, *Le système du monde* (Paris, 1914), Vol II, pp 395 ff

[22] In order to see that, one has to read carefully all the main works of the Ante-Nicene Church Fathers, up to St. Augustine They display this phenomenon quite clearly See, for instance, in the volumes of *The Ante-Nicene Fathers* (Buffalo and New York, 1887–1891), "The Epistles" of St Clement, of Mathetes, of Barnabas, "Apologies" of Justin Martyr, "Against Heresies" of Irenaeus (Vol I); in Vol. II, Tatian's "Address to the Greeks", Clement of Alexandria's "Exhortation to the Heathen"; "the Instructor," and "the Stromata", Athenagoras's "A Plea for Christians"; in Vol. III, Tertullian's "Apology"; "The Prescription against Heretics" and other writings of Tertullian; in Vol IV, Minucius Felix's work, and especially Origen's "De Principiis," and "Against Celsus" In the works of Lactantius and especially of St Augustine (*Confession*, and *The City of God*) they are also evident They all use as either negative, or as raw material, some of the elements of the pagan religion On the other hand, they all set forth Christian beliefs as a finished product (system) not to be changed or touched by anybody or anything. This process continued later on, in the early medieval centuries. See H. O. Taylor, *Mediaeval Mind*, 2 vols (London, 1922), chapters describing how the heritage of the upper classes of the Graeco-Roman world was modified and reinterpreted symbolically and used as raw material.

[23] See some of the facts in A J Toynbee, *op cit*, Vol V, pp 554 ff

[24] See A. Challamel, *History of Fashion in France* (London, 1882), pp. 216 ff. "In 1780 the ideal of fashion was the peasant costume," *ibid.*, p. 171. During and after the Revolution "bourgeoisie became more independent of the fashions of the upper classes." *Ibid.*, pp. 208 ff.

same phenomenon.[25] Contemporary jazz and swing, in music; imitation of the archaistic and primitive patterns in painting and sculpture (Epsteins and their like); the obsession of literature and the theater with the topics and values of either the poorest classes, or criminal groups, or primitive and exotic tribes, or the dregs of society,[26] is another example of the same phenomenon, ominous for, but symptomatic of, the present decline of our upper classes. As we shall see in the next paragraph, when the upper classes begin to imitate the values and patterns of the lower classes, or the more civilized those of the less civilized groups, such a reversal of the normal situation of imitation by the lower classes of the values of the upper ones is one of the best symptoms of the beginning of the end of the upper or civilized groups' superiority and position. History gives a large number of cases of this kind.

If the difference of type — rural-urban, upper-lower, civilized-uncivilized — does not exist between the cultures of the two centers, the described contrast of the "finished" and "raw" material and its consequences does not exist, either. Two similar rural areas, or primitive tribes, or even two cities, may "exchange" their cultural objects and values; these may be different — for instance, one center may send coal and iron; the other, oil and gold; or one center may send the skins and meat of sheep, the other, corn; or one, apples, the other, potatoes. The objects are quite different, but not having generally the above difference between finished systems and raw objects and values (congeries), the difference here does not give any tangible advantage of efficiency to either type.

[25] An abundant testimony for that in French pre-Revolutionary society is given by *Mémoires de L. de R Saint-Simon* (Paris, 1829–30), *Mémoires de Madame Campan* (Paris, n d) and other memoirs of the period; also in H Taine's *Les Origines de la France contemporaine: l'ancien régime* (Paris, 1876); or E. and J de Goncourt, *La société française sous la terreur* (Paris, 1854) and *Histoire de la société française pendant la révolution* (Paris, 1854); or F Funck-Brentano, *L'ancien régime* (Paris, 1926). The spread of "exoticism," "primitivism," etc., in Russian aristocracy before the Revolution is well exemplified by Rasputinism and similar currents widely diffused.

[26] See the facts of vulgarization and barbarization of arts, growth of archaistic and primitivistic imitation of it, blossoming of exoticisms, tendency to move from the kingdom of God, and the noble values and types, to common types of values and persons, and then to the "caveman," criminal, prostitute, street urchin and other subsocial types as personages of literature, painting, music, drama, and other arts of the overripe Sensate phase, in *Dynamics*, Vol. I, pp 89, 260, 298, 308, 338, 367, 485–88, 500, 592, 596, 618, 641–42, 647, 650–53, 656, 678 ff., *et passim*. See the facts of a similar trend of "physiodirty" interpretation of man, culture, and values in the science, philosophy, and ideology of the declining stage of the overripe Sensate culture in Vol. II, pp. 115 ff., 206 ff., 230 ff., 288, 470 ff., *et passim*. See also A. J. Toynbee, *op. cit.*, Vol V, pp 450 ff.

Finally, the case "c" has in view mainly *the instances of conquest and coercive imposition of certain cultural objects and values by the conquerors upon the culture of the conquered.* Whether the conquerors are the Arabs, the Asiatic legions of the Mongols, the Aryans in India, the Dorians in Greece, the Spaniards in South America, the Normans in England, the Italians in Abyssinia, or the Europeans in many native areas of their conquest — if and when they impose and enforce certain (positive or negative) values and objects upon the culture of the conquered, the imposed cultural stream, backed by force and enforced for a period of time, may be more efficient than the opposite stream of the culture of the conquered upon that of the conquerors. If the latter do not settle amidst the conquered people, but continue to have their own country from which they control the conquered culture through agents; the disparity in the comparative efficiency of the two streams may be very considerable. If they settle in the country of the conquered, as a small island in the sea of native population, then the disparity is smaller; in the long run it may even disappear and the conquerors may even be engulfed by the native culture. But even in that case, during the first period of their domination, their dictatorship gives an additional efficiency to the stream of their culture in comparison with the stream of the culture of the conquered.

With a slight variation, the same can be said of the conquest by one class of a given population of its other classes, typified by the phenomena of deep and great revolutions and counter-revolutions. The triumphant revolutionary class, different from the overthrown governing class, brings with its victory a set of its own values and objects, imposes them by coercion upon society, including the previous aristocracy, and in this way makes them efficient and functioning. If it is overthrown by the counter-revolution, a new earthquake of cultural elements and values occurs, which eliminates a number of these new cultural elements and values and reinstates many of those that were overthrown by the revolutionaries. In brief, *force* has always been a very important factor in this field, and remains so up to the present time. It makes "finished" the values of the conquerors, which otherwise would be "raw," and it makes "raw" the values that otherwise would be "finished."

Among millions of cultural elements and systems that follow this rule, the rise and decline, spread and shrinkage, of a given language gives a typical example. With the expansion of the Arab conquests,

the Arabic language spread and became dominant in North Africa, in Mesopotamia, in Persia (greatly modifying the native language), and over practically the whole zone of Arabic conquest, as the language of Scripture and learning, at least. So also did Christianity in regard to the Latin language, establishing it as that of the clerics and educated. In England, after the conquest by the Normans, Norman-French "became the official language for two centuries, but was then gradually ousted by English." [27]

A striking example can be seen in the history of French. What was originally the language of the Isle of Paris extended itself with the power of the kings of France, as the language of the official classes, of the gentry, of the army, of the law courts, and, so far as Latin was not employed, of the Universities and schools and of the Church. When the French Revolution threw the power of the king of France into new hands, the language of the new Republic (including Napoleon's empire) ramified more widely among the people. The common use of French extended even in areas like Brittany and Alsace, where the people spoke a very different language.[28]

So it was also in Spain with the Castilian language given successful domination as the ruler's dialect. So it was with Latin, with the spread of the Roman *imperium* and colonization. So it was with English, with the growth of the British Empire. And as A. S. Woolner has shown convincingly, so it was with a great many languages of the past — Egyptian, Greek, Sumerian, and several Semitic and Indo-European languages. With the rise of an empire and its power, the area of each of these respective languages spread over the conquered territories and areas, either entirely replacing the native languages, or becoming the language of the aristocrats, of the court, of learning, of the administration. With a decline of the empire and power, or with the advent of new conquerors, the preceding imposed language also declined and was replaced by that of the new conquerors.[29] What has been said of language can be said of religion [30] and, with proper

[27] A. S. Woolner, *Languages in History and Politics* (Oxford University Press, 1938), p. 12.

[28] *Ibid.*, p. 12.

[29] See the facts, *ibid.*, *passim*.

[30] With the political and military rise of the Sumerian, or Babylonian or Assyrian societies, respectively, their gods and the gods' names changed, and were raised or demoted in the hierarchy of the gods the Nippur Bel was supplanted by Marduck of Babylon, and this by Asshur in Assyria. When each of these societies was dominant (mainly through their military conquests) their local god became the sovereign of all other gods, especially of the subjugated societies, and its cult and name spread over and supplanted, to a degree, the cults and names of the deities of the subjugated societies.

modification and reservation, of almost any cultural traits or any system of cultural values — art, religion, science, law, mores, etc. Force has played an important part in all such cases. The history of conquest and of the coerced diffusion of the culture of the conquerors imposed by the Dorians, Aryans, Romans, Persians, Mongols, Arabs, Spaniards (in America), Europeans (in North America), bears testimony to that.

Instead of by open military coercion, the same role can be played by the intervention of authoritative force with a veiled pressure.

As happened in the vote of the Council of Nice in favour of the Athanasian Creed, or in the conversion of Constantine to Christianity, or as happens in any important decision following upon the deliberations of a dictator or assembly. In this case, the vote or decree, like the victory, is a new external condition which favours one of the two rival theses or volitions at the expense of the other and disturbs the natural play of spreading and competing imitations.[41]

As a form of such pressure, money (bribery, abundant advertising, etc.), threats, promises of various remunerations, infliction of various punishments (for instance, for listening to foreign radio broadcasts in Germany, or reading foreign newspapers), and dozens of other pressure forms function. With a proper modification, the above applies to all such external measures aiming to aid the diffusion of one and to suppress that of other, rival, cultural values.

A peculiar combination of the preceding three rules — namely, that the cultural products of the upper-urban-civilized societies enter the lower-rural-uncivilized cultures as finished products; and that the situation may be reversed in the periods of decline of the upper-urban-civilized groups; and that, due to the backing of force, the conquering group may impose its culture upon the conquered — is presented by the cases when *a "less civilized" conquering group borrows the more*

So it was in Egypt also, with the rise and decline of each of the Egyptian empires and with the military success of each of them, in regard to the defeated and subjugated populations and their local deities So also with the Greek deities in the process of expansion of Greek power, their Pantheon spread over the subjugated and colonized areas. In these and other cases, "the relations between the gods were simply a transposition of political facts into theological terms" A J Toynbee, *A Study of History*, Vol I, p. 116; Vol. V, pp 527 ff With a military subjugation of many societies by the Christian culture, the Christian God and Christian saints have been imposed upon an enormous number of groups, peoples, and tribes who were forced to abandon their deities, cults, and beliefs. The same is true of the imposition of the Western or Eastern Christianity, of the Roman-Catholic or Protestant creed by the respective victorious Christian nations upon the defeated Christian nations The famous *cuius regio eius religio* is one of the formulas summing up the described situation.

[41] G. Tarde, *The Laws of Imitation, op. cit.*, pp. 169–170, and 368 ff.

perfect cultural values of the conquered. Such cases are rather numerous and therefore the peculiarity deserves to be mentioned. Thus conquering Romans adopted the Greek equipment of the cavalryman,[32] as well as the Greek gods under Latinized names: Zeus as Jupiter or Jovis, Heracles as Hercules, Persephone as Proserpine, Hestia as Vesta and so on. Ottomans (Turks) borrowed the Western firearms; the Parthians, administrative organization of the Seleucid Greeks; conquering Persians adopted the Median and the Egyptian dress, breastplates, and other cultural values of the conquered peoples. The victorious Manchu took many cultural values of the vanquished Chinese. Peter the Great borrowed certain military techniques of the conquered Swedes. The conquering Incas adopted several material values of the conquered peoples of Quito and of Chimu.[33] So also did Athenian conquerors in regard to many cultural values of the societies they brought under their control.

> Our tobacco-smoking commemorates our extermination of the red-skinned aborigines of North America. . . .
> Our coffee-drinking and tea-drinking and polo-playing and pyjama-wearing and taking of Turkish baths commemorates the enthronement of the Frankish man-of-business in the seat of the Ottoman Qaysar-i-Rum.[34]

Likewise, after a successful revolution, the victorious revolutionaries adopted many of the cultural values of the conquered former aristocracy and upper classes: in their material plane of living, in their dress, in manners, in forms of their political, military, and economic organization, in their art and ideology; in those particular fields in which the values of the previous upper classes appeared to be superior to the values of the lower classes and revolutionaries.

Similarly, the rural classes many times adopted the values of the decaying urban culture. For instance, during the Russian Revolution, when within two or three years the cities and their populations were enormously decreased, while the rural classes rose to a better position, an enormous number of diverse urban values, from pictures, pianos, fine furniture, jewels, up to books, dress, manners, and mores, shifted to the villages and were adopted there.

A similar process took place during other cases of the decline of the cities and a safer, more comfortable, and "victorious" position of the rural sections. This special case represents a peculiar mixture of

[32] See Polybius, *Histories*, Bk. VI, chap. 25, pp. 3–11.
[33] L. Baudin, *L'empire socialiste des Inka* (Paris, 1928), p 61.
[34] See A. J. Toynbee, *op. cit*, Vol. V, pp 439 ff.

the three above uniformities, and, in view of its frequent recurrence, is mentioned specifically.

V. A Lag in Entrance of the Finished Products into the Culture of the Lower-Rural-Less Civilized Classes

If the proposition concerning the finished (system) and raw products (congeries) is valid, it means that the *upper-urban-civilized centers create and adopt these cultural values earlier than the lower-rural-less civilized population; that so far as they are "new" and "finished"* [35] *they appear first in the upper-urban-civilized groups and from these, they move and reach, with some lag in time, the lower-rural-less civilized groups.* In other words, the stream of the new and finished values flows, normally, downward and only after some lag in time does it reach and enter the culture of the lower-rural-less civilized groups. The upper-urban-civilized classes are, as a rule, the centers from which emanates the diffusion of the new and finished products. *Only in the periods of decline of these classes or groups, as mentioned before, is this uniformity reversed or broken.* In such cases the lower classes become the center of the emanation of the new values as the finished products, and the declining upper-urban-civilized strata adopt them with some lag.[36]

The reasons for such a uniformity are at hand. Since the upper-urban-civilized centers have a more developed and farther reaching

[35] As "unfinished" congeries the values may originate with the lower classes and go upward, as a "raw material," to be finished and put into a system.

[36] I stress the "finished" character of the value. The upper-civilized-urban groups regularly take some values of the lower-less civilized-rural groups as the raw material to be turned into finished products. As such, they are created and adopted first by the upper-civilized-urban groups and then, with some lag, spread downward (those values which can generally diffuse within the lower strata). In the light of this specification, such facts as the borrowing of the elements of the popular art of the lower classes by the grand art of the upper classes; as the utilization of the popular beliefs and rituals by the crystallized religion of the upper classes, and so on, represent no contradiction or exception to this rule. So far as they are taken as a raw material to be molded and finished, and so far as only after such finishing do they spread first within the upper and then lower classes, they follow the uniformity pattern formulated. In this formulation our proposition reconciles the theories of the aristocratic and popular origin and evolution of art as well as of other cultural values. Specifying, further, that in the periods of decline of a given aristocracy-civilized-urban group the process reverses; and that, in populations with blurred and chaotic lines of social stratification, the direction of the movement also becomes blurred and chaotic, it takes care of all the facts apparently contradictory to the proposition. See, for the objections and supposedly contradictory facts in the field of art, E. Pottier, *"Les origines populaires de l'art," Recueil E Pottier* (Paris, 1937); W Deonna, *L'archéologie, sa valeur, ses méthodes* (Paris, 1912), Vol II, pp. 82 ff.; C. Lalo, *L'art et la vie sociale* (Paris, 1921), pp. 139 ff.

network of communication and interaction with more numerous, remote, and different cultures of various countries, these classes and centers are exposed to them more and earlier, become naturally the first recipients of these values, and adopt them first, before the lower-rural-less civilized groups have any notion of them or contact with them. Hence, the uniformity of the downward direction of such a stream and the lag in its arrival in the lower-rural-less civilized areas and populations. The rule is well corroborated — and sometimes strikingly — by the data of history. With the exception of the periods of decline or the intrusion of the factor of physical coercion, it is the upper-urban-civilized groups who have been "innovators," not the lower-rural-less civilized groups or classes. The ruling class, the merchants, the clergy, the intellectuals, and professionals, by the nature of their occupation, move and travel more than the lower or rural classes; the first are exposed to the varying cultures of different areas more than the second; they adopt them earlier than do the second. Hence the rule, which is somewhat contradictory to the current opinion, according to which the upper classes are supposed to be "conservative" while the lower classes are thought of as innovators. Nothing can be more fallacious than this.[87]

Whether we take scientific theories, religious beliefs, moral norms, art-values, forms of social and political organization, technological changes, up to the material standards of living — kind of food, drink, sports and play, patterns of dress, and what not — all these values originate (being invented or borrowed from other cultures) in the upper-urban-civilized groups, and from those, with some lag, shift toward the lower-rural-less civilized groups. As mentioned, a few exceptions from this rule are found, but the rule as a rule remains.

History of the vertical diffusion of dress patterns or various elements of the material standard of living shows typical examples of that. Even nowadays, any new fashion or value, like the automobile, radio, telephone, movie, etc., originates in the metropolitan centers (Paris, New York, London, etc.), and is adopted by the upper strata; from there it moves to the stores of other big cities, and with some lag reaches the smaller towns, diffusing at the same time, downward;

[87] Therefore all the theories that claim (unreservedly) that "great innovations never come from above, they come invariably from below just as trees never grow from the sky downward, but upward from the earth" (C G Jung, *Modern Man in Search of a Soul*, London, 1933, p 243) are evidently untenable. Such a situation is true only in regard to the periods of decline of the given upper classes; or in regard to the raw material taken from the lower classes. Otherwise, the general rule is opposite to that.

with a notable lag it reaches the rural parts, and, still later, passes to the population of the less civilized countries. Even now, in spite of a rapid system of communication, the fashion that is already outdated in the big metropolitan centers, in their upper classes, often is only beginning to reach the population of the rural areas. A lag of several weeks or months is a normal phenomenon even nowadays.[38]

In the past, with less developed systems of communication, it was much longer and much more conspicuous. With a considerable lag, the dress of the upper classes reached the bourgeoisie, and then the lower classes. The same is true of such novelties as tobacco, tea, white bread, sugar, and what not. Examples: In France, the conquering Franks had their costumes adopted, first, by the ruling classes of the native Gauls, and then by the lower classes.[39] From Charlemagne's courtiers the fashions and fine imported articles of Italy and the Orient spread among the noncourtiers and then to the middle classes. From feudal courts, fashions diffused downward.[40] Crusaders learned new fashions in the East, which, after their return, were spread among the upper classes and then, later, went downward to the lower classes.[41] From the aristocracy the fashions passed regularly to the bourgeoisie, and from it to the lower classes, becoming less expensive and less ornate.[42] The same is true of other countries.[43]

What is said of dress and objects of the material standard of living [44]

[38] Some two decades ago, it took about one year for a fashion to move from Paris to New York, and from six to eighteen months to move from New York to other inland towns Now the shift is faster and takes less time. See P. H. Nystrom, *Economics of Fashion* (New York, 1928), p. 36.

[39] A Challamel, *History of Fashion in France* (London, 1882), pp 36 ff.

[40] P Kraemer-Raine, *Le luxe et les lois somptuaires au moyen âge*, pp. 10 ff., 21, 31 ff., *et passim.*

[41] Challamel, *op. cit*, p 40

[42] *Ibid*, pp 57 ff., 64 ff.

[43] See the details in H. Baudrillart, *Histoire de luxe*, 4 vols (Paris, 1878–80), Vol. II, pp. 340 ff ; also in the quoted works of P. Kraemer-Raine, pp. 42 ff., *et passim;* P Nystrom, *op cit*, pp. 35 ff ; John Wade, *op cit*, pp 20–26; K. R Greenfield, *op. cit*, pp. 49 ff ; G. Hill, *op. cit*, Vol. I, pp. vi ff., *et passim;* E Waterman, *op. cit.*, pp. 7–10, 95 ff., "This process of 'aping one's betters' does not go on between the highest and lowest classes, but is the imitation of the next higher class above. . . . One emulates those whom one might possibly become, without too great a stretch of the imagination." *Ibid*, pp. 276–277. This graduality is a replica of the graduality of the climbing and descending of the individuals along the social ladder pointed out and documented in my *Social Mobility*, pp. 449 ff.

[44] In recent decades, such cultural objects as automobiles, radios, movies, oil burners, electricity, telephone; or such bio-social traits as bobbed hair, lipsticks, use of bathtubs; forms of dancing, entertainment, cocktail parties; playing the stock market, even use of the contraceptive means of birth control, a diminishing birth and death rate and an

can be also said of almost any cultural value, such as a language,[45] scientific theory, religious creed, art-value, ethical norm, rules of etiquette, and what not.[46] Only after a lag of several decades, even centuries, did Christianity reach and begin to diffuse among the rural classes of the Roman empire.

> The most stubborn resistance (to Christianity) comes from the country people, the *pagani*. . . . The word *paganus* means a dweller in the country, *pagus*. It has now been demonstrated that the hostility of the peasantry to Christianity gave the meaning of "pagan" to *paganus*. This seems to date from the first half of the fourth century, and it gradually becomes general in the second half.[47]

So also, with a lag, from the top to the bottom of the social ladder, and from the urban to the rural classes, went the diffusion of Renaissance free thinking, of the Reformation, of the atheistic and "enlightened" philosophies of the eighteenth century in Europe; of socialism, communism, and atheism in Europe, in pre-revolutionary and revolutionary Russia. Similar was the process of the diffusion of Buddhism, Mohammedanism, and other religious creeds.[48]

The same is true of scientific and other theories, political and other ideologies, and moral norms.

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increasing divorce rate, and thousands of other "novelties," luxuries, comforts, patterns, followed the rule of the uniformity discussed, in spite of somewhat "blurred" lines of social stratification in recent democratic societies In the rough terms of eighteenth-century England, the "aping of one's betters" continues (except in periods of decline of the existing upper classes). It is due, not only to the factor of income and economic accessibility, but to the deeper reason of the greater and wider network of communication and contact of the upper-urban classes in comparison with that of the lower-rural classes

[45] According to Sydonius Appolinarius, Latin was first spoken in Gaul by the Gallic nobility and then spread among other classes. In ancient France, French was first spoken by the upper classes; and "in each province there was and still exists a *bilingusme;* the people guarded their ancient language while the nobles and bourgeoisie adopted the new language. In Bretagne, in Provence, the people still speak their dialect and bourgeoisie alone talk French" R Maunier, "Invention et diffusion," *Melanges D Gusti* (Bucharest, 1936), pp 6–7.

[46] In Shanghai and in China, "the cultural blending of the white and the yellow races that has gone forward has come through the large number of the upper strata of the natives (Chinese) who have visited and studied in foreign lands and have brought back varying degrees of that culture." H. D. Lamson, "The Eurasian in Shanghai," *American Journal of Sociology*, March, 1936, pp. 642 ff. See also R. T. LaPiere and Cheng Wang, "The Incidence and Sequence of Social Change," *ibid*, November, 1931; G H. Danton, *op cit., passim.*

[47] C. Guignebert, *Christianity, Past and Present* (New York, 1927), pp 175–76.

[48] See the facts and sources in Sorokin-Zimmerman-Galpin, *A Systematic Source Book*, quoted, Vol. II, pp. 373 ff.

With a lag of several years, even decades, Darwinism and the theory of evolution, Marxism and Spenglerism, have reached the lower classes; and even now, only in their most primitive form. A more complex scientific theory takes, even at present, several years to reach the lower, rural, less civilized countries. Even the radical political and revolutionary ideologies, which supposedly originate within the lower classes, originate and are nursed first in the upper or middle classes and from these diffuse, with a lag, among the lower classes. The radical Sophist theories of Trasymachus, Georgias, and Athenian revolutionaries were originated within the ruling classes of Athens, and the Athenian revolutions of either Ten or Thirty Tyrants were led by the members of the upper classes but not by those of the slaves, unfree, or lower classes. Similar ideologies and movements in Rome originated and were led by the Gracchi and other members of the upper strata of Roman society. The radical philosophy of the Encyclopedists was created and nursed within the nobility of France. The creators and leaders of the revolutionary ideologies and movements in Europe of the nineteenth century were, again, mainly the members of the upper and middle classes, not of the lower classes. Saint-Simon and his school, Fourier, K. Marx, F. Engels, F. Lassalle, Bakunin, Kropotkin, J. Jaurès, G. Washington, and so on, they and thousands of other leaders, down to Lenin and Trotsky, belonged either to the upper or the middle classes of the respective societies. Sometimes such ideologies and movements are germinated for decades within the upper and middle classes before they reach the lower strata. In this later stage some of the leaders of the revolutionary movement are the members of the lower classes; but they are almost absent in the earlier stage of germination, and even in the later period are a minority rather than a majority.

Not different is the situation in the field of art and art-style. At any given period, in any complex culture, there coexist so-called "grand art" and "popular art," the latter often very different from the grand or aristocratic art. Several investigators have claimed that it is the grand or aristocratic art that regularly borrows from the popular art and, consequently, that the popular art leads while the grand art lags.[49] When, however, the problem is studied more carefully, it shows four things: First, when the grand art of the upper classes borrows something from the art of the lower classes, it borrows it as a raw material to be remolded and finished. Second, in the periods of decay of given

[49] See, for instance, E. Pottier, *Les origines populaires de l'art, op. cit.;* see also, partly, W. Deonna, *L'archéologie, op. cit.*, Vol. II, pp. 82 ff.

upper classes, the art of the lower classes indeed often leads while the decaying art of the declining upper classes becomes raw material for it. Third, in a society with the blurred lines of demarcation of social stratification (like ours), the crisscross of the currents becomes also blurred and multidirectional. Fourth, and the most important fact, is that so-called popular art, in most cases, is but a modified and disfigured grand art of the upper classes that existed before and passed downward with some lag and continues to exist there, while the grand art of the upper classes has already moved to a different form. In other words, a great deal of so-called popular art is but a disfigured survival of the previously existing art of the upper classes.

The popular music is but a survival of the ancient and forgotten technique [of the grand art]; popular song is but a survival of the *modes antiques*.[50]

As a rule, so-called popular art is but a survival and deformation of the previous art which was aristocratic and savant when it lived its proper life. . . . It is a survival of this art that fell into oblivion in its original milieu. . . . Like fashion, so-called popular art moves from up downward and not from the bottom upward. . . . Many of our popular "tunes" are the children of the refrains of the popular operas of the eighteenth century. . . . Most of our rustic dances are ancient dances of the court and aristocracy. . . . Popular poetry is an incorrect translation of the works of ancient poets — professionals.[51]

In brief, the uniformity of the phenomenon discussed is reasonably certain in the field of art also. It manifests itself in practically all the compartments of culture, providing that the respective cultural trait or value can generally be adopted by the lower-rural-less civilized groups (see further, section seven of this chapter). A few exceptions, like the case of the upper classes in the period of their decline, or an interference of the factor of rude force, exist there. But this does not nullify the rule.[52]

[50] W Deonna, *op. cit.*, Vol II, pp. 41–42.

[51] C. Lalo, *L'art et la vie sociale, op cit*, pp 142–146. See there other facts. See also A. D'Ancona, *La poesia popolare italiana* (Livorno, 1906); L. Descaves, *L'imagier d'Epinal* (Paris, 1920)

[52] "Thus, whether the social organization be theocratic, aristocratic, or democratic, the course of imitation always follows the same law. It proceeds, given equal distances, from superior to inferior," says G. Tarde, who formulated this uniformity possibly better than anyone else. He gives a large body of factual corroboration of it in Chapter Six of his *Laws of Imitation*. He further remarks that a given class imitates the superior class nearest to it and the imitation tends to decrease with an increase of social distance between the social strata. See pp. 232 ff., and 224 ff. Among many facts of special interest given by G. Tarde is his remark that *even such a cultural activity as politics goes*

In the light of this uniformity, it becomes clear that the great tides of transformation of culture from Ideational to Idealistic or Sensate form, or vice versa, also originated in their "crystallized forms" within the upper-urban-more civilized strata and then, with some lag, in a simplified form, diffused downward — often, in the past, requiring several decades and even centuries for a passage from the upper to the lower rural classes. In this sense, each of these forms of culture has not been limited to the upper class of Græco-Roman or Western society, but has spread also over its middle and lower classes.

VI. Importers and Earliest Recipients of a New Cultural Value

In a more generalized form the preceding proposition can be formulated as follows:

Other conditions being equal, and assuming that various groups in a given population are equally congenial or indifferent to a new cultural value, *the persons and groups that are exposed to it most and earlier than the others tend to be the first importers and recipients of it. The persons and groups who are less exposed to it and come later into contact with it, tend to lag in acceptance and use of a new cultural value.*

For this reason, besides the upper classes, such groups as *merchants and traveling salesmen, missionaries, scholars and scientists, "intelligentsia," travelers, adventurers, journalists, government officials, groups and persons who indirectly* — through reading, hearing, or

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also downward and the lower classes begin to discharge political activities after the upper classes, the great lords and ladies, cease to be interested in it Hence the passage of the political régime from aristocracy to democracy Ibid., p. 231. Generally, "the innumerable card players that we see in the inns of today are unwitting copyists of our old royal courts. Forms and rules of politeness have spread through the same channels. Courtesy comes from the court, as civility comes from the city. The accent of the court and, later on, that of the capital, spread little by little to all classes and to all provinces of the nation. We may be sure that in times past there were a Babylonian accent, a Ninevite accent, a Memphite accent, just as there are today a Parisian accent, a Florentine accent, and a Berlin accent [or Harvard and Oxford accents imitated by the 'inferiors']." *Ibid*, pp. 217 ff.

G. Tarde stresses also the innovating role of the upper classes in starting a diffusion of a cultural value. "The principal role of a nobility, its distinguishing mark, is its initiative, if not inventive, character. Invention can start from the lower ranks of the people, but its extension depends upon the existence of some lofty social elevation, a kind of social water-tower, whence a continuous waterfall of imitation may descend . . . As long as its vitality endures, a nobility may be recognized by this (innovating) characteristic (When it ceases to perform this role, it is a sign that 'its great work is done' and it is declining)." *Ibid.*, pp. 221 ff.

otherwise coming in contact with a new value — *become acquainted with it; these groups have usually been the importers and first recipients of such values in the past as well as in the present* (providing *their culture is not inimical to those values*). Whether in introduction of, say, Buddhism in China, Oriental cults in Rome, Christianity in the Western world, or some new "foreign" and "imported" merchandise — such as a material commercial value, a new fashion, or new style of art; new philosophical, scientific, juridical or moral value — such novelties fairly uniformly are introduced by one or several of these social groups for the reason that they are exposed to them earlier and more thoroughly than many other groups (peasants, laborers, sedentary artisans, professions having limited contact with the rest of the world, etc.). For the same reason, *men* more frequently than *women* lead in the acceptance of such values (because man more frequently discharges the functions of the "secretary of foreign relations" than woman, who still discharges mainly the functions of "secretary of the interior," and therefore is less exposed to the new values than man). The same would be applicable to *age groups:* the age groups less exposed would tend to lag, those more exposed to lead, in the importation and acceptance of a given value. Which age group in which society is the leader in this respect is a matter of fact. Within the limits of the reservations and qualifications made, the uniformity manifests itself in many — great and small — historical facts.

A. As the rural classes generally are less exposed (have less contact with, and narrower and less remote horizons of, foreign cultural values) than the urban classes to the new and foreign values, they lag, as a rule, in acceptance of such values, in comparison with the more exposed urban groups. This lag shows itself in almost all fields of cultural values. In religious values, for instance, it comes out in the form of a subuniformity such that, all in all, the rural population, as compared with the urban, has regularly a smaller proportion of persons affiliated with religions other than the native religion of the society, and lags in its acceptance of a new and foreign religion, in comparison with the more exposed urban groups. In Rome, the *pagani* (rural population) lagged for a century or two in the acceptance of Christianity (as a new and foreign religion) in comparison with the urban exposed groups. In the United States, the "native religion" is Protestantism, while Catholicism, Judaism, Greek Orthodox, Buddhism and other religions are "foreign." In the total rural population, the proportion of people affiliated with the native religion is still

notably higher, and with foreign religions notably lower, than in the total urban population. So also is it in England. In Poland the native religion is Catholicism; therefore the proportion of people affiliated with the Roman Catholic religion is notably higher among the rural population than among the urban. And so on, in practically any country.[53]

B. Studying the actual importation and diffusion of various religions in different societies, we can see the validity of the proposition. For instance, in the ancient Græco-Roman world, the foreign Oriental religious cults of Cybele, the goddess of Mâ-Bellona, Isis, Osiris, Mithra, astrology, the cults of Syria and Persia, Judaism — all these were first imported and accepted by the city groups, such as legionaries, merchants, foreign immigrants, scholars, intellectuals and writers, governmental officials, and the like. Some of these cults did not succeed at all in being adopted by the rural classes.[54] With a proper modification, the same can be said of many other cultural values. The rural classes usually lag, in comparison with the more exposed urban classes, in contracting, in importing, and in accepting such values.

C. The proposition is supported also by many observations concerning the "acculturation" of primitive peoples. Many an anthropologist has noted that women in such groups are more "conservative" than men in the process of acculturation, that is, in contacting and accepting a value of Western culture. The reason for that is, in most cases, not an inherent mystical "conservation" of the female organism, but the fact of a less exposure of women to the new values.[55] The concrete groups that are importers and first acceptors of the new value vary from society to society; but in each society they will be the persons and groups first and most exposed to the new value (when their culture is not inimical to it).

[53] See the statistical figures and other data in Sorokin-Zimmerman, *Principles of Rural-Urban Sociology* (New York, 1929), pp. 420 ff; Sorokin-Zimmerman-Galpin, *A Systematic Source Book in Rural Sociology* (Minneapolis, 1931), Vol. II, pp. 373 ff.

[54] See the facts and the details in J. F. Toutain, *Les cultes païens dans l'empire romain*, 3 vols. (Paris, 1907–1920), Vol. I, chap. i, pp 247, 266, Vol. II, pp 24–30, 58, 65, 159, 255; Vol. III, pp. 102–109, 113, 183, 425, 438, *et passim;* M. I. Rostovtzeff, *Mystic Italy* (New York, 1927), pp. 7–11, 30–31; F. V. Cumont, *Oriental Religions in Roman Paganism* (Chicago, 1911), pp. 53, 56, 83, 201, 281, *et passim;* F. V. Cumont, *The Mysteries of Mythra* (Chicago, 1910), pp. 34, 40, 45, 63, 69; C. A. Guignebert, *Christianity, Past and Present* (New York, 1927), pp. 175 ff.

[55] See, for instance, M. Mead, "The Changing Culture of an Indian Tribe," *Columbia University Contributions of Anthropology*, Vol. XV, 1932; I Schapera, "The Contributions of Western Civilization to Modern Kxatla Culture," *Transactions of the Royal Society of South Africa*, Vol. XXIV, 1936.

VII. Mobility and Displacement of Cultural Elements, Congeries, Subsystems and Systems, and Great Creative Centers of Culture

Cultural migration takes place in the form of multiplications and spatial mobility of: *the singular cultural elements, the congeries of such elements, small systems, and vast cultural systems, or even the total culture of a given group.*

The cultural objects and values drift and multiply like pieces of ice torn from big icebergs and like icebergs and large ice-fields. Who has not observed during the last few years, for instance, a Russian *samovar* or *vodka* or an *ikon* in the United States? Torn from the Russian cultural system, they have drifted into the American cultural continent. Who does not know about the combs, nails, watches, ready-made dresses, knives, guns, lipsticks, or even chewing gum, or cars, movies, radios, manufactured in the United States and sold in the village or city shops of China and India, and of many other countries? Some of these objects and values were again torn from the total cultural setting of Western culture and, as isolated elements, drifted to and settled in cultural continents essentially different from that in which they originated. And vice versa; in the United States one sees a Chinese lady's dress, Chinese art-objects, certain of their mores and values, which, in isolated form, have flowed to America and entered its culture. The case is so evident and is met so often, that there is no need to insist upon it. It suffices to say that it occurred in the past and is occurring in the present. In the remotest prehistoric periods, many species of cultivated plants and the methods of their cultivation were widely spread from the centers of their origin.[56]

Likewise, in later prehistoric periods, "a South Russian pin is found in a neolithic tomb in Denmark, British spear-heads in graves . . . in Holstein . . . Syrian vases in First Dynasty tombs in Egypt, and Egyptian slate-palettes in Byblos, before 3000 B.C." [57] Similarly,

[56] See E D Merrill, "Plants and Civilization," in *Independence, Convergence, and Borrowing* (Harvard University Press, 1938), pp. 22–43.

[57] V. G. Childe, "A Prehistorian's Interpretation of Diffusion," *ibid*, pp 10–11 See in this volume a large number of other phenomena of migration of single cultural elements. Likewise, in the works of anthropologists, such as R. Dixon's *The Building of Culture* (New York, 1938); C. Wissler, *Man and Culture* (New York, 1923); R. U. Sayce, *Primitive Arts and Crafts* (London, 1932); W. Wallis, *Culture and Progress* (New York, 1930); W I Thomas, *Primitive Behavior*, quoted; and many others, there is given a large mass of the facts and data of the migration of cultural elements The fact of migration of single cultural elements does not oblige me to subscribe to a one-

several traits of the Sumeric culture went as far as Europe and India; the Aramaic alphabet and Phœnician script reached India and China; [58] some art-styles of Hellenic culture appeared in China and India; the Egyptian cultural traits traveled the longest distances in various directions from Egypt. Many isolated cultural traits of Western culture can be found at the present moment in the remotest village of Asia or Africa.[59]

No less certain is the fact that *cultural elements travel also in the form of a congeries of such elements or congeries of systems.* From Russia to many other countries there traveled, during the last two decades: *vodka,* the *samovar,* Communism, Planned Economy (with Five or Four Year Plans), Dostoievsky, a song — "Volga Boatman." This assortment is a congeries of cultural elements and systems. In thousands of other forms, such migrations of congeries have always been taking place from area to area (horizontally) and from one cultural stratum to another (vertically). One of the reasons why such travel by congeries is taking place is due to the fact that different human agents and groups of the same country or area are often interested in different and little related cultural objects and values of another given area. Therefore some are "importing," say, folk-songs, while others import wine, or certain mores, costumes, or beliefs. As a result, the country of the "importation" receives a congeries, as a total result of the importation by all the above groups and persons. The same can be said of the movement of the congeries from the upper to the lower strata, or vice versa. Again the case is so well known that there is no need to discuss it farther.

Finally, culture travels and diffuses in the form of small and vast cultural systems. Factory-system; machine shops; system of telegraph and telephone communication; railroad and airplane transportation; Prussian or French army organization; Christian religion; Buddhism; Communist ideology; Parliamentarism; Totalitarianism; American system of Education; Planned Economy; Classicism, Romanticism, the Renaissance,[60] "Great State System";[61] these and thou-

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sided diffusionist theory. Migration takes place when a given element originates in one place as well as when we have two or more independent inventions and convergence.

[58] See H Jensen, *Geschichte der Schrift* (Hanover, 1925), pp 11 ff., *et passim;* R. B. Dixon, *The Building of Cultures,* quoted, pp. 136–141; T. F Carter, *The Invention of Printing in China and Its Spread Westward* (New York, 1931), *passim*

[59] A. J. Toynbee, *A Study of History,* Vol. III, pp 129 ff

[60] In Europe "the Renaissance" originated in Italy in the fourteenth century (omitting different Renaissances of the Carlovingian time and of the twelfth century); from there

sands of other cultural systems have been traveling during recent decades from country to country, crossing sometimes enormous distances. In the past as well as in the present, various cultural systems have been frequently "borrowed," "transplanted," "imitated," introduced, or have just drifted from one cultural continent to another. In some cases, for instance, in the case of the Japanese "reform" in the second half of the nineteenth century, a whole set of cultural systems of Western culture was transplanted and rooted in the Japanese culture. A similar "wholesale" borrowing of Chinese systems occurred in Japan in the seventh century. "Diffusion" of the Egyptian, Greek, Roman, Buddhist,[62] Chinese, or Hindu cultural — small and vast — systems in and over many cultural islands and continents in the past, as well as the spread of Western cultural systems over the whole world, during the last three centuries, are further examples of the same phenomenon.

Finally, once in a while we have a phenomenon of movement of a total culture. Concretely the processes assume two different forms. (*a*) When a large group of either peaceful migrants or conquerors enters and settles in a different cultural continent — for instance, the Dorians in subjugated Greece; the Aryans in India; the Spaniards in South America; the Europeans in North America; the Greek and the Romans among many cultures of their colonies; the Arabs among their conquered populations; the Europeans among the peoples of Asia, Australia, Africa; and recently, the Italians in Abyssinia — in these cases the conquerors or colonizers bring with them not only a set of separate cultural traits or systems but almost the whole culture of their own country. In such cases it is transplanted in its totality and planted amidst, or face to face with, a different culture. (*b*) Another variety of the shift of a considerable part of a culture

it spread during the next two centuries to France, England and Germany (modifying itself in the process of migration, according to the rule discussed later).

[61] For instance, migration and adaptation of the Egyptian Great State system in Imperial Rome. "It exercised a formative influence on the tradition of European State administration through its inheritance by the Hellenic monarchies and the Roman Empire. . . . The Empire of the fourth century . . . may be regarded as nothing less than an adaptation to the Mediterranean World of a system that has been inherited by the Caesars in Egypt as the successors of the Ptolemies and the Pharaohs." M. I. Rostovtzeff, *A History of the Ancient World* (Oxford University Press, 1926), Vol. II, pp. 325 ff.

[62] "Mahāyāna Buddhism came *in toto* (to China), and was accepted by the Chinese believers — almost *in toto*" Hu Shih, "The Indianization of China," *Independence, Convergence, and Borrowing in Institutions, Thought, and Art* (Harvard University Press, 1937), p. 22, quoted. See also W. F. Albright, *From the Stone Age to Christianity*, quoted, pp. 159–160, 226. K. S. Latourette, *A History of the Expansion of Christianity*, 3 vols. (New York, 1939).

is found when a notable part of a given total culture spreads over larger and larger areas, peoples, and societies. An expansion of a considerable part of Egyptian, Græco-Roman, Arabic, Minoan, Sumeric, Babylonian, or Western cultures, supplies the examples of this type. Many of the culture's systems and congeries inundate the areas and peoples where it did not exist before; sometimes it drives out the previous culture; sometimes, as we shall see, it enters a kind of alliance with it or coexists with it as a congeries-system side by side within the same geographic space, like the culture of the European settlement in the Chinese or Asiatic cities coexisting adjacently with the culture of the native parts of these cities. Since the spreading culture invades the new areas in a large part of its totality, all such cases approach, to some extent, the expansion and migration of culture almost *in toto*. Again, this type of culture-migration occurred in the past as well as it is occurring in the present. It occurs on a large scale when a given country borrows it, like Japan's borrowing of a large part of Chinese culture in the seventh century, and that of Western culture in the nineteenth; like the borrowing of a considerable part of Western culture by Russia under Peter the Great. It happens also when a large group of migrants, conquerors, or settlers, moves in and settles amidst the population of a different culture, and through that plant their culture *in toto* on a large scale, in vast areas. It occurs also on a small scale in the form of a migration of one or few individuals — a few aliens — to a different cultural continent. Though the individuals are few, and the social area of the transplanted culture is small, nevertheless, in so far as the migrants bring with them their own culture in its totality, or a greater part of it, such small-scale migration of culture belongs to the class of the shift or travel of culture as a whole.

The above dealt mainly with migration of cultural elements, complexes, and cultures horizontally. When it is viewed in a *vertical* aspect, the situation and the main forms remain essentially the same. (*a*) Bathtubs, bobbed hair, short dresses, the waltz, white collars, some of the rules of etiquette, and so on — each of these separate cultural elements migrated from the upper class to the lower; from the city to the country. In thousands of forms, a similar circulation of the cultural elements along the vertical ladder has been taking place in the past as well as in the present. (*b*) Likewise, the cultural systems also shift up and down in any society. Whether the system be radio-car-movie, jazz-dancing-crooning-going to places-doing things,

the theory of evolution, "share-the-wealth plan," the Townsend plan, Christian Science, baseball-football, bridge-party, Emancipation of Women and Birth-Control complex, or any of thousands of other systems — they move up and down. (*c*) Finally, the migration of the culture of aristocracy or of the proletariat, in their greater part, occurs also. First, in the form of the social revolution, when the aristocracy is uprooted and thrown into the social sewers along with its culture; and when a considerable part of the previous dwellers of the lower strata climb up and establish at the top of the social pyramid a greater part of their previous culture. Second, in the form of the spread of the high standard of living of the upper classes throughout the lower ones; or, vice versa, of lowering the higher standards of living to the level of the poor classes. It is true that here the quality of the rising or declining standard of living remains different, but its essential patterns tend to be similar in the upper and the lower classes. The aristocracy may have Lincoln cars, expensive radios, luxurious mansions, summer estates, colorful and expensive parties, more refined manners, private schools and colleges for their children, and so on. The lower classes duplicate these with their Chevrolets and Fords, cheaper radios, rented houses; similar, though less expensive, summer vacations; similar bridge and drinking and dinner parties; dresses and costumes of the same pattern, though less expensive; public schools and State colleges for their children; similar manners, though less refined and polished; in brief, when the lower classes reproduce a number of essential patterns of the culture of the upper classes, though their copy is less expensive, such cases represent a vertical shift of the culture of the upper classes downward, into the stratum of the lower classes. When the opposite shift, namely, a lowering of the standard of living of the upper classes, takes place, and when the dwellers of the upper classes begin to reproduce in the essentials the main patterns of the culture of the lower classes, we have the upward migration of the culture of the lower classes in its greater part. In periods of great social calamities, such phenomena occur.

Such, in brief, are the main forms of the horizontal and vertical migrations of culture from this standpoint.

VIII. Spatial Shift of the Great Creative Centers of Culture

As a special case of the above shift and migration of cultural systems and combinations of systems from area to area, country to coun-

try, society to society, the shift of the great creative centers of culture is to be mentioned specifically. In view of its theoretical and practical importance, it deserves a little more detailed characterization, together with an outline of the problem of where cultural values and systems generally, and the great systems particularly, are created, and how the centers of their creations shift in social space.

In order that cultural values may shift, multiply, and spread in social space, their originals somehow and somewhere have to be invented, created, or discovered. Otherwise, there would be nothing — no value, pattern, machine — to migrate, multiply, and spread in the areas of the populations. Hence the problem: *how and where do new cultural values originate, especially new great cultural systems and supersystems?* Are there some uniformities in regard to the place of their origin? Are the creative centers of the great systems the centers that simultaneously create the great systems in *all* fields of culture, or do they each create only one or a few specific systems of culture? Do the main centers of creation of great cultural systems shift in time from country to country, from society to society? If they shift, does such a shift mean the wholesale shift of the creativeness in all fields of culture, from place to place; or is the shift limited to only one or two fields of culture, rarely, if ever, assuming a wholesale character? If a given country ceases to be the center of creativeness in one or a few fields of culture, is the loss of its leadership irrevocable and irretrievable, or may it possibly, after some time, regain the leadership of creativeness in the same or in another field of culture? Such are the main problems to be dealt with in this section.

As for the first question, concerning the place of origin of the simple cultural congeries and simple systems — such cultural values incessantly originate everywhere that interacting human beings with mental life (however primitive) are found. Such a group, be it a primitive tribe or even the patients of an insane asylum (except, perhaps, complete idiots), has some rudiments of mental processes: some images, ideas, beliefs, norms, patterns, or some meanings. These meanings and their congeries are objectified by such a group in this or that kind of vehicle; in their language, actions, and various objects. To a certain extent, some cultural congeries and even simple cultural systems are continually generated in any of such groups. We do not know any primitive group which does not have some meanings objectified in some vehicles — religious and magical beliefs, and their vehicles; norms of taboo, patterns of art, scientific notions and their vehicles.

In other words, the generation of simple cultural congeries and systems is coextensive with the social life of mankind as its inseparable concomitant; therefore it is found *urbi et orbi* within the human universe.

The same answer holds true for the generation of the simple cultural systems. We do not know any completely illogical or nonlogical human group. All of them display an ability to put together not only a congeries of meanings, but many consistent systems of meanings of the simpler kind. All of them are able to make the simplest judgments: A is B or A is not B, "this fish is eatable," "this snake is poisonous," "this man is my uncle or brother or father," "this is permitted," and so on. Even the most primitive human groups known display an ability to make much more complex logical propositions, ethical norms, patterns of art. Such simple cultural systems are generated everywhere that human groups are found.

The difficulty begins when we face the problem of the place of genesis in regard to new, complex, and great cultural systems and supersystems. They are not found everywhere; many tribes and groups do not have them or, if they have, they were imitated, borrowed, imposed by, or taken from some other groups. Furthermore, common observation shows that only a few individuals among the multitude of our own society create such new systems. Hence the real problem: *Why do some groups or individuals create such new and great systems (in science, religion, ethics and law, art and technology, forms of social organization) while other groups and individuals do not create them?* Why have not an enormous number of so-called primitive peoples created such great systems, while some other groups — so-called "historical" groups, like the Egyptians, Sumerians, Babylonians, Persians, Hebrews, Chinese, Hindus, Arabs, Greeks, Romans, Europeans, Americans, and others[62] — have been

[62] A. J. Toynbee finds, all in all, twenty-one different historical groups that created twenty-one different civilizations. the Western, two Orthodox Christian (in Russia and the Near East), the Iranic, the Arabic, the Hindu, two Far Eastern, the Hellenic, the Syriac, the Indic, the Sinic, the Minoan, the Sumeric, the Hittite, the Babylonic, the Andean, the Mexican, the Yucatec, the Mayan, the Egyptian, plus five "arrested civilizations" (that did not develop real civilizations): Polynesian, Eskimo, Nomadic, Ottoman, and Spartan See his *A Study of History, op. cit.*, Vol I, pp. 132 ff., Vol. IV, pp. i ff. Whether we take this list of the civilizations that have been able to develop great and new cultural systems or take any other list, is unimportant for our purposes. What is important is that not all the human groups have been able to develop great sociocultural systems ("civilizations" in Toynbee's sense) and that most primitive tribes remained on a lower level from this standpoint, and happened to be, in Toynbee's terms, either "abortive" or "arrested" civilizations.

able to do so? Likewise, why, within any historical society, have only a few individuals (historical persons) created some new and great sociocultural systems, while the majority have not done that?

The adequate answer to this problem can hardly be given at this present stage of our knowledge. In considerable part it still remains a mystery. However, a few operative conditions can be pointed out. They are mainly of three kinds: (*a*) *"fortunate" biological heredity of the creative persons or groups;* (*b*) *an urgent need of the creation of a new system for a given group in the given environment;* (*c*) *cross-fertilization of two or more cultural systems and subsystems in a given group* (*or individual*) *facilitated by the fact of their being in the area of an intensive mobility, circulation and cross-current of streams of different cultural values* (*systems of meanings and vehicles*).

We reject the exaggerated claims of various "hereditarists" and "racialists," geneticists, eugenists, biologists, biometricians, physical anthropologists, etc., who regard the factor of heredity as the most important, necessary and sufficient cause of genius and idiocy, of creativeness and uncreativeness, and try to account for everything in human history by this factor. An overwhelming part of their claims does not stand the test and is invalid.[64]

From this, however, it does not follow that the hereditary endowment of all human beings is identical, that there are no hereditary differences between men of genius and idiots; or that there are no special hereditary aptitudes for creativeness in special fields (mathematics, music, or poetry, etc.). According to the existing body of evidence, a fortunate hereditary endowment is a necessary condition for a person or a given group to become the creators of the new, and especially the great, cultural systems. From inborn idiots or mediocrities we can hardly expect the creation of such systems — in science, religion, ethics, law, philosophy, art, technology, and the forms of political, social, economic, or military organization; and such persons and groups have hardly created such systems.[65] Except in periods of decay, the potential creators, more fortunate in their hereditary endowment, seem to occur more frequently within the upper strata of a given society than in its lower strata; [66] among males more frequently than among females. Likewise, there may be some differences in this respect among the most divergent racial groups, particularly

[64] See the data, evidence, and literature in my *Social Mobility*, cited, chaps. x–xiii; and in my *Contemporary Sociological Theories*, chap. v.

[65] See *ibid.*, the data and evidence for that.

[66] See the evidences in the same works and chapters.

the blacks and the rest of the primitive races. The inter-racial differences, however, are much less than many claim; and they consist not so much in general creative ability or a lack of it, as in the special aptitudes of different racial groups for certain forms of creativeness, and the lack of it in others.[67] To sum up: those groups and persons who happen to be endowed with a more fortunate heredity necessary for creativeness of the great systems, have a greater chance to realize this potentiality than the groups and persons equipped with a poorer or less creative heredity. This condition is necessary, though not sufficient, for the creation of great sociocultural systems.

It is probable that a large number of the so-called primitive peoples belong to the groups endowed with a poorer heredity necessary for creativeness of great sociocultural systems, while those historical groups which have demonstrated such a creativeness have in all probability a more fortunate heredity. Though necessary, the factor of heredity is, however, insufficient in itself to produce actually the great cultural systems. In any society at any time, there have been a number of potential men of genius, potential creators, who, however, did not realize their potentiality. In order to realize it, a corresponding sociocultural environment is necessary. Two conditions of this environment are especially important. First of these is that the society in which the potential creators exist has *an urgent need for the creation of a new cultural system that can satisfy it*. Other conditions being equal, the more vital the need, the greater the stimulus is given to all the potential creators to satisfy it through an invention, synthesis, or discovery of the system needed, such as a technological device, moral code, art-system, or any other sociocultural system. This explains why a series of technological devices, like their most ingenious navigation system, was created by the Polynesians or Eskimos; domestication and cattle breeding by the pastoral peoples; invention of efficient military technique by the peoples in need of military activity; or the creation of a system of unifying religion like Judaism by the groups who were dispersed or in danger of being engulfed by other

[67] See *ibid.* A recent attempt of A. J. Toynbee to deny entirely the role of hereditary and racial factors in the presence or absence of creativeness is unwarranted. He himself gives a proof of that: he contends that only an insignificant minority in every society is creative while the majority ("the Internal and partly External Proletariat") is uncreative. If this is so, then what is the reason for the creativeness of the minority? Since it lives in the same environment as the majority, the environment evidently cannot account for the difference. If it cannot, then there remains only the factor of hereditary endowment of the creative minority. The existing body of the evidence in the problem does not permit us to accept also the too sweeping generalization of A. J. Toynbee.

societies; and so on, in any field of cultural life. That this factor of social urgency is real is demonstrated not only positively, as in the above cases, but also negatively, especially by the fact of a lack of creativeness, in a given society, of such systems as are not needed by it. Mountain-dwelling people did not and do not invent the technology of a skillful seafaring or sea-fishing race; and vice versa; seashore inhabitants do not create the ingenious technique of mountain climbing, the cultivation of various crops adapted to mountain conditions, and a number of other techniques needed by a mountaineer society. Pastoral, nomadic peoples of the steppes or deserts do not invent technical systems of stone-building, plowing, and hundreds of other technical devices fit for the inhabitants of, say, rocky mountains, and unfitted to, and unneeded by, such societies. What is said of technological inventions can be said of the nontechnological cultural systems, such as ethical norms, religious beliefs, scientific knowledge, art-systems, and what not. The native forms of each of such systems are always more or less adapted to the local needs of a given society. When and where we meet a great system in any of these fields of culture, we always find that it is meeting the urgent need of the society. Such is the second important condition.[68]

The third condition vital to the creation of great sociocultural systems is *the presence or absence of the different cultural cross-currents in a given society which serves as a meeting place of these cross-currents.* Other conditions being equal, the societies and the individuals that are the focal *locus* of such cross-currents have a greater chance of becoming the inventors of the great sociocultural systems than the societies which are not in such *loci.* The experience of a single society or individual is always limited. If it is not enriched by the experience of other societies or individuals, its fund of meanings and of their systems is always poorer than when it is enriched by a flow of the experiences — meanings and systems of meanings — of other societies and individuals. In that case, it has not only its own fund for a further synthesis, but also the fund of experience — usually much richer — of other societies and individuals. In that case, the possibilities of a new synthesis of the native and foreign elements

[68] This urgent need of a given society embraces indirectly the geographic conditions in which it lives. However, these geographic conditions, as such, play only an indirect and comparatively secondary role in the creativeness of the great cultural systems From this standpoint, a great role ascribed to them by many, including recently A. J. Toynbee, is enormously exaggerated. See the role of the geographic conditions in my *Contemporary Sociological Theories,* chaps ii, iii.

of the culture greatly increase for such a society or individual. We have seen in Chapter Two that the first — and most important — phase of creation of any new sociocultural system consists in a lucky marriage of two or more systems of meanings in the mind of an inventor. The steam-engine is but a lucky synthesis of the meaning and properties of a wagon and of steam energy. Christianity is but a great synthesis of Judaism, Hellenism, the cult of Mithra, and some other Oriental systems of meanings. Christian religious music, in the form of the Ambrosian and the Gregorian Chant, is again a synthesis of the patterns of Greek-Syrian, Alexandrian music. When this Christian music came into contact with the native music of various regions of Europe (Celtic, Teutonic, etc.) we received a brilliant new synthesis in the form of the *ars nova* in France and Italy, then in the form of the great Flemish music (Joquin de Pres and others), great Italian and Spanish music (Palestrina, de Lasso, Vittoria), then later on the French, and still later the great German music, culminating in Bach, Mozart, and Beethoven. Kant's system of philosophy is a great synthesis of Hume and Descartes, not to mention other philosophical systems; and so on. Any new great system is always a consistent synthesis of two or more great systems that existed before. With the presence of the potential creators in a given society,[69] with the social need of a new creation, the societies and individuals that are at the crossroad of a number of different cultural currents have richer material for their synthesis, have more patterns from which to choose, a more diverse combination of elements, more varied systems of meanings. They are situated better in this respect than the societies and individuals that have only their own fund. Hence, this third, and possibly the most important condition, so far as the creation of great sociocultural systems is concerned.[70]

An inductive verification of this hypothesis of the three above conditions seems to corroborate it well. (*a*) Various great systems (political, religious, artistic and others) created — whether in Egypt, Sumeria, Babylon, Creto-Mycenae, Greece, Syria, Persia, India, China, Arabia, Europe, or America — were created in areas which, in the

[69] The mentally inferior and mediocre persons and groups often are lost in such rich cross-currents and do not create anything except a purely eclectic congeries In our theory, the presence of the potential creators is specifically reserved. Such creators, by definition and fact, can and do make a real synthesis of the diverse elements, and unity out of a rich plurality.

[70] See a developed form of this argument in my *Social Mobility*, chaps. xx, xxii. See there the data and the literature.

period of creation, were "highways" for the traffic of various cultural currents, not areas shut off from the rest of the cultural world. (*b*) Such creative societies rarely create great systems in all fields of culture at the same period, but do so mainly in that particular field for which, at a given period, it is a "meeting-place" of various currents. An area in which mainly currents of various religious systems meet, tends to create its great system mainly in the religious field; when it is the meeting-place for mainly artistic, scientific, philosophical, or political currents, it creates mainly in those respective fields. This means that most of such "historically creative" societies rarely create great systems in all fields of culture, or rarely do so in the same period of their history, but distinguish themselves by the creation of only one or a few great systems in one or a few fields of culture, during their total historical existence, or at each period of their history. It is hard to find in the whole history of human culture one society that created equally great systems in all main fields of culture in the same period of its history or even in its total life-span. The fields in which the given society distinguishes itself by creation of its one or few great systems are usually the fields in which its need for the system is particularly urgent, and in which the society is the meeting-place of various cross-currents of this specific system of culture. For a period of several centuries the Hindu population created mainly the great religious and philosophic systems; so also did the Hebrews, or the Iranic population before the sixth century B.C., or the Chinese of the sixth century B.C. During such a period the contributions of these populations in other fields of culture were more modest, so far as the creation of great systems is concerned. Sparta, Persia of the period of Cyrus-Darius-Xerxes, Assyria, and Rome distinguished themselves mainly by creation of great systems of military and political organization; Rome, in addition, by the system of law. Greece, of the centuries from the sixth to the second B.C., distinguished itself mainly by creation of the great systems in science-philosophy-arts, and much less in the field of religion or ethics. The Western population, during the centuries from the fifteenth to the twentieth, distinguished itself mainly by creation of the great scientific-technological-artistic systems and much less by those in other fields of culture (religion or ethics). This means that we have had hardly a society or populated area equally creative in all fields of culture at all periods of its history. Ordinarily any creative society creates, at any given period of its history, mainly in that field of culture in which its need for a

great system is particularly great, and in which it is, at such a period, a meeting-place of various cultural currents. If, at another period, its need in the great system changes and it becomes the meeting-place of the cross-currents of another cultural sector — say, scientific instead of religious, or artistic instead of economic — its creativeness may shift and manifest itself in the creation of great systems in this new field.

(*c*) Farther on, our general proposition is also corroborated by the fact that many creative societies had been uncreative until they became the focal point for various cultural currents, and became creative after turning into such a meeting-place. And vice versa, when such areas ceased again to be the meeting-place of cultural cross-currents, their creativeness often declined, and soon they fell into "historical oblivion." (*d*) Furthermore, in a large area which is emerging as a creative territory the creation often appears first in such regions of the area as become first, in comparison with other regions, the meeting-place of cultures, like Ionia in Greece.[71] (*e*) For this same reason, as we have seen, the cities are more creative in regard to new systems than the country; the upper and mobile classes, with wider, longer, and more developed systems of communication and contact, are more creative than the lower, and especially the rural, classes.

(*f*) For the same reason, of many potential creators in a given society the actual creators become mainly those who are not deprived of the advantage of being at the "crossroads" of various cultural currents in the field of their creation. Among the total number of inventors and creators of great cultural systems in all the fields of culture, the percentage of the "isolated" creators who discovered and created some important system from A to Z, "all by themselves," without knowledge of what had been done in that particular field by others, without any contact with different cultural currents that had the elements of their synthesis, is very small, almost insignificant. Most of the creators in science, religion, ethics and law, or art, or the builders of the great state-business-cultural empires and organizations, were well versed in what had been created by others in their field and in what was done in the adjacent fields; they lived and swam in the currents around them, and in that swimming they con-

[71] See some details in H. E Barnes and H. Becker, *Social Thoughts from Lore to Science* (New York, 1938), Vol. I, pp. 152 ff., and chap. iv; H. Becker, "Forms of Population Movement: Prolegomena to a Study of Mental Mobility," *Social Forces*, Vol. IX, 1930, pp 147–160, 351–361.

ceived their synthesis and invention. At the present time, it is hardly conceivable that a person who did not study, say, physics or mathematics at all, and did not know what had already been done in these fields in the past and by his contemporaries, could discover anything new and great indeed in physics or mathematics. At best, some potential genius might, under these conditions, rediscover something by himself that was discovered a long time ago, but that would be about all that he could do. A discovery of America, for example, centuries after it was discovered by Columbus, would not make of the discoverer a new Columbus, or the creator of a new theory or system. The same, with some variation, can be said of the creators in other fields of culture, even in art and technological inventions. Fairly popular ideas of poets, painters, musicians, and inventors, who, supposedly without any technical preparation and knowledge of the past and present status of their art or technology, by sheer inspiration create a great poem, great symphony, or great picture, or invent something startlingly new — such ideas are mainly pure mythology, romantic and appealing but not corresponding to the reality at all.[72] Such creators may be the outsiders to the existing "professionals" in these fields, but they usually are well informed and trained in the field of their creative activity.

To sum up: *the main centers of the creativeness of the great cultural systems tend to be those societies which have a sufficiently good hereditary endowment, which have an urgent need for the creation of such systems to solve a vital need, and which happen to be situated in the areas that are the meeting-place of various cultural streams.* As a consequence of their creativeness, in this or that field of culture, such societies become "historical," and as long as they perform this function, they are the centers of the specific field of human culture and human history, the bearers of the "torch of progress" in their field in the historical drama. Out of thousands of various human groups and societies, this privilege of becoming "historical" has been reserved to only a small portion of the societies, and within each of these, to a small minority of its members. Respectively the total

[72] A more detailed study of the role of our third factor must distinguish between the various cultural currents that are congenial, uncongenial, and indifferent to one another. The probability of a fruitful synthesis is hardly the same in these three cases. However, here we cannot go into an analysis of this problem Briefly, the problem has been touched in other paragraphs of this chapter Some thoughtful elucidation of it is given in several works, particularly in the quoted main works of G. Tarde, and in the biosocial theory of E. De Roberty.

great drama of culture is played, at any given period, only on the stages of such creative populations and areas. At any given period, the number of such "historical theaters" is limited to a comparatively few societies. "Political creativeness" is played now in the theater of Egypt, now of Assyria, Sumeria, or Persia, now of China or Rome, now of Europe or America. "Philosophical creativeness" is unfolded now in India, now in Greece, now in Europe. "Religious creativeness" is displayed now in India, Persia, China, and Syria, now it is shifted to Greece, Rome, Africa, and from there to Europe and Arabia. "Art-Creation" is staged now in Egypt, now in Persia and India; from there it is shifted to Greece, and from there to Europe. Technological inventiveness is centered now in China or Egypt, now in Arabia, now in Europe and America; and so on.

In other words, the leadership in creativeness of great cultural systems shifts in social space from area to area or from society to society. Sometimes, if a given society distinguishes itself by creation of a great system in one field of culture, its leadership passes to another in this one field only. Sometimes, if a given society is a leader in several fields of culture, the leadership may shift to other societies in several of these fields. A concrete example of the first case is given by the *field of science and technological inventions.* On pages 148–150 of Volume Two of *Dynamics* are given the data of the number of scientific and technological inventions in Greece, Rome, Arabia, and the main European and American countries. They show in detail the periods when each country distinguished itself in this field, and when its creativeness declined and passed to other countries. The Golden Age for Greece was the period of 600 to 201 B.C., after which the leadership passed to Rome, which held it from about 100 B.C. to 400 A.D. From 800 to 1300 A.D., Arabia became "the star" in this field. From then up to the present time, Europe became the leader. Among various European countries, again, there were specific periods when each of them had an effervescence of creativeness before its decline, when Italy, France, England, or Germany was the leader. At the beginning of the twentieth century, for instance, the preceding importance of France and England shows a relative decline; Germany holds its own, while the United States of America, and in much lesser degree Russia and Japan, display a remarkable rise of their creativeness in this field.

The same phenomenon is observable, especially clearly, in the shift of the centers of military-political and economic creativeness. At

any period of the world's history, the creation of *great political and military systems* — empires — is centered in only a few territorial and populational areas. For many of the earliest centuries it is centered in the Orient: in Egypt, Sumeria, Assyro-Babylonia, India, Persia, or China; now one, now another, of these centers playing the most important role, and then being succeeded by another country as the main star. Then the centers shift to Creto-Mycenæ, then Greece, then the Roman Empire. Then they shift to Arabia, from there to Europe; in Europe, from one country to another, now the Charlemagne Empire, now the Spanish Empire, now France, now the Hapsburg Empire, now the British, Russian, or German Empire playing the leading politico-military role. Later on, and especially at the present time, the centers of creativeness of such an empire are shifting, before our eyes, to America, to Japan and generally to the region of the Pacific Ocean, from the Mediterranean, the Baltic and generally European regions. And so the process goes on.

In different concrete forms, but along the same pattern, the centers of building of *the great economic empires* have similarly been shifting, from region to region, country to country, population to population. The main centers of economic creativeness at one period of human history may be centered in India or Cathay or Hammurabi's empire; at another, in Iran, Syria, or Minoan culture; at another they are located in Greece and Rome; still later on, in Arabian countries, then in Europe, then in America, and so on, within each big region shifting from people to people, from subregion to subregion, from city to city. Another example of such a *shift of the musical centers* in world history is well described by C. Lalo, who rightly puts this special shift in the framework of a much more general shift of the centers of creativeness in social space.

> Localization of art in space is submitted to complex laws. This phenomenon of localization manifests itself more or less in all creative social fields. When a given region or a group discharges certain functions with a sufficient intensity of its control, the given function atrophies almost everywhere else; the movement and even creative production in that field seemingly stop in all other regions or groups. [This is exaggerated.] Like a centralization of a certain industry in a certain region . . .
>
> Art forms a kind of artistic capital: sometimes one city, sometimes a vaster national milieu; seemingly everything converges to that center and all the solidary regions become its tributaries. The sentiment grows that only in that center reside the forces from which movement and life generate.

Such, for instance, was Bayreuth for all the Wagnerians at the climax of Wagner's fame. Contrary to racial theories that ascribe artisticity to some nation, for instance, to Italy, and aesthetic insensitivity to others, for instance, to England,

history denies such beliefs: England played the leading role in the origination of harmony; France in the development of polyphony; Germany has been, during the last two centuries, a musical nation *par excellence*. Balzac denied any musical capacity to the Dutch; and yet, the Flemish led the musical development of the whole of Europe, without any contest, for two centuries. . . .

Throughout history we see, side by side with this localization or centralization of superior art, the phenomenon of a displacement of this center when seemingly after an exhaustion of the creative force in one country, it cedes the leadership to another. . . . It is a fact that the center of musical art in the Occident has been successively: Asia Minor and Archipelago; Sparta; Athens; Milan; Rome; the Rhenish countries; France (Paris first, then Flanders); Rome again; then Germany. Musical art then is subject to a double evolution: in time and in space.[73]

In one of the preceding paragraphs of this chapter the same phenomenon of shift of the dominant *languages* from country to country in the course of time has been shown. In a large part of the inhabited area of this planet, the language most spoken becomes now Egyptian or Persian, now Greek or Roman, now French, German, Russian, or English. This shift of the domination from language to language proceeds more or less parallel with a shift of the political and cultural power from nation to nation.

With slight modification the same can be said of the shift of the centers of creativeness in philosophy, religion, arts, technological inventions, ethical and juridical systems, and finally, of political power, and of the systems of economic and social organization. No single population or nation has the monopoly of leadership in any of these fields forever. Having accomplished its task, sooner or later it loses its importance and is replaced by another society or nation, though, later on, it may again regain the leadership in the same or a different field of culture.

Sometimes, when a given society happens to be the leader in several fields (but not in all fields) of cultural creativeness, its leadership may shift to other societies simultaneously, in several fields. An example of that is given by the leadership of Italy in the early Renaissance

[73] C. Lalo, *L'esquisse d'une esthétique musicale scientifique* (Paris, 1908), pp. 318–19.

and by the loss of its leadership — in philosophy, science, all main forms of art (music, sculpture, literature, architecture, drama), in economics and, partly, in politics — in favor of Spain, France, the Netherlands, England, and Germany. Roughly speaking, in the fourteenth and fifteenth centuries, in all these fields, Italy leads all the other countries of Europe; in the sixteenth century the leadership in some of the arts and in economics and politics passes mainly to Spain; in the seventeenth, in some of these fields, to France and England and the Netherlands; somewhat later it passes in some of these fields to Germanic countries; finally, in the late nineteenth and the beginning of the twentieth century, in several arts, like literature, music, theater, it began to pass to Russia. Earlier, a similar thing happened to Greece. Being the leader of Europe and Asia Minor in many fields of culture — in almost all arts, philosophy, science, ethics, politics — during several centuries, after the second century B.C. it lost its place in most of these fields.

The same phenomenon can be observed on a much narrower scale: in the rise and decline of various cities or regions in the same country, as leaders in the creativeness of this or that great system. In the long-existing countries, the capital, the metropolis, the main seats of science, religion, philosophy, art, law or economics also shift from city to city, region to region, university to university. The center of one or of several creative fields is now Memphis, now Thebes, now Saïs and Alexandria in Egypt. Now it is Ionia, Sparta, Athens, Rhodes, Pergamon, or Alexandria in Greece, and the Hellenic world. Now it is Rome, now Naples, Bologna, Milan, Venice, or Rome again, in Italy. Now it is Vienna, Munich, Berlin, among the Germanic peoples. Now it is Kiev, Vladimir, Novgorod, Moscow, St. Petersburg, now Moscow again, in Russia. Now it is Charleston, Boston, Philadelphia, New York, Chicago or Los Angeles, in America; and so on. Such a shift of the centers of creativeness in one or more specific fields of culture within the same country is a smaller replica of the bigger shifts of the centers of creativeness from country to country.

To sum up: *the shift of the centers of creativeness proceeds mainly in one or more specific cultural systems (religious, military-political, scientific, musical, economic, and so on); only once in a while, if a given country happens to be the center of creativeness of several cultural systems (artistic, philosophic, scientific, and economic), does it lose its leadership in all or several of these fields in favor of either a*

new successor who assumes the leadership in all these fields, or, what is more frequent, in favor of several countries, each of which "inherits" the leadership in one of the fields of the previous leading country. This second case happens, however, much more rarely than the first type.[74]

[74] A. J. Toynbee sets forth an interesting theory that in the period of growth of a given civilization it expands and migrates *in toto*, and is the center of creativeness in *all* fields of culture. In the period of decline, it disintegrates, and, like a white light decomposed by a prism into its constituent seven colors, it shifts and migrates, not *in toto*, but in decomposed parts either its art or its religion or its economics or its politics migrate and diffuse, but not the whole civilization, as in the period of its growth. Set in such a form, the theory is hardly acceptable. First, Toynbee's "civilization" is not a unified system but a congeries of systems. As such, it neither grows nor declines nor disintegrates, because congeries cannot grow or decline or disintegrate, for the very simple reason that they never have been integrated as a real unity Since this is so, no ground is given for a distinction of the periods of growth and decline of such congeries, and, therefore, for the above difference in the manner of their expansion and migration in the periods of "growth and decline." Second, any total civilization-culture can diffuse *in toto* in only one way — by its members migrating and settling as conquerors or immigrants amidst a different culture. Such a transfer of the total culture from area to area remains, however, limited to the groups of the conquerors or immigrants, and hardly ever spreads in its totality among the native populations amidst which the conquerors or immigrants settle Just as in the imposition of Western culture upon the peoples of India, or the spread of technologico-scientific-economic aspects of Western culture over an enormous number of peoples, these peoples, be they Japanese, Chinese, Hindus, or Polynesians, did not accept the Western culture in its totality, but still retain their own religion, art, ethics, forms of family, social institutions, mores, and so on Still truer was it in the past. Therefore it is hardly possible to contend that civilizations in the period of their growth spread in their totality among the peoples and areas of different cultures. Neither in the period of growth nor decline does such a phenomenon occur.

It does not occur for the reason that hardly any of the existing civilizations has been the leader in *all* fields of culture, and therefore induced the other peoples to accept it in its entirety, as Toynbee claims in regard to the periods of growth of civilizations.

Each of the "historical" civilizations at any given period of its history has been a leader in the creation of one or, more rarely, a few fields of culture, but never in all Not even Greek or Western culture was the leader at any period of its whole history in *all* fields of culture.

For instance, the role of Greece as a creative center of the great religious system was very modest and in no way led the world. Therefore its religion did not diffuse widely Likewise, Greece, as the builder of a great political empire, did not exist at all, up to the time of Alexander the Great Before the sixth century, B C, Greece did not lead in the field of art generally, except, perhaps, in the field of music (Terpander), but even there its influence remained local Likewise, Greece did not distinguish itself as a leader in the creation of the great law systems The same is true of Western culture If throughout the Middle Ages it distinguished itself by the development, organization, and realization of the great religious system — Christianity — during those centuries it was not the leader in science, technology, Sensate art, philosophy (as distinct from religion), nor in building the world political and economic empires (even Charlemagne's empire was parochial, on the scale of the previous Oriental empires), nor in many other fields.

However, once in a while it does happen. It assumes most frequently the form of *a shift of the center of the great military and political power from society to society, sometimes* (by no means always) *associated with a shift of the center of the creativeness in some other field of culture, mainly in art, technology and science, or economic power. When a given country grows as a military-political empire, such a growth is sometimes followed by its artistic, scientific, technological, or economic effervescence; when it begins to decline politically and militarily, such a decline is often followed by a decline of creativeness in the field of other cultural systems, particularly artistic, technological, scientific, and economic.*

Egypt in the periods of the climax of the Old, the Middle, and the New empires, was at the same time the center of the artistic, scientific, technological, and economic resplendence. In the periods of the decline of each of these empires, its resplendence in these fields declined.

Later on, after the thirteenth century, Europe became the center of creativeness in science, philosophy, technology, economics, Sensate art, but ceased to be the center of creativeness in the field of religion, or in several other fields If this is true of the possibly most "encyclopedic cultures" — Greek and Western — still truer is it of the other civilizations and cultures None of them, at any period of their existence, be it the period of "growth" or "decline," was the center of creativeness in all fields of culture. Therefore, it could not and did not charm other peoples by all parts of its total culture and these parts did not diffuse widely. For this reason, when each of them lost its leadership it was not a loss of leadership in all fields of culture but only in one or a few fields. Hence, the invalidity of Toynbee's theory, with its distinction of the periods of growth *in toto*, and decline *in toto* of a given civilization. No such distinction can possibly be made.

In a more accurate formulation, A J Toynbee's hypothesis can mean only two things: first, that a migration or diffusion of a given total culture occurs only in the form of migration and settlement in a new area of its members, such as conquerors or immigrants and colonizers. In that case, the total culture transplanted remains confined to the migrants and does not spread *in toto* over the peoples of different cultures among whom the migrants settle. Such transplantation occurs not only in the period of growth of a given civilization but also in its decline, in Toynbee's sense. Second, it is applied also to the case when a given society happens to be the leader in more than one field of culture (but never in all fields). In such case, we have the situation discussed in the text. Such a situation is very different from Toynbee's picture and does not mean at all that a civilization peacefully leads and spreads in its totality in the period of its growth, and decomposes and spreads fragmentarily in the period of its decline.

A. J Toynbee's hypothesis appears, at the first glance, somewhat convincing, due to the widely spread opinion that the countries which are great military-political empires, are, at the same time, the leaders in all fields of culture. Such an illusion is certainly not warranted by the facts and Toynbee himself gives many evidences to the contrary Some of the great political-military empires — Assyria, Sparta, Turkey, or the empires of Genghis Khan, Tamerlane, or even Rome or Carthage — have created mainly their own political and military systems, and almost no other great cultural system. See A. J. Toynbee, *A Study of History*, Vols I, V, VI, *passim*, and especially Vol V, pp 194 ff.

Similarly the empires of Sargon or Hammurabi were at their time the centers of arts, economic creativeness, science, and technology. So also were the empires of Cyrus, Darius, Xerxes; the empire of Asoka and of Solomon; the Minoan empire at its climax; Athens and Greece generally of the fifth century B.C.; the Roman Empire of Caesar-Augustus and of the Antonines; Byzantium of Justinian; the empires of Kublai-Khan, Charlemagne, Queen Elizabeth and Anne, Louis XIV, Charles V of Spain, Catherine II of Russia, and so on. With the decline of some of these empires, their resplendence and economic creativeness often declined also.

This association in the shift of the political with either economic, artistic, or scientific creativeness is in no way, however, universal. There were many cases of a rise of the political and military empires not followed by a great effervescence in arts or sciences or any other field of culture. Sparta, at the period of its greatest military power, remained essentially sterile in almost all other fields of culture. So also did Carthage (except in the economic field). So also, in many periods, did Assyria and Babylon. The great ephemeral empires of Genghis Khan or Tamerlane hardly distinguished themselves by any great creations in most of the fields of culture. Even Rome during its most important growth as a political and military empire (from roughly the fifth to the first century, B.C.) remained "rustic" and rugged. The same can be said of the Turkish Empire at its climax and of several empires created in India.

On the other hand, many of the great cultural systems were created in small countries, or in the periods of a decline of the political and military empire of a given country. The great religious systems, like Confucianism, Taoism, Buddhism, Jainism, Christianity, Prophetic Judaism, Pythagoreanism, Orphism, and some others, were created and emerged either in a period of political anarchy and disintegration, or came out of the small countries, and even then when such countries were in the period of decline. Great philosophical systems, like Platonism, Aristotelianism, Neo-Platonism, Stoicism, Epicureanism, Neo-Pythagoreanism, were created in Greece, in the period of its decline as a political power and empire. Likewise, great philosophical systems of Europe — the philosophy of the great Scholastics, or of Descartes, or of Kant — were created not in the most powerful empires of Europe and not at the period of their political or military climax. Even the great artistic works of the Italian Renaissance (in painting, sculpture, architecture, music, literature) were not created

in the most powerful empire of Europe at that time, nor in Italy at the most powerful period of its political and military history. Kant, Schiller, Goethe, Lessing, Herder, and other great creators of the philosophical, artistic, and scientific disciplines among the Germans, did not emerge in the period of the most powerful German Empire; if anything, they emerged when there was almost no great German Empire at all.[75]

Even scientific discoveries and technological inventions do not always blossom in the most powerful political and military empires, and at the climax of their power. It is enough to glance at the movement of these discoveries and inventions by countries, from period to period (see *Dynamics*, Volume Two, pages 148 ff., and Chapter Seven of this volume), and to confront the figures with the political and military history of each of the specified countries, in order to see that some effervescence of scientific and technological creativeness took place in the periods when a respective country was politically and militarily at a low ebb, or that it occurred in the small countries which in no way were the great political and military empires.

These considerations and facts validate the statement that the association discussed is in no way a universal uniformity. It is not even a typical rule: exceptions to it are possibly as numerous as the cases of the association. Finally, it has been shown in the preceding volumes of *Dynamics* that the spatial centers of Ideational, Idealistic, and Sensate supersystems of culture also shift from society to society, from area to area. Each of these forms of the supersystem existed now in India, now in China, now in Greece, now over the whole of Europe.

In a less fully developed form, the same phenomenon can be seen among so-called primitive peoples. The total culture of some of them, for instance, the Zuñi Indians, is nearer to the primitive Ideational; while the total culture of others, for instance, the Trobrianders or the Dobu, is nearer to the primitive Sensate. Each of such great supersystems, having existed for some time in a given population, eventually declines to give place to its rivals or to the mixed eclectic systems, and the center of such a declining system shifts to some other area or society.

[75] See additional facts in A. Coste's *Les principes d'une sociologie objective* (Paris, 1899), chaps. ii, xxii; *L'expérience des peuples* (Paris, 1900), chaps i, ii Coste, like A. J. Toynbee, exaggerates the negative association of the political greatness with "ideological" creativeness.

If, finally, we ask why the same society does not keep forever its creative leadership in one or a few of the fields of culture, or its given supersystem, and cedes it to other societies, the general answer is: first, possibly because of the impoverishment of its heredity endowment (through negative selection, and many adverse forms of social selection,[76] and other factors); second, because its urgent need for the keeping of the great system passes; third, because it ceases to be the meeting-place for cross-fertilization of various cultures; fourth, as will be developed later, in Chapters Fourteen to Sixteen, because of the general principle of limit that makes an eternal leadership of any empirical society improbable and hardly possible.

Such, in brief outline, are the important characteristics of the spatial shift of the creative centers of culture.

IX. Transformation of Cultural Objects and Values in the Process of Migration

In the preceding paragraphs the multiplication and circulation of the cultural objects and values has been outlined without any mention of whether they remain unchanged in the process of migration or undergo alterations and transformations. Now it is time to stress that in the process of circulation from one cultural center to another, they rarely enter the different culture without a tangible transformation. The essential uniformity here can be described in the following propositions:

A. When a cultural object or value — be it a simple element or a cultural complex or system — moves from one cultural center to another, (*a*) it may remain essentially unchanged if the culture of its immigration is similar to the culture from which it departed; (*b*) it changes if the cultures of immigration and departure are different; and the greater the contrasts between these, the greater the transformation of the migrating cultural value or system in the process of its migration and incorporation into the culture which it enters; (*c*) if the cultures of departure and of arrival are profoundly different, certain cultural systems of the first cannot penetrate and be rooted in the second culture at all. Even cultural congeries absolutely uncongenial to the culture of immigration find enormous difficulty in rooting themselves in a new culture.

The propositions thus claim that practically no cultural object or value can remain the same — in its meaning, use, and functions —

[76] See my *Contemporary Sociological Theories*, Chapters Five, Six, and Seven.

when it passes to an essentially different cultural atmosphere or configuration; and that the change or transformation is proportional, so to speak, to the magnitude of difference between the culture from which it departs and the culture which it infiltrates.

B. *If we hold the difference between two cultures constant, then the magnitude or profundity of the transformation of the migratory cultural phenomenon depends upon its nature, especially in cultural systems and particularly upon the degree of its complexity, delicacy, and intricacy. Other conditions being equal, the more complex, refined, intricate the cultural system is and the greater ability, qualification, and training it requires for its adequate understanding and use, the more profoundly it transforms in the process of its passage from culture A to culture B, and in that of its infiltration and incorporation into B.*

The propositions are meant to be applicable to the migrating single cultural elements, to their congeries and systems; and even to the cultures *in toto*. It appears to be applicable to their horizontal as well as their vertical circulation. The propositions are important enough to deserve at least a brief elaboration. Begin with its first part.

It will be conceded that more or less complex cultural values and objects cannot be incorporated into an alien culture without their serious modification. A complex scientific theory, like that of relativity, or the theory of evolution, or the quantum theory, or high-grade idealism, materialism, determinism, indeterminism, the dialectic method, Kant's epistemology, Vico's philosophy of history, or an enormous number of other physical, chemical, biological, sociological, psychological and other theories and ideologies, cannot be "put into the heads" of savages, or of even our own laymen and nonspecialists, without a most fundamental simplification, transformation, and disfiguring of these values in the way of their "popularization" and "vulgarization." Such "simplifications" and "popularizations" are invariably a substantial disfiguring and alteration of these values and the change is the greater, the lower and more primitive the mental level of the group for which their popularization is intended. The Darwinian theory of evolution becomes in the mind of the masses a mere idea that "man comes from a monkey." Still more primitive is the popularization and "adaptation" of still more complex theories.[77]

[77] Even the comparatively simple results of our study of time-budgets published in Sorokin-Berger's *Time-Budgets of Human Behavior* (Harvard University Press, 1939) reached the readers of newspapers in the form: "Eight minutes for Love!" Many

If such is the situation in regard to different strata and their cultures in our own society, it is still more conspicuous in regard to the societies with profoundly different cultures. All this will be conceded and hardly questioned, so far as complex cultural values, and especially systems, are concerned. It will be conceded also in regard to complex and delicate "material values," like the handling, use, and running of a very delicate piece of machinery or system of machinery, which requires a highly trained specialist to operate it successfully.

But the proposition may be questioned in its validity in regard to simple cultural values, objects, and congeries, like, for instance, nail, rubbers, cheese or other form of food, clothing, lipsticks, rouge, simple utensils — pots, knives, axes, guns — or in regard to the simple "immaterial" values like the multiplication table, this or that poetry and prose, this or that simple belief, style, manner, custom, idea. It may be said that nail or rubbers remain nail or rubbers in the United States and among the native Melanesians, Tasmanians, or Fijians. Likewise, that belief in the immortality of the soul, or the multiplication table, or a simple proposition of physics or biology remains the same in both cultures. At first approach, it seems it does. It is enough, however, to study the situation a little more carefully to realize that it does not. Unless a given object or value in its generic form was already an element in the given culture, any new simple object or value that enters it from another and different culture undergoes a modification and transformation, to some extent and to some degree, either in its functions, use, or structure. Here is a fact which clarifies what is meant by that. In the pre-revolutionary days of Russia, the peasants of Vologda Province, of the Iarensky and Ustsy-

interpretations of the theories of my *Dynamics* happen to be unbelievably surprising to me! A similar change happens to any more or less complex theory or cultural system. This is the reason why all the attempts in the nature of "Science Service" have resulted in such a simplification and distortion of complex scientific theories that one often wonders whether such a service disseminates more pseudo science or science. In the light of the propositions discussed, it is clear that these shortcomings are not the fault of the popularizers, but that of the objective situation and immanent cultural conditions: one cannot explain adequately even the Copernican system to a child four years old, or *to a man perfectly ignorant of the ABC of the mathematical and natural sciences.* When my son at the age of 2½ years asked me: "Who brings the Moon?" I attempted, but failed, to explain to him the ABC of the motion of the moon around the earth. Finally, exasperated, I said "Santa Claus!" This explanation was perfectly successful! In thousands of ways this "Santa Claus" or its equivalent, is all that remains from many systems of ideas, beliefs, art-values, norms, when they pass from the few specialists into the culture of the masses.

solsky counties — which were totally unindustrialized — had, as a kind of a luxury, a pair of rubbers. Rubbers remained, physically, of course, rubbers, as they were manufactured by the rubber factories in other parts of Russia. But, instead of their usual function, among these peasants the rubbers changed their function — and consequently their meaning, their value, and their cultural nature — fundamentally. First, they never were used when the weather was bad or wet, or the roads were dirty and muddy. Second, they were used only on holidays and other important occasions and festivities: weddings, village festivals, etc. Third, even then, if the weather and the ground were not perfect — dry and not muddy — they were carried in the hands but not worn on the feet. Usually they were used mainly on hot and dry summer holidays; and rarely, if ever, on cold, wet, and muddy days, when they function in an industrial society. Thus, physically, rubbers remained rubbers, but as a cultural object, they entirely changed in their meaning, functions, use, and value, when they migrated from the industrial regions to the purely agricultural region of peasants, hunters, and fishermen, with a culture different in many respects from that of the Western industrialized culture.

With a proper modification, the same can be said of practically any simple material object which comes as new from one culture to another. Though the generic idea and object of a nail (at least a "wooden" nail) is familiar and is a part of many "primitive" cultures; nevertheless, when iron or steel manufactured nails reach such cultures, in their cultural meaning, use, value, functions, nails experience a tangible transformation in their new "home." With still greater reason, the same can be said of many new objects of food, clothing,[78]

[78] Here the proverbial case of a savage chief who put on a top-hat, being otherwise perfectly naked, in meeting some European persons, gives an idea of the change Again I remember the case when a salesman who spent the night in the house of my peasant aunt in the same region of Vologda Province left a piece of cheese in the house It was a novelty We saw how he ate it When we tried it, it appeared impossible We thought that perhaps it had to be baked, so we baked it, it became still less eatable We gave it to the dog — and the peasant dogs were incessantly hungry — but the dog did not eat it Finally, the piece was thrown out and we wondered how such an impossible thing could be eaten by such a fine gentleman as the salesman appeared to be Here the new food was rejected and could not even enter and be incorporated into the culture of the peasants In other cases, a new food may enter; but in its use and functioning it undergoes some change, like the above case of the rubbers The use of wine and alcohol in the United States in the era of prohibition is another familiar case instead of using them "normally" as, for instance, French or Scotch people do, they became something exotic, used wildly, associated with "Whoopee!", "Fall down and go boom!"; with "night clubs" and gang-criminality!

and other forms of material cultural objects. If they are alien indeed to the culture into which they infiltrate they cannot help undergoing a tangible modification, especially in the case of complex instruments, machines, tools, utensils, etc. This concerns the horizontal as well as the vertical circulation. And the greater the contrast between the two cultures in question, the greater is the modification, even in regard to the same cultural object or value.[79] If such is the situation with the simple material objects, the proposition will hold still truer in regard to simple "immaterial" values, whether the value is a simple idea, belief, tune, custom, style, taste, or something else. The idea of the earth going around the sun and of the moon going around the earth is not the same in the mind of a scientist in the field; in that of a pupil of an elementary school; in that of an illiterate peasant; and in that of a savage. It has and will have several differential connotations and shadings in these minds — and cultures — in spite of the fact that it may be learned from the same textbook by all these persons (except the specialist, who has connotations and specifications that cannot be put into an elementary text). With a proper modification the same can be said of almost any other simple cultural value, if it is fundamentally new to a given culture. It may be a multiplication table (for the cultures which do not and cannot count much higher than a few scores and which count differently); or the idea of "nature," "God," "matter," "spirit," "mind," "right and wrong," "useful and harmful," "decent and indecent," "beautiful and ugly"; or the value of a tune, painting, manner, custom, or appreciation of a certain style, certain object, certain pattern. All these undergo a greater or less change when they pass from one stratum to another (vertically), and from one culture to another (horizontally).

[79] An excellent evidence of this is given by the daily reading of a newspaper. The paper, say the *New York Times*, is the same But different readers read in it different parts. Some read mainly the sports section, others, book reviews; others, political news, others, the art section and so on. Chinese follow with especial care the news about China; Japanese about Japan; the French about France, etc. There are readers who look only at the pictures and cut them out; and so on and so forth. The paper physically is the same But culturally it appears to be a multitude of different papers, as many and as different as there are different cultural groups, with as great contrasts in their cultures.

The same can be said about any book, picture, symphony, ethical norm, and so on Aristotle's *Politics* is a very different thing for a freshman and for a competent professor of philosophy or sociology Beethoven's *Missa Solemnis* is something quite different to a Chinese, Trobriander, European, and American, to a musician, and a farmer or businessman who is ignorant of great music; to an Atheist, Protestant, and Catholic. And so on, endlessly.

In a heterogeneous culture which they infiltrate they look seemingly the same as in their native culture, and yet they are different.

With still greater reason, the proposition can be emphasized in regard to the complex cultural systems. Christianity, Communism, Confucianism, Fascism, Darwinism, Parliamentarism or any other complicated system of ideology, religion, scientific theory, philosophical *Weltanschauung* — each of these is deeply different among the intellectuals and laymen of the same country, among the educated and uneducated, among the unskilled laborers and the professional scholars, among the "aristocracy" and the "proletariat." Likewise with the Christianity of the Roman Catholic clergy, of new Catholic converts among the Chinese, Negroes, Hindus, Japanese, Malayans, and many "primitive" peoples — the Catholic Christianity of all these different cultural groups has not much more in common, in its system of meanings, than the mere name Christianity. With the exception of this and a few other traits, the Christianity of the Chinese or Indian or African converts and that of the Roman Catholic clergy differs hardly less than Christianity and Buddhism or Mohammedanism, or some form of Totemic religion.[80] Under the same name we have in all these systems of ideologies and values something profoundly different, in widely diverse cultures. Passing from one cultural atmosphere to another — vertically or horizontally — each of these complicated cultural systems experiences the modification, transformation, or adaptation necessary to a given new cultural atmosphere. And the greater the contrast of the cultures, the greater is the modification. Passage not only from one culture to another quite different from it, but a passage from a variety of a given culture (for instance, the Anglo-Saxon) to another variety (for instance, French, Germanic, Italian)

[80] See, for instance, the most peculiar forms assumed by Christianity among the Zapotecan Mexicans in Mitla, E. C Parsons, *Mitla*, quoted, pp 204–210, *et passim;* or the Indian North American tribe, the Antlers, M Mead, "The Changing Culture of an Indian Tribe," *Columbia University Contributions to Anthropology* (New York, 1932), Vol XV, or among the Winnebago Indians; P Radin, "The Influence of the Whites on Winnebago Culture," *Proceedings of the State Historical Society of Wisconsin* (1913), pp 137–145; or among many other native groups studied in connection with the spread of such cults as the Prophet Dance, the Ghost Dance, and so on. See L. Spier, "The Prophet Dance," *General Series in Anthropology*, No 1 (1935); A H Gayton, "The Ghost Dance of 1870," *University of California Publications in American Archeology and Ethnology* (1932), Vol XXVIII, pp 57–82; R Maunier, *op cit*, p 7 Practically, it is enough to take any more or less accurate description of the real beliefs and rituals of almost any native tribe supposedly converted to Christianity, in order to see clearly the transformation of Christianity as discussed It is not the fault of the missionaries, but the objective sociological conditions that make the transformation inevitable.

changes a complex cultural value. The parliamentarism of England has never been the same as the parliamentarisms of the other countries which borrowed it from England. Italian Fascism is different from the German, just as the conception of an Emperor (borrowed by Western culture from the Roman Emperor; by them from the Hellenistic conception of Alexander the Great, who borrowed from the Oriental Persian, who borrowed from the Egyptian) has never been the same in all these cultures.[81] The Renaissance of Italy profoundly differs from that of most other, especially Germanic, countries. The "planned economy" of Soviet Russia remains different from that of the Rooseveltian, Mussolinian, Hitlerian, or other "planned economies." And so in regard to almost any complex cultural value, when it passes from one variety of a generic culture to another. The same can be said of the complex techno-economic systems of culture. Capitalism has never been the same in England, Russia, Japan, and Brazil; the machine-manufacturing system is not the same thing in the United States, Japan, China, Russia, and Poland. Physically the factories, the machines, may be identical; and yet the cultural value, meaning, appreciation, functions, of the system are notably different in these different countries.

The same can be said of almost any complicated cultural complex or system, material or immaterial. None of them can help being altered, modified, or disfigured, when it passes from one cultural milieu to a different one.[82]

[81] See L. Wenger, "Ancient Legal History," *Independence, Convergence, and Borrowing*, quoted, pp. 78–79.

[82] The same is applicable to systems of law. As is known, the Roman law has diffused enormously in different societies with different cultures congenial to the Roman Law in their law systems. "Roman law from the earliest times was not so isolated, nor so hostile to other laws of antiquity, as it seemed to Cicero and even to many modern historians." On the other hand, "we must not think that the same Roman Law existed through all centuries and in all countries. Even in antiquity changes were made in it [in different countries of diffusion]: and it was a different law in the Middle Ages, in modern times, in Italy, in Byzantium, in France and in Germany." L. Wenger, "Ancient Legal History," *Independence, Convergence, and Borrowing*, cited, pp. 63 ff.

"Domestication is a common phenomenon in all cultural borrowing. A folk song or a folk story introduced from a distant province is soon revised by nobody knows whom, and, while the main theme — the motif — is always retained, most of the details (names, scenery, fashion, dress, etc.) are retouched with 'local colour!' This modification happened with Buddhism in China . . . Almost every phase or element of Buddhism has undergone some degree of modification during these twenty-odd centuries. Look at the faces of the deities in a Buddhist temple in China to-day and trace each to its earliest Indian originals, and you will realize how the process of domestication has worked." Hu Shih, "The Indianization of China: A Case Study in Cultural Borrowing." *Ibid.*,

The same is true of the vertical circulation, in so far as the culture of different strata of the same society is different — and usually it is. Taoism, Hinduism, Christianity, Confucianism of the intellectual stratum of either the Chinese, Hindu, or European society is one thing; in the mentality and culture of the respective lower classes it is another thing. Each of these religio-philosophical-ethical systems in its pure form is one of the sublimest and greatest systems ever created. In the mentality and culture of the lower classes of the respective societies, each of them is vulgarized to an enormous degree. What is Taoism or Hinduism of the masses of the lower classes but a collection of so-called "superstitious" rituals, magic beliefs, primitive ideas about God, soul, transmigration, and so on, which have little of the depth and sublimity of the system of Lao-Tse or Qwang-tsu, or of the Vedas, Upanishads and Brahmanas. The same is true of Christianity or Confucianism or any other religious and moral system. There is little in common between the Epicureanism of Epicurus and that of the mass of his followers, during his lifetime as well as after his death. The first was practically "Stoic" and a noble form of ethical eudemonism; the second assumes the most vulgar form of the flat hedonism of "wine, women and song," and *"Carpe diem."* The Darwinian theory of evolution in the mentality of the "enlightened" masses is but an atrocious idea that "man came from a monkey." The ideology of Marxian socialism in the mentality of the proletarian masses is but a call to "steal what has been stolen" and kill and eliminate the exploiters. "Positivism" (of A. Comte or others) means,[83] for the radical high-school or college student, a primitive mixture of

p 232, *et passim*. See there the details of the modification of Buddhism in its diffusion in China.

See in the same volume the facts of the modification of Hellenism, Christianity, of French law, of Jewish folklore, in their diffusion among various cultures R Maunier, "La diffusion de droit français en Algérie", L Ginzberg, "Jewish Folklore· East and West"; C H Dodd, "Hellenism and Christianity"

The same transformation invariably occurs in the folk tales when a topic or hero taken from one culture assumes very different forms in the different culture of its penetration. See the concrete facts in S Thompson, *Tales of the North American Indians* (Harvard University Press, 1929). See other facts in W. I. Thomas, *Primitive Behavior*, quoted, pp 026 ff.

[83] This objective fact is the root of the tragedy of vulgarization and decisive disfiguring of any complex and great and sublime system of cultural values when it infiltrates and roots itself among the large masses Such a success is invariably bought at the cost of its simplification and distortion Often, after such a success, there remains little of the system as it was created by the author and a selected group of his disciples.

atheism and progressivism. Even such ideas as the concept of a gentleman mean one thing in the culture of England of the eighteenth century; another for a *nouveau riche,* who by hook or crook has made money on the stock market and considers himself a gentleman; and still another for a "proletarian" who is raised by revolution to a position of prominence. The Gothic style, Bach's music, or Dürer's painting mean, for the culture of the lower classes, if by chance these values enter it, something very different from what they represent to the mentality of the connoisseurs and properly trained and qualified persons and groups. Dante's *Divine Comedy* or Shakespeare's *Macbeth* are, again, something quite different in the mentality and culture of the lower and the upper classes. And so with almost any complex system or value.[84]

Vice versa, *when a cultural value migrates upwards, from the lower to the upper classes, it experiences a similar transformation.* In the compositions of Bach, Beethoven, and almost any great composer there are many folk-tunes and songs taken from the repertoire of the lower classes. For instance, in the series of the Razumovsky's quartets of Beethoven, there are many folk-tunes of the Russian people (not to mention those of the German people in other compositions of Beethoven). And yet, they are "Beethovenized" to such an extent that they become quite changed from the initial folk-tunes. In addition, they are set in a configuration quite unlike the original, and mean something very different from what they meant in Russia. When the Negro Spirituals and various folk-songs infiltrated the culture of the middle and upper classes of the United States, they experienced a similar transformation. Only perhaps the skeleton of the

[84] The inevitable vulgarization of education itself, when it becomes universally diffused in all classes, is a further corroboration of the uniformity discussed In ancient Hellenic society it became most widely diffused in the third century A D See M I Rostovtzeff, *The Social and Economic History of the Roman Empire* (Oxford, 1926), p 375 It was so simplified and vulgarized that, among its other effects, we find a complete lack of either great writers, thinkers, or artists in that and subsequent centuries, instead of a great increase of these and a blossoming of culture, as many think Similarly, the universal diffusion of education in our society has led, among other results, to the emergence of the "yellow press," "yellow movies," "educated ignorance," or, in the totalitarian states, to the diffusion of the governmental "intellectual chewing gum" with all the tabloid pseudo culture and flat mentality of both And the more "universal" our colleges and universities, our B.A.'s and Ph.D.'s become, the lower becomes the standard of the universities and Ph.D.'s, the greater the superficiality and "trained incapacity" of the majority of the graduates This is the reason, perhaps, why the crop of real creativeness of cultural values, among all those millions who have successfully passed the present curriculum of schools and universities, has been so disproportionately small.

Negro originals is left in the "arranged" and "jazzed" imitations, while the meaning of the Spirituals and of the Negro songs (dance songs, labor songs, etc.) is now almost entirely changed. The labor song is now a jazz and is crooned in the Follies and night clubs, and various "whoopee" joints. Not infrequently the Spirituals function in the same places and settings. One can hardly imagine a more profound transformation than that!

Again, take the recurrent fashion of the upper classes to go "pastoral," "idyllic," "peasant." When such a fashion invaded the French court at the end of the seventeenth and the beginning of the eighteenth century, with Arcadian and other shepherds and shepherdesses, *paysan* and *paysanne*, and other supposedly pastoral and agricultural personages, heroes, scenes, *paysages*, they all bore factually no resemblance or relationship to the real peasants, the real values in their life and to their real life. Only very remote sugar-coated shells were left of this reality when it became a part of the culture of the French nobility. In a milder form, one can see the same nowadays in observing various "peasant style" objects sold in the fashionable department stores for well-to-do customers: the patterns, the styles, the objects taken from the culture of the peasantry are greatly changed and are made to serve purposes and functions quite different from those which they serve in peasant life.

A similar transformation took place in the Renaissance with the Greek cultural values. The leaders of the Renaissance enthusiastically welcomed them and tried by all means to revive and restore them, thinking honestly they were reviving the genuine Greek cultural values (in painting, sculpture, architecture, literature, philosophy, religion, and so on). We know now they were mistaken; their "Greek" values were very different from what they were in Greece and yielded creations only remotely resembling the genuine Greek patterns, forms, and systems of ideas.[85] If the figure of the savage chief — naked but with a top-hat on his head — appears to us comical, we often do not notice that many aristocrats and society persons adorned with some object-value taken from the lower classes, are not less incongruous figures than the savage chief. As a further example, one can identify most of the "literary" personages from the lower classes, when they are depicted by the *literati* who never belonged to these classes. Almost invariably the figures are purely artificial, "sugar-coated," having little or no resemblance to the originals. The same is to be said

[85] As is well known, even such artists as Michelangelo grossly erred in this matter.

of a sophisticated imitation of the "primitive style" in various arts: painting, sculpture, music, architecture, literature, drama. All these "primitive" styles really have little if any relationship to the primitive originals.[86] And so it is with almost any object-value that passes from the lower to the upper classes, or the reverse way. And the greater the difference in the culture of the upper and the lower classes, the greater the transformation. If the difference is negligible, the change is negligible. This explains why the aristocracy and the lower classes cannot have an entirely common language in many spheres of their relationship: using the same terms, they mean — and cannot help meaning — different things; sometimes almost opposite. Justice for the masters and privileged classes is something very different from that for the "under dogs." Truth, beauty, right and wrong, and many other values mean different things to each of these strata.[87]

The above comments are sufficient to illustrate the meaning of the first proposition and its comparatively "universal" character. It operated in the past and continues to do so in the present; in the relationships of various cultures, peoples, societies, groups, horizontally, as well as in that of various strata, vertically. So much for the first proposition.

C. Now to the second proposition. The preceding one, assuming the identity of the cultural value, makes the degree of its transformation in the process of its migration proportional to the degree of difference of the cultures involved. The second proposition assumes this difference is identical or constant. It takes the same cultures A and B between which different values circulate. Assuming that, the proposition contends that the *degree of the change* of various cultural systems tends to be proportional to the degree of special qualification, training, and skill necessary to apprehend the circulating cultural system or value. The *more difficult it is, the more complex, the more special qualification and training and ability it requires to properly apprehend, understand, use, and operate with it, the greater has to be its change in order that it may pass from one culture to a different one — horizontally or vertically. Just on this account some of the values cannot be passed at all, outside of a narrow group of spe-*

[86] See the facts and analysis in W Deonna, *L'archéologie*, quoted, Vol. II, pp 453 ff

[87] K. Mannheim gives a number of cases where the same concept (for instance, "freedom" *Volksgeist* or *Zeitgeist*) means very different things with different classes and political groups. See his *Ideology and Utopia* (New York, 1936), pp. 243 ff. Such transformation of the meaning of the same concept in different social groups or cultures is but a mere case of the general uniformity discussed -

cialists, to most of the other cultural groups of the same society or of other culture.

The greater part of the very complex and refined mathematical, physical, chemical, biological, philosophical, religious, and social-science theories and systems cannot be passed and probably never will enter adequately the culture mentality of most of the cultural groups outside of the selected specialists. The real Plato, Aristotle, Descartes, Newton's *Principia*, I. Kant's *ding für sich und an sich*, Hegel's dialectic principle, the quantum theory, the relativity theory, Thomism, Darwinism, almost all the epistemological and metaphysical systems, calculus — none of these have yet passed into the culture of the majority of the peoples and probably never will. What passes under these names is a vulgarized and distorted shadow of what these systems of meanings are in their real form. This means that the specific qualifications of many cultural values are such that they cannot even be incorporated in most of the cultural milieus different from that of the narrow circle of the specialists.

The other systems and congeries can pass, but in passing they are doomed to be changed, in order to be able to infiltrate the different cultural milieu. They need to be "adapted" and simplified in order to be digestible by the mentality of the bearers of a different culture; and the "adaptation" has to be the greater, the greater the specific complexities of the value. Arithmetic can be taught to a much larger group of people than algebra; algebra to more persons than calculus; and for the passing of arithmetic or algebra to laymen less "adaptation" is necessary than for the passing of calculus. How to grease a car can be passed more easily than how to grind the valves; this is easier to convey than how to make the car. The enjoyment of crooning can be taught more easily and to larger cultural milieus than the enjoyment of Beethoven or Bach. The teachers and popularizers who rashly attempt to make Plato, Kant, Hegel, Darwin, Einstein, Leibnitz, Marx, or any complex scientific, philosophic, moral, or aesthetic theory "popular" commit inevitably a sin of distortion; they circulate not these theories but their poor shadows.

Such is the essential process which takes place when a cultural value passes to a different cultural milieu and such are two of the important uniformities which are connected with it. In so far as these two propositions are valid, they have many important theoretical and practical consequences.

A few of these may be mentioned.

(1) In a *society steeply and rigidly stratified,* with the strata of the population bearing very different culture-mentalities, only a portion of the total culture of the upper and lower strata is common to both; only a portion can and does circulate up and down; and this portion is the smaller and its transformation the greater, the more profound the difference of the total culture of these strata.

(2) Other conditions being equal, the common portion and circulation of cultural values in such a society is less than in a society less steeply and rigidly stratified. Likewise, in the less stratified society, the circulating values need to undergo a less profound transformation in their passage from stratum to stratum than in the more stratified social system.

(3) If instead of the height and rigidity of stratification we take the *factor of mobility,* then, assuming the steepness and rigidity of stratification constant, and the common fund of culture to be possessed by both the upper and lower strata, the portion of the values circulating between the strata will be the greater and the amount of the transformation in their vertical passage needs to be less, the more mobile the society; that is, the more its members move along its vertical ladder. *Ceteris paribus,* in the less mobile caste society, the common fund of the culture of the upper and lowest castes, and the portion of the circulating cultural values, is less, and the degree of their transformation is greater, than in a more mobile, democratic society.[88]

If we take, for instance, Indian and American societies, in the United States of America we shall expect, and in fact do find, a greater common fund of the culture of the upper and lower classes, a greater portion of the circulating cultural values, and less degree of their transformation in the passage, than in India. In American and other mobile societies (where everyone can potentially become everything) this fact manifests itself in the *conspicuous phenomenon of standardization of cultural values,* from Lucky Strikes, fashions of dress, ice-cream, food, tools, cars, to *The Saturday Evening Post,* the best-sellers read by all strata, crooning, jazz, schools, colleges, epidemics of the same fads and hobbies, the same political and other creeds. An enormous portion of such cultural values is common to all strata; an enormous portion of other values intensively circulate up and down, often to the point of monotonous similarity. When, in a given fall, a new style of dress is introduced, it spreads like a fire over most

[88] See, for definition of mobility, its amount, its forms, etc., my *Social Mobility, passim.*

of the strata (with some lag), the main difference being only that the dress of the upper classes is more expensive than that of the lower classes. The same is true of any best-seller (lower strata getting it later, in a cheap edition); of car or radio, telephone or bathtub; political creed — be it Townsendism, Coughlinism, or something else. When the upper classes take up golf or another sport, the lower classes follow, with some lag. When a cross-word puzzle or jig-saw puzzle or other fad starts, it permeates all classes. When college education becomes a rule for the upper classes, with some lag it is adopted by the lower classes; and so on and so forth.

This does not mean that the total culture of the upper and lower classes is identical; nor does it mean that all cultural values can and do circulate successfully; nor that the circulating values do not experience any transformation in their passage from stratum to stratum. But it means that the standardization in the above sense is much greater in such a mobile society than it is in an immobile one, like the caste society of India, or medieval society, or Greek or Roman societies at the period when their strata were rigidly separated and the mobility between the masters and slaves, patricians and plebeians, was insignificant.[89]

(4) As a mere consequence of the above propositions, we shall expect — and, in fact, find — that as a rule the vertical *circulation of cultural values goes on gradually, from a given stratum to the next one above or below, but rarely directly from the lowest to the highest or vice versa.* As mentioned before, a given stratum "apes" its nearest better stratum but not the remotest. One of the reasons for this is that the nearest strata have a greater common fund in their total cultures and are more similar culturally than the widely separated strata. Therefore many cultural values can more easily pass between such similar strata, meet fewer obstacles to circulation, and need to be changed less in the passage, than in the case of the more heterogeneous cultures of the highest and the lowest strata. This is the reason why, as we have seen, the dress or any other value passes usually from the

[89] The same conclusion was reached when I studied the problem in connection with the mobility of individuals and groups. See my *Social Mobility*, particularly Chapter Twenty-one. Investigators of the history of dress and standard of living many times mention and stress the uniformity discussed. See G. Tarde, *op. cit.*, chaps. vi and vii. "The greater separation of social classes in the country [than in the English cities] was less favorable to the spread of upper-class manners and luxuries, which was so prevalent in London." E. Waterman, *op. cit.*, p. 95. See other works quoted on the history of dress.

aristocracy to the next lower class, from this to the middle classes, and from those to the lower classes, or vice versa. Only in exceptional cases are some of the values transferred at one move from the upper to the lower, without passing through the intermediary strata, or vice versa.[90]

(5) Finally, since any sociocultural system is selective (see above, Chapter Two), and since systems and congeries are profoundly different from one another, there is an enormous difference in the matter discussed as to whether the infiltrated culture in the specific field of infiltration represents a *system or congeries*, and whether the infiltrating cultural value is a system or congeries. The main cases here are as follows:

(*a*) The specific field of the infiltrated culture is congeries and the infiltrating cultural value is also congeries. In that case there is neither affinity nor disaffinity between the infiltrated culture and the infiltrating congeries. In these conditions, the success or nonsuccess of the infiltration and the modification or nonmodification of the infiltrating value is decided by purely fortuitous external factors, unpredictable and lacking any uniformity. If the combination of the external circumstances happens to be favorable, the congeries can migrate and settle from one stratum to another (vertically) and from one culture area to another horizontally. Such is the case, for instance, in the incidental passage of the Russian *samovar* into the Western country; or of a Chinese dress, or other congeries, or of some fad or pattern of culture. In these cases, such congeries may pass, but rarely will they have a widespread and successful rooting in the infiltrated culture. Coming fortuitously, they as fortuitously disappear.

(*b*) The specific field of the infiltrated culture is a system

[90] This is again a replica of what we find in the vertical shift of individuals. The uniformity there is formulated as follows: "Except in periods of great upheavals, like the World War or revolutions, the 'ups' and 'downs' in the vertical circulation of the individuals occur gradually and almost imperceptibly. The considerable vertical displacement of a family or an individual demands, as a rule, several years or, more often, one, two, or three generations." Respectively one rarely is transformed from a pauper to a millionaire; from a slave to a king; from a soldier to a commander-in-chief; from an aristocrat to a slave; but one's promotion or demotion proceeds gradually, step by step.

See, for further details, evidences and statistics, my *Social Mobility*, pp. 449 ff. Tarde rightly says that "the thing that is most imitated is the most superior one of those that are nearest. The influence of the model's example is efficacious inversely to its distance as well as directly to its superiority. Distance is understood here in its sociological meaning." *The Laws of Imitation*, p 224.

and the infiltrating value is a congeries to it. Being congeries, it is again neither congenial nor antagonistic to the system. Therefore, the success of and the degree of transformation in the infiltrating value depends again mainly upon incidental external circumstances, and is similar to the above case in many respects. A phonograph presented to a primitive tribe in central Africa by a missionary or explorer may or may not have some success there; it may or may not change its functions (providing it is a congeries to the infiltrated culture). Everything depends upon the chain of fortuitous circumstances.

(*c*) The special field of the infiltrated culture is a system, and the infiltrating value is also a system. In that case, if the two systems are congenial and have a mutual affinity, the infiltrating system will have an easy and great success and will root itself in the new culture deeply and organically. If the two systems are antagonistic and mutually contradictory, the infiltrating system will meet an active resistance on the part of the other system, and unless it is backed by force or other supporting circumstances, it has little chance to penetrate the other culture. Only by overpowering the competitive system can it root itself in the new culture, and even then only after undergoing considerable transformation. The gospel of Communism in a culture of rugged individualistic proprietors; atheism in the culture of ardent Roman Catholics; the republican political system in the culture of monarchical aristocracy; a system of asceticism in the culture of super-Sensate epicureans; these and millions of other mutually antagonistic systems have little chance of spreading in the areas dominated by the other antagonistic system. If, due to several fortuitous circumstances, they have a little success, it is invariably followed by a profound transformation of such an infiltrating antagonistic system. Communism in such a case would change into the "communism" of Christ's gospel; republicanism into the system of an oligarchy of the court aristocracy; asceticism into a mild form of moderation and abstinence, dictated by the sensate interests of health and bodily comfort; and so on.

On the other hand, as we shall see in the next section, if the two systems are congenial, the infiltrating system will be supported and helped by the infiltrated system.

The above is enough to let us understand that even in the matter of the spatial displacement and circulation of cultural phenomena, the distinction between congeries and systems is urgently necessary. This will become still clearer if we put the same problem in the form of the next question:

X. Why Do Certain Cultural Systems and Values Multiply, Move, and Spread Successfully (Become "Best-Sellers") while the Others Do Not Spread at All or Spread Little?

We know well that some new songs, plays, novels, manufactured objects, creeds, theories, beliefs, paintings, etc., are successful, become "hits," multiply and spread rapidly, turn out to be "best-sellers," while some other books, plays, songs, and similar values either do not have any success or very little. The phenomenon is recurring in various societies as well as at all times. The question arises: Why such a difference? Are there some fairly general conditions which can explain at least in part this "ever-recurring mystery"?

The conditions involved are probably numerous and of diverse nature. Nevertheless, it seems possible to mention a few which appear to be fairly universal. Such are: A, *the nature of the system or value;* B, *the nature of the culture of penetration and diffusion;* C, *development of means of communication;* D, *presence of a force behind it.*

A. *The Nature of the Value.* Assuming other conditions to be constant, the spread of a value or pattern or system in social space — that is, the number of persons and groups who take it and incorporate it into their culture — depends upon the demand for the object, speaking in the terms of economics. The demand for various values and objects is not the same: some are needed or thought to be needed by almost everybody, while others are needed by few. The objects and values which are needed by everybody are, however, in most cases, of such a nature as to be involved in the satisfaction of purely biological needs (food, clothing, shelter, etc.) rather than purely social. Their substance, so to speak, expresses little the individuality of a given cultural value-object. This individuality — their sociocultural style, so to speak — lies not so much in their substance (for instance, food as meat or fish or bread or vegetable; sex as a physiological act of copulation) as in their sociocultural form: how it is prepared and served, with what manner and ceremonies eaten, by what social groups, under what conditions, when it is taboo, etc.; or in which social forms the sex-need is satisfied: by what form of marriage, or concubinage, or prostitution — what are the patterns of these conditions which govern their "proper and improper" use, and so on. So far as the sociocultural forms of these universal values are concerned — and only these forms are really the *sociocultural* (not biological) values — here the distinc-

tion of the values needed by everybody and by few does not become as clear as it appears on the first approach. Why in a given culture do most of the people have a polygamic or polyandric form of marriage, while in another only a monogamic? Why in a given society are some forms of food perfectly good from the biological standpoint taboo, while in another the taboo does not concern this food but concerns some other foods? Why are there long fastings in a given group, while in another they are absent? Why, in a culture A, is veiling the face of women universally practiced (has a universal demand), while in another culture it does not have any and is not practiced at all? Why in the same culture or stratum, for instance, in the upper class of the Western culture, are top-hats, formal evening dress, a certain kind of music or poetry commonly spread (are in demand), while in other cultures or in the lower classes most of these value-patterns are neither spread nor in demand?

When these and similar facts are considered, the law of demand becomes helpless, as a mere tautology: those things are spread which are in demand; in demand are those things which are spread, or which are demanded.[91] Therefore we have to change the line of attack on the problem in order to elucidate at least a few points in it.[92] Since the actual spread of a cultural value or object depends upon many conditions — the type of culture, and others — let us first of all assume

[91] Shall I add that the aspect of the supply in the law of demand and supply does not help? Theoretically, the supply of top-hats or evening dress for the lower classes is as great or small as for the upper classes. In fasting period, for instance in Lent, meat or other kind of tabooed food is as abundant or scarce as in the periods when they are not tabooed. Women's veils can be supplied in the nonMohammedan societies as easily as in the Mohammedan. The sex-proportion in many monogamic societies does not differ from that of many polygamic or polyandric societies. Virgins for the role of priestess-prostitutes can be as easily obtained in many a society without such an institution as in the cultures where it does exist. And so on. The law of demand and supply helps little in understanding why, in a culture A, the demand for value C is enormous, while in a culture B it is nil, the same is true of the "supply" part of this problem.

[92] G. Tarde attempted to find some uniformities in the diffusion of various values depending, so to speak, upon the bio-social nature of these values. For instance, he claims that certain drinks diffuse faster and more successfully than certain forms of food; debauchery faster than drinks, some gestures more than certain peculiarities of gait, accent diffuses less successfully than certain patterns of food or dress. "Every city retains a characteristic accent long after its food and dress have become like those of other cities." "All passions and needs for luxury are more contagious than simple appetites and primitive needs." And so on. All these generalizations, being vague in their formulation, are very doubtful. See G. Tarde, *The Laws of Imitation*, pp. 194 ff. Better, but also uncertain and somewhat vague, are the factors of utility, and prestige stressed by R. Linton and others. See R. Linton (ed.) *Acculturation in Seven American Indian Tribes* (New York, 1940), pp. 474 ff., 484 ff.

that *the culture is the same.* Second, since the nature of various values seemingly exerts its influence also upon the success of the spread of the value, let us take, for a starting point of analysis, *the values of the same kind* — that is, values belonging to the same class, but differing from one another by several secondary details. Third, to eliminate the factor of *economic accessibility,* let us assume the various forms of the same kind of value to have about the same economic cost.

Having agreed upon that, let us ask: *Do various forms of the same class of value, of the same price, in the same total culture,* multiply and spread with different success? There is no doubt that such a difference exists. Out of the novels costing, say $2.50, published every month, a few become best-sellers, are spread, bought, and read by millions, while the others do not have any "success." The same is true of newspapers; of books, say, texts in the same field; of the treatises about the same problem; of the musical compositions and songs of the same class: symphony or opera or crooning or what not; of paintings and sculptures; of a brand of cigarettes, of coffee, toothpaste, shaving cream; of the theatrical play; of a brand of suit or tie or almost any other cultural object-value. In some classes of these values, the contrast in the "success" is enormous; in others the amplitude of the contrast is more limited; but this difference in spread or success is found in almost all classes of value-objects. The question now arises: What are the reasons for such a difference? Can it be accounted for, at least to some extent, through indication of a few of its most important "factors"?

So far as we assumed the same culture, the same class of values, and the same economic cost, the "factors" seem to exist in the secondary differences of the values of the same class. They are probably numerous, and we hardly know most of them. But one or two of them can be mentioned.

First, a fairly general proposition can be formulated as follows: *The more "refined" and complex is the nature of the value, the more special qualification and training is needed for its use and enjoyment, the less is its spread within a limited time in comparison with a value of the same class and cost but much less refined, simpler, and demanding fewer qualifications and much less training for its use and enjoyment.*

At the basis of this proposition lies the unquestionable fact that values of the same kind are not all of the same degree of refinement and com-

plexity, but make a kind of pyramid, beginning with the simplest and ending with the most complex. The simplest stratum of values does not require any particular training or gift or ability to be used and enjoyed, while the values of the highest level do require it — and require it more, the more difficult and refined the values are. In mathematics we have a pyramid: arithmetic, algebra and geometry, elementary calculus and analytic geometry, and still more complex levels of mathematics. So also in any scientific discipline. There are the strata of elementary biology, physics, sociology, philosophy, or any other science; and a series of levels of the more and more advanced biology, physics, sociology, philosophy or other science. While the simplest and most elementary level is accessible to a high-school boy, a layman or college freshman, the more advanced levels can be used and enjoyed only by those who have the knowledge of the preceding levels. Not knowing arithmetic, one cannot study algebra or calculus. Not knowing anything in philosophy, economics, or sociology, one cannot use and enjoy the complex problems of Platonic or Kantian philosophy or the difficult problems of advanced economics and sociology. So also in the field of many another cultural value, be it music or painting, literature or law, technology or theology. Hence, the proposition.

Other conditions being equal, as we pass through the pyramid of the levels of the same value and price from the simplest to the most complex and difficult, the smaller becomes the number of persons who can be taught, and who can use and enjoy them. The highest levels of some values cannot even be taught to, or used and enjoyed by most of the people, and vice versa. In brief, the *potential number of users of a given value of the same kind is in reverse proportion to the refinement, complexity, and difficulty of the level of the given value.* Arithmetic in the same society has been and will be spread much more than calculus or still more refined branches of mathematics. Elementary knowledge of physics, biology, or other scientific, philosophic, or religious systems, has been and will be spread more than advanced, real, non-elementary knowledge. In spite of all the popularizations, Palestrina, Bach, and Beethoven have been and will continue to be much less well known than this or that popular song, be it a Hollywood "hit," crooning, or "Sweet Adeline." A cruder form of any religion has always been more popular than a more refined form of the same religion. An intricate form of dance, which requires special training and special skill, say most of the "refined ballet dances," can hardly ever

spread as successfully as the simpler forms which can be danced by everybody. Simpler forms of a technical operation within a given field of technical activity, be it agriculture, or applied technology, spreads more than an intricate form of it which demands special training and special qualifications. From this standpoint most of us can paint a little; fewer can design or make pictures; still fewer can do it well; and still fewer can be great artists.

So with almost any cultural value-objects of the same class and price in most of the "compartments of culture." *The highest levels of the values of each class are the real luxuries inaccessible to the majority of persons, not for the economic reasons of high cost, but for the above reason of their complexity, refinement, and special qualifications necessary for their use and enjoyment. In this sense "luxury" can have a much broader and less economic meaning. It denotes a value for enjoyment of which a special ability, special training, special effort and qualification are necessary.* Economically to attend a symphony concert of the great masters of music costs sometimes even less than to attend a "show." And yet, the attendance at such a concert falls short in comparison with that at a show. At the best, only a few thousands, and those not every day, attend such concerts, even in a great metropolitan center, and the concert halls of even famous orchestras are rarely filled to capacity. Hundreds of thousands attend movies and shows daily. A preference for Bach's music is a cultural luxury accessible to a much more limited number of persons than the value of enjoyment of movies and shows. Only a very limited number of persons can understand, and enjoy reading, say, Plato's *Dialogues* or Dante's *Divine Comedy* or Kant's *Kritik der reinen Vernunft*. These are cultural "luxuries," inaccessible culturally but not economically to the large masses: these volumes often cost less than the sum of money spent by the masses for their magazines, novels, popular best-sellers and so on. Kant's works (within a limited period of time) have never been sold by the hundreds of thousands. Will Durant's *Story of Philosophy* has sold over a million copies. The works of the great historians, like Mommsen, or Gibbon, or F. de Coulanges, have never been best-sellers. H. G. Wells' *Outline of History* has sold over a million copies. The totality of the texts in arithmetic are sold in much larger quantities than the texts in calculus. So also with elementary texts compared with the advanced ones in any science. None of the works of the great composers have been sold in the enormous quantities to which some popular "hits" of Hollywood

composers have attained. And so on and so forth in practically any kind of cultural value.[93]

The uniformity discussed is fairly general. However, it is not to be overdrawn beyond its legitimate sphere. In other words, it needs to be corrected by the introduction of special reservations, of which the following are the most important:

(1) *Qualifications.* The first limitation is connected with the *span of time* during which the spread of the cultural value is considered. The point is that some of the cultural values become "best-sellers" quickly and spread successfully in a short time, after which their spread is stopped; while other values spread slowly and much less widely within the same period of time, but their spread continues during a much longer or an indefinitely long period. The result is that the second kind of values often spread, when all the time of their "selling" is considered, in a much larger quantity than the first. Many a "best-seller" in literature, art, texts in various sciences, and musical compositions have "great success" and are sold or spread most successfully, but after a few months or years they are forgotten: their spread is ended and their very existence is finished. On the other hand, the works of Plato, Aristotle, Kant or other great thinkers; or of Mozart, Bach, Beethoven and other great composers; or of Shakespeare, Dante, Goethe, or other great writers, never have been sold in great quantities within a short time; but they have been translated and re-translated, issued and reissued, again and again, during decades, centuries, and even millenniums. The net result is that the total number of copies of these works, or the total number of persons who are their users and hearers, exceeds by far the number of copies or readers of the short-lived "successes." In all compartments of cultural creations there are such types of values.

Generally, various "successful" values have different curves of their life-career and life-duration. To one class belong the butterfly values, with an enormous and sudden success: they appear "instantane-

[93] This proposition means that, perhaps with very rare exceptions, a work which becomes a best-seller is a value of the lowest level of the values of that kind Otherwise, it could hardly become a best-seller that can be used and enjoyed by "everybody." A few exceptions, especially in the field of art, music, and fiction, possibly exist, when the simplicity and appeal of the work is the simplicity of a genius But that such exceptions are rare is demonstrated by the short life of the enormous majority of best-sellers. They arrive and spread and after a few months are "gone with the wind," for ever. In this sense, the fact that a work is a best-seller is a testimony of its primitive and elementary character For this reason, I rarely trouble myself with reading a best-seller its being such is a sufficient evidence of its commonplace nature.

ously," spread over a multitude of users, shine and glow for a short time and then, like a butterfly, fade as quickly as they flared up.[94] At the opposite pole of the successful values are those which spread slowly, sometimes for a long time appearing stationary; but, as time goes on, their spread continues, sometimes increasingly. As a result, their life-duration and life-career slowly rises and continues for a long time, with secondary and temporary fluctuations in success. Between these extreme types, there are a number of varieties of the "life-duration and life-career" of a value; some slowly spread for some time and then quickly decline; others spread rapidly but slowly decline; still others fluctuate, now coming into vogue, now declining, to become, after some time, successful again, after which a phase of decline again sets in, and so on.[95] The greatest values in the main fields of culture are practically immortal and live an indefinitely long time.

Such, in brief, is the first limitation of the discussed proposition. In fact, it is not an exception to the uniformity but a special detail of it that does not contradict but rather corroborates the rule.

[94] An enormous majority of the literary, scientific, artistic, philosophical, religious and other "successes" of our time seems to belong to this kind of values They have mostly an instantaneous success and spread, but within a relatively short period of time, they are gone and forgotten Most of the best-sellers in fiction, most of the successful texts in various scientific, philosophical and other disciplines, most of the "hits" in popular music, movie, theater and so on live hardly more than five or ten years Then they are forgotten and are replaced by other similar, best-sellers in the field Few of these live as long as a quarter of a century, and still fewer for half a century Such is their Nemesis. One wonders whether any of such "successes" of the last three decades will be remembered within a century This rapid turnover is one of the characteristics of our Sensate culture

[95] Examples of various careers of cultural values are given, for instance, by the careers of composers whose works were performed from 1875 to 1936 by the eight main orchestras in the United States. The survey shows, first, that there are six composers — Beethoven, Brahms, Mozart, Bach, Tschaikovsky and Wagner — who occupy the main place, that is, are performed most frequently in their main works, while all the other composers occupy more modest places Second, that the first place still belongs to Beethoven, though he slipped from some 25 per cent of all the performed works to some 10 per cent in 1936. In 1910, Wagner was the second, but at the present time he is down and the second place is taken by Brahms, with 8 per cent of the entire repertoire of these orchestras. Mozart's share shrank from 25 per cent to 6 per cent. Considerably neglected during the earlier decades, Bach's music is now rising in demand for the last decade. Wagner was rising up to 1910 and is slowly losing his share in the repertoire of these orchestras (though not in the Opera). Tschaikovsky was rising up to 1910 and declining after that period. Other composers, previously played much more, have been declining Most of the modern composers occupy very modest places. all the modern composers of England, Italy, and Scandinavian countries taken together are played less than one Beethoven. Other composers, like Dvořák and D'Indy, had two short rises (due to incidental conditions) but all in all, are almost forgotten. Liszt, Schumann, Schubert, Mendelssohn and many others have also been declining, while Gluck, Handel, Haydn

(2) The second qualification in the character of an exception to the uniformity is, as mentioned, the exceedingly rare case when *the simplicity coincides with the perfection of a genius in a given cultural value.* Such a value appeals to the "low-brow" as well as the "high-brow," to a simple man in the street as well as to the most prominent specialists in the field. Such exceptions are found once in a while and seemingly mainly in the field of art and ethical values. A few masterpieces of poetry and literature, like some portions of the *Bible, Mahabharata, Iliad* and *Odyssey, Eddas,* and other great epics; the poems and musical compositions enjoyed by the upper as well as the lower classes; by the nation of the creator as well as by different cultural groups outside it; likewise, some paintings and sculpture are examples of such exceptions in art.

The sublime ethical norms like those given in the Sermon on the Mount, comprehensible and appealing to the simple-minded as well as to the intellectuals, are the examples of such exceptions in the field of ethics. Similar exceptions are possibly found in the field of religion; if not in their dogmatic theology, then in their normal teaching and ritual; and in a few other fields of culture. However, these exceptions are very rare and in no way annul the prevalent rule of the uniformity discussed.

So much for this factor of success or unsuccess in the spread and diffusion of a cultural value.

B. *The Nature of the Culture of Penetration.* The second fundamental factor of such a success or failure is *the nature of the culture in which a value has to diffuse.* Other conditions being equal, *the more congenial to a given value the culture of its penetration and diffusion is, the greater the diffusion, the more chances it has for becoming a best-seller. Vice versa, the less congenial the culture of penetration is to the value, the less are its chances for a successful spread.* We assume here that the value is the same, but the cultures in which it has to make a career are different. The proposition is almost self-evident.

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have been keeping somewhat modest but stable positions, with some inklings of a slight rise. Finally, a number of composers like Raff, Lindpaintner, Rubinstein and others have practically disappeared from the repertoire in the later period. See J. H Mueller and K Hevner, "A Survey of Trends in Musical Taste," *New York Times,* February 27, 1939. These curves of the life-career of cultural values are similar in many respects to those in the achievements of individuals within their life span, of their popularity and fame See C. Buhler, *Der Menschliche Lebenslauf als psychologisches Problem* (Leipzig, 1933) *passim* and chap. v.

One can hardly expect a successful spread of the gospel of equality in a caste society, and of the gospel of caste inequality in a genuinely democratic society; of the gospel of Communism among the big bankers of a capitalist régime, and of the bankers' gospel among the Communists; of birth-control ideology among Catholics, and of Catholicism among atheists; of pro-British war propaganda among Germans or German-Americans, and of pro-German war propaganda among British or British-Americans.[96] Most of the Sensate ideologies cannot be successful in an Ideational culture, nor the Ideational values in a Sensate culture. Dante's *Divine Comedy,* if published for the first time now, would probably pass little noticed; on the other hand, Maupassant's or O'Neill's or Anatole France's creations would hardly be given a Nobel prize or become best-sellers in a medieval society.

A salesman of car-heaters or oil-burners would have little success in a society which does not have cars, or all the prerequisites necessary for using oil-burners; on the other hand, a salesman of saddles would go bankrupt in a culture which does not have horses. The same is true of

[96] This explains why, for instance, British war propaganda in the United States has been more successful than the German, in the war of 1914–1918 and in the war of 1939 The reason is not a better organization of British propaganda (if anything, it was more poorly organized than German) but the greater congeniality of the British than of the German culture to the American See the facts and analysis in W Millis, *Road to War* (New York, 1935); H. C Peterson, *Propaganda for War* (New York, 1919); H E Barnes, "When Last We Were Neutral," *American Mercury,* November, 1939, D Squires, *British Propaganda at Home and in the United States from 1914–1917* (Cambridge, 1935); H. D. Laswell, *Propaganda Technique in the World War* (London-New York, 1927).

The above also means that the great influence ascribed during recent years to propaganda as such, is enormously exaggerated. If the culture of penetration is inimical or uncongenial to the propaganda value, it will remain ineffective or little effective even if all the radios or papers dissipate it every twenty-four hours If the culture of penetration is congenial, then even poorly organized propaganda will exert some effect

Recent experimental studies well confirm these propositions. Typical are the findings of G. W. Hartmann and W Watson in their experimental study.

One group of 10 believers in a personal deity and one group of 10 atheists were asked to read and evaluate a series of arguments for and against the existence of a personal deity. Both groups were able to recognize the most telling points of their opponents and they remembered these points better than the arguments which they considered weak. The arguments which supported an individual's point of view, however, were better retained than those which were opposed to it.

An increased acquaintanceship with an opponent's philosophy, these investigators found, had no effect upon the subject's religious outlook.

The atheists remained atheistic and the theists retained their belief in the existence of God. The two groups were no nearer together after their new experience than they were at the start. (*Science Service* in *Boston Evening Transcript,* Nov. 7, 1939)

the sales of Palm Beach suits among the Arctic Eskimos, or heavy fur coats among the dwellers in the tropics. And so on, in regard to any kind of cultural values.

Though the proposition is almost self-evident, it needs a further analysis for elucidation of the terms congeniality and uncongeniality, used in the statement: *Which cultural values are congenial or uncongenial to one another?* The answer is given by the above analysis of the sociocultural system and congeries. Here again its importance comes to the surface. The cultural values that are consistent meaningfully (and expressively) or supplementary to one another (the case of co-ordinated systems), or that are connected by causal ties, or by both, are congenial to one another. The values that are either contradictory meaningfully or unrelated causally are either uncongenial or, at the best, indifferent to one another. In the case of contradiction, they become mutually antagonistic; in the case of a lack of such a contradiction (and also consistency) or of a causal connection, they become indifferent congeries to one another. Such is the answer to the question.

In terms of A. Ferguson, "They borrow often that which they are disposed to invent." This means that when a given system needs a new cultural value its borrowing serves often as a substitute for invention.[97] In the case of congeniality, the penetrating value easily spreads and roots itself in its new home either as its consistent supplement, or enters, in G. Tarde's terminology, into a lucky marriage with the values of the culture of penetration and gives a new invention or new synthesis or new substitution for the old value.[98]

In the case of a contradiction or non-congeniality, there becomes inevitable a struggle for existence between the penetrating value and the respective competitor value of the culture of penetration. In this struggle, the inroad of the penetrating value may be stopped entirely at the very beginning, if the competitive values of the penetrated culture happen to be stronger than the penetrating value. If they happen

[97] *Cf* R Maunier, "Invention et diffusion," quoted, p. 7.

[98] Practically all investigators of so-called "acculturation" of the primitive groups by European or other cultures stress this uniformity. Whether the new value is religious, ethical, organizational, economic, or what not, such a value diffuses successfully among the native cultures just for the reason of its similarity or congeniality with the respective values of the native culture Often it is merely a new dress for the old value of a given culture. See for this the summary of many works given in M. J. Herskovits, *Acculturation*, quoted, pp. 36–37, 38, 54, 65, 80–85.

On the other hand the investigators show that uncongenial values of the Western culture spread poorly, unless they are coercively imposed. *Ibid.*, p 39 See a good summary of the relevant facts in W I. Thomas, *Primitive Behavior*, quoted, pp. 726 ff.

to be weaker, the spread of the new value can take place only after its victory over and elimination of its competitor. Even in this case, such a struggle inhibits and slows up enormously the success of the spread of the penetrating value. Only after crushing its competitor can it diffuse unhindered.[99]

For the time being these comments are sufficient to make the proposition clear and its uniformity of a fairly general nature. It explains the success or failure in the spread of a great many cultural values, whether in their vertical or horizontal movement.

C. *Amount of Lines of Communication.* The third important factor is how many, of what kind, how long and swift and accessible are the lines of communication the spreading value has at its disposal. Other conditions being equal, the same value has the greater chance to become "a best-seller" the greater — quantitatively and qualitatively — the number of lines of communication it has. For this reason only, the values originating in the big metropolitan centers diffuse more widely and faster than the values which originate in the small towns or villages, and diffuse mainly along the lines of communication.[100] The same is true of the values of the upper and richer classes in comparison with those of the lower and poorer classes; of the values of less civilized compared with more civilized countries. This factor lies at the basis of the contemporary system of *advertising and propaganda.* Their function and aim consist in bringing the value — no matter of what

[99] See many interesting details in G Tarde's *Laws of Imitation,* quoted, chap. v In this work and also in his *La logique sociale* (Paris, 1895), *L'opposition universelle* (Paris, 1897), and *Social Laws* (Paris, 1898; English Translation, 1899), Tarde, with great insight and brilliancy, outlined many aspects of the problem discussed See further an excellent analysis of the problem in Hu Shih, "The Indianization of China, A Case Study in Cultural Borrowing," *Independence, Convergence and Borrowing* (Harvard University Press, 1937), pp 219–227; W I. Thomas, *op cit*, pp 726 ff

[100] Concrete examples of this are given in H Earl Pemberton's "Culture-Diffusion Gradients," *American Journal of Sociology,* September, 1936 His study of the diffusion of radio-ownership in the United States shows that the percentage of families with radios in the counties of a metropolitan region tends to follow regular downward gradients from the urban center to the limits of the region "The urban centers within any given major area are the points at which radio ownership is highest; the hinterlands of each region of metropolitan influence tend to be the areas in which the radio ownership is lowest; in the counties that lie between the center and the limit of the metropolitan region the percentages of the radio ownership tend to be in direct downward gradation from the urban centers. . Such diffusion gradients occur because the residents of each unit of a region of metropolitan influence have culture contacts with the urban center of diffusion in inverse ratio to the time-and-convenience distance from the city" *Ibid.,* p. 226. See also quoted articles of R V Bowers concerning the direction and spread of such value as "the hobby amateur radio."

kind — to the attention of the possible maximum of its users; in other words, in establishment of a line of communication between the value and a multitude of its consumers. We should not exaggerate their effects; as mentioned before, the success of any value depends upon many other conditions. But the factor discussed has its own effectiveness, especially if the nature of the value and the culture penetrated are not inimical to one another. Of two similar values in the same culture, the value broadcast by papers and radio, by mail and posters, and by other means of communication, has uniformly greater success than the value deprived of these means of communication. Not infrequently, a poorer value proves itself more successful than a similar but better value. This goes equally for commercial commodities, machines, novels, poetry, scientific ideas, philosophical systems, religious creeds, art-creations, and other cultural phenomena.

D. *Support by Force and Other Means.* The important role of force in the successful spread of a value has already been discussed. If to force we add such means as money (for advertising and obtaining the maximum lines of communication) for prizes and rewards, etc., use of prestige and authority of prominent men, organization of a legion of propagators of the new value, and hundreds of other technical means aimed at the support of the value and of its diffusion; then all that has been said about the role of force can be said, with a respective modification, about all these various means of backing and helping the dissipation of the value. They all have some effectiveness.

XI. Curves of the Spread of the Value

A widely accepted belief in the existence of a so-called "normal curve" of growth, of distribution, and of many other "normal curves" has led to a claim that in the matter of diffusion of the sociocultural values there also exists a "normal curve," valid and applicable for an indefinitely great number of diffusions of various cultural values. The example of such a claim is given by H. Earl Pemberton, in his study, "The Curve of Culture Diffusion Rate." [101] On the basis of his study of the rate of diffusion of the use of postage stamps by independent countries of Europe and America, of the rate of state adoption of constitutional or statutory limits upon the taxation rates of municipalities, and of the rate of adoption of compulsory school laws by the forty-eight states of the United States, he concludes that:

[101] *American Sociological Review*, August, 1936.

Within any given culture area the diffusion of a culture trait tends to occur at a rate which may be described by the cumulative curve of a normal frequency of distribution.[102]

It is to be noted that the belief in any kind of "normal curves" for different phenomena in different conditions is generally little founded, and represents, to a great extent, a statistical mythology. Still less can any kind of normal curve of diffusion rate for different cultural values, spreading in different conditions, be expected. The preceding analysis shows that in order for such a phenomenon to take place, among other conditions, the value must be the same, the culture penetrated, the lines of communication, and the backing by force and other means must be identical or essentially similar. Otherwise, no curve applicable to different cultural values diffusing in different conditions can exist, and none does exist. Instead, there exist a wide variety of different curves, beginning with zero-curve for the values that do not diffuse at all; passing through curves rapidly rising and rapidly falling; slowly rising and rapidly falling; slowly rising and remaining stationary for a long time; rapidly rising and slowly falling; slowing rising at the beginning, faster later on, and then fluctuating in most different fashions, for indefinitely long periods, and so on. The curves of spread of our "best-sellers," of Plato's works, of the Bible, and of all the "poorest sellers" are as different as the different curves may be. No "normal" or even "typical" curve for the spread of different cultural values or of even the same value in different cultural conditions is possible. Only by simplifying the situation — the units of spread, the time-units, and so on — can one get for some cases some S-curve or other; but even then the S-curve will be a different shape of S, so different that there are in fact several different S-curves only remotely resembling the normal S. Such a conclusion follows from the above analysis of the factors of diffusion. It is confirmed by our daily observation of the different rate, velocity, and success of diffusion of the best-sellers and the worst-sellers; of long-living and short-living processes of diffusion. It is also confirmed by a systematic study of the curves of diffusion of various cultural and biological phenomena.

If we take, first, the curves of growth and decline of such comparatively identical or similar bio-social phenomena as epidemics, even these curves show a wide variation from one another. The only similarity is that they somehow grow, and somehow decline; but the

[102] *Ibid.*, p. 547. See also F S Chapin, *Culture Change* (New York, 1928), where Chapin suggests that culture growth of the diffusion type tends to follow an S curve.

rate of growth, the rate of decline, the rate of intermediary fluctuations, all differ from epidemic to epidemic, from country to country. No "normal" curve exists there. And most frequency curves, namely monomodal frequency distribution curves, are fit only for some epidemics, and even there they vary from one another.[103] If now we compare these curves with that, say, of the diffusion of the Grange movement, measured either by the number of granges or by the membership, the difference appears still greater, and there is hardly any similarity except that they are some kind of curves.[104] Even the Grange curves for various regions notably differ from one another. If these curves are further compared, for instance, with those of the spread of the great empires (measured roughly by the territorial area over which they extended in each decade) such as the Maurya Empire in India, the diffusion of the Spanish conquest on the Western Hemisphere, the conquest of Genghis Khan, of Alexander the Great, of Tamerlane; these very rough curves differ from the preceding ones and from one another. Add to this the curves of the spread of the Reformation or Communism,[105] or the curve of diffusion of the institutions of higher learning.[106] When all these curves are compared they have only one common similarity, namely, they all are some kind of curve. Other than that, there is hardly any similarity, and there

[103] I am not giving here the data collected and analyzed for that purpose by C Arnold Anderson during his graduate study at Harvard. The data can be found in C. Creighton, *A History of Epidemics in Britain*, 2 vols (London, 1891–94) Compare, for instance, the curves of diffusion of death from the plagues of 1563, 1636, London plague of 1625, smallpox death in Norwich, 1819; London smallpox epidemics of the seventeenth, eighteenth and nineteenth centuries All these curves of diffusion or growth and decline of these epidemics notably differ from one another The same is still truer if these curves are compared with, say, the diffusion of influenza in various cities of the United States in 1918 (see W. H. Davis, "The Influenza Epidemic as Shown in the Weekly Health Index," *American Journal of Public Health* No 9, 1919, pp 50–61), or with the curves of diffusion of plague and cholera in various districts of India (See M. Greenwood, Jr., "On Some Factors Which Influence the Prevalence of Plague," *Journal of Hygiene*, Plague Supplement, 1911, II, Vol. I, chap 45), also Greenwood's "Factors That Determine the Rise, Spread, and Degree of Severity of Epidemic Diseases," *XVIIth International Congress of Medicine (1913)*, Sec 18, pp. 49–80.

[104] Again, for the sake of economy of space, I am not giving the actual data collected and the curves drawn and analyzed, but they are at my disposal, collected from the main works in this problem. See E. W Martin, *History of Grange Movement* (Philadelphia, 1913), S. J Buck, *The Grange Movement* (Harvard University Press, 1913); S J Buck, *The Agrarian Crusade* (New Haven, 1920), and many other works devoted to the local agrarian movements.

[105] Again I do not give the data at my disposal for the sake of economy of space.

[106] See the data in W Lunden, *The Dynamics of Higher Education* (Pittsburgh, 1939), part iii.

certainly is no "normal curve" of their growth, fluctuation, and decline, or their diffusion.

The convincing logical considerations as well as the factual tests do not give any basis for a belief in the existence of any "normal" or even typical curve of diffusion or diffusion rate for all cultural values in all circumstances. Such a "normal" curve is but a myth.

XII. Which Cultural Values Penetrate and Diffuse First: Material or Nonmaterial?

If we have two different cultures that come in touch with one another, which of the traits or values or systems of these cultures begin the penetration of the other culture first and which lag in this process? Is there any uniformity, and if there is, what is it? The main theories give quite opposite answers to the problem. One, represented by G. Tarde, assures us that all in all, the inner imitation in mind precedes an overt imitation in practice. Translated into the language of diffusion, this seemingly means: in order that any "material" value can diffuse, it has to be preceded by the diffusion of the "nonmaterial" desire to possess the material value. In accordance with this, he contends that the imitation-diffusion proceeds from within to without, from the inner meaning-value (or the thing signified) to its external shell or sign.

> Imitation . . . proceeds from the inner to the outer man. It seems at first sight as if a people or a class began to imitate another by copying its luxury and its fine arts before it became possessed of its tastes and literature, of its aims and ideas, in a word, of its spirit. Precisely the contrary, however, occurs. In the sixteenth century Spanish fashions of dress began to diffuse in France, because before that Spanish literature had already won its preeminence in France in the preceding century. In the seventeenth century French fashions began to diffuse over Europe, because before that French literature diffused there successfully. The desire to imitate a certain value must precede and usually does precede the overt diffusion of it.[107]

For this reason the ideas penetrate first, then the material vehicles and actions embody these ideas. The diffusion of religious dogmas precedes that of the ritual; the diffusion of ends that of their means; the diffusion of scientific and philosophical ideas that of their aesthetic and juridical realization; the spread of morals precedes that of manners; and so on.[108] The other theory claims an opposite uniformity.

[107] See G Tarde, *The Laws of Imitation*, pp 199 ff.

[108] *Ibid*, pp 200–208 ff.

According to it, the material ("civilizational," "societal") values uniformly penetrate first; the nonmaterial ("cultural," "ideological") lag. First penetrate radios, machine-guns, combs, lipsticks; or food, shelter, transportation, arms,[109] and so on; only then the "nonmaterial" values come, like religious beliefs or political ideas or scientific theories or moral norms and so on. First come the soldier and merchant and then the missionary and ideologist. As indicated above, the dichotomic theories of A. Coste, L. Weber, A. Weber, W. Ogburn, R. McIver, K. Marx, A. J. Toynbee, partly W. G. Sumner, A. G. Keller[110] and others,[111] set forth this claim (see above, Chapter Four).

Which of these opposite theories is valid? Neither one, in so far as it claims its uniformity to be general. First of all, as we have seen, the dichotomic division of cultural phenomena is untenable. Untenable also is this deduction from the false premise. Second, factually we can observe no general uniformity of either kind. These pseudo uniformities can be replaced by the following limited uniformities of a very different character.

A. *The kind of values that penetrate first depends, primarily, upon the kind of human agents that first come in contact with the other culture.* If they are merchants, as sometimes they are, then various commercial commodities penetrate first; if they are missionaries, as sometimes they are, then the "ideological values" penetrate first. If they are conquerors and soldiers, then partly material, partly nonmaterial values penetrate simultaneously. If they are students of philosophy or social science (say, Chinese in Western universities), then they bring back and spread the theories and ideologies they studied. If the students are theologians, or engineers, or business students, they dissipate their respective systems of values. And there is no uni-

[109] C Wissler, "Aboriginal Maize Culture," *American Journal of Sociology*, March, 1916, p 661.

[110] See A G. Keller, *Societal Evolution* (New York, 1931), pp 208, 218 ff A J Toynbee claims that the first to penetrate are economic; second, political, third, cultural traits A J Toynbee, *A Study of History* (Oxford University Press, 1934), Vol III, p 152, Vol IV, p 57

[111] See also J G. Leyburn, *Frontier Folkways* (Yale University Press, 1935). Leyburn also claims that in the frontier society, "The pioneer's first task being to exist, it is in the mores of economic maintenance that changes in the mores are first evidenced and most strongly marked," p 229, *et passim*. As though the economic maintenance and order can be organized without an establishment of law-order and ethico-religious norms that support it. Similar statements are made by several anthropologists who claim that technical and economic changes come first, and then others See a variety of such a theory in R Linton (ed), *Acculturation in Seven American Indian Tribes* (New York, 1940), pp. 485 ff

formity as to whether the business or engineering students always are sent first, and students of art, or philosophy, or political science, second.

However, in all these cases, we can talk only about the prevalence of the things that penetrate first. Factually, our merchant leaves in the other culture not only his merchandise but also something of his manners, mores, ideas, beliefs, and so on. Our missionary brings not only his creed, but simultaneously some medicine, often hospitals, knives, rifles, calico, and other material gifts. As to the army and conquerors, they bring and diffuse within the conquered population often the whole of their own culture, with all its material and immaterial values. Whether they were the Aryans in India; the Greeks of Alexander the Great in the Oriental countries; the Romans in the areas conquered; the Arabian conquerors in the subjugated societies; the Spaniards and the Pilgrims in America; the Europeans in their conquered colonies; they all brought and diffused simultaneously the material as well as nonmaterial values: weapons and religion; alcohol and language; merchandise and law-norms; food, knives, and the fashion of using rouge and lipsticks; the rules of elementary hygiene; the prohibition to use the knives or rifles for head-hunting; and so on. Likewise, the Chinese students bring back not only their specialty, but also the Western language, clothes, fashion of shaving or hair-cutting, and hundreds of other material and immaterial values. The situation is not very different in the cases when two societies with different cultures meet peacefully or semi-peacefully. In such cases again we observe that the values of material and nonmaterial character diffuse either simultaneously or nonsimultaneously; in some cases we have a prevalent diffusion of one kind of values, in other cases that of a different kind, without any general uniformity of either. The case of contact and diffusion of values between the Chinese and Western cultures is an example and evidence of that. For instance, "the incidence and sequence of social change in China does not appear to be from material technique to social ideologies. . . . The elements borrowed from Western culture have been (first) in the realm of social ideologies rather than of material technique."[112] In other cases, as

[112] R. T LaPiere and Cheng Wang, "The Incidence and Sequence of Social Change," *American Journal of Sociology*, November, 1931, p. 401 See the facts in the article See also Ching-Yueh Yen, "Crime in Relation to Social Change in China" *Ibid*, November, 1934. Often "fables precede commodities in the intercourse of peoples" states Masaharu Anesaki See his "East and West," in *Independence, Convergence, and Borrowing* (Harvard University Press, 1937), pp. 249 ff.

the studies of G. H. Danton and H. D. Lamson show,[113] in China there is a simultaneous spread — and in the towns as well as in villages — lipsticks, knives and other material things as well as a series of nonmaterial values of Western culture. On the other hand, a study of the newly arrived or recent immigrants to America from other countries, or any immigrant to any country with a different culture, shows that they take in simultaneously from the culture of immigration a series of material values (in the economic activities of earning their living), as well as a series of nonmaterial values, beginning with language, a few words of which they learn and have to learn as early as any other cultural trait they adopt.[114] To sum up, if in some cases there is an earlier penetration and prevalent diffusion of a certain kind of cultural values, it is conditioned, first, by the kind of the human agencies that first come in contact with a different culture. As there is no uniformity that always merchants, or always missionaries, or always explorers and soldiers penetrate the different culture first, there is no basis for a contention that always material rather than immaterial values penetrate first, or vice versa.[115]

[113] See the facts in G H Danton, *The Culture Contacts of the United States and China*, quoted, and the Ph D thesis of H. D Lamson, mentioned See also Lamson's "The Eurasian in Shanghai," quoted.

[114] The numerous facts of this kind are found in practically any serious study of immigration. See, for instance, the analysis of the Polish immigrants' disorganization in W I Thomas and F. Znaniecki, *The Polish Peasant in Europe and America* (New York, 1927), Vol II, pp 1646 ff. See there also the "Life-Record of an Immigrant," which in several points shows which of the cultural values of German and American culture the author adopted. See also W. C Smith, *Americans in the Making* (New York, 1939) chaps. IV–XVIII; F. J. Brown and J. S Roucek, *Our Racial and National Minorities* (New York, 1937); C. M. Panunzio, *The Soul of an Immigrant* (New York, 1921). See the literature in Smith's work and also in R. Park and E Burgess, *Introduction to the Science of Sociology* (Chicago, 1924), pp. 769 ff. See also E. A. Ross, *The Old World in the New* (New York, 1914).

[115] Many an anthropological work corrobates this conclusion. They show that there is no uniformity in this respect. E C. Parsons shows that in the Zapotecan town Mitla, there were taken from the Spanish culture not only tiled roofs, and other technical features, but also wedding rites and Catholic religious elements, and "that changes in social organization and in material culture are made more readily than changes in personal behavior" E. C. Parsons, *Mitla, Town of the Souls* (Chicago, 1936), p 536, *et passim* R. Redfield tells us that in a Mexican village "the material culture of Tepoztlan, in contrast to the nonmaterial culture, preserves unmodified a large number of pre-Columbian traits," which means that the European nonmaterial culture penetrated more successfully than the material culture. R. Redfield, *Tepoztlan, a Mexican Village* (Chicago, 1930), p 31.

I. Schapera clearly points out that the kind of European cultural values that penetrated the culture of a South African tribe, Kxatla, depended upon the type of Euro-

B. The second uniformity of limited character in this field can be formulated as follows: *Ceteris paribus, when two cultures A and B come in contact, those values of A which are more congenial to the culture B tend to penetrate earlier than the values which are uncongenial to the culture B* (*and vice versa*). More specifically, considering that any total culture is a congeries of systems and of single congeries, the systems and congeries of culture A which are congenial (meaningfully and causally) to the respective systems and congeries of B first pass into culture B; and each of these congeries or systems penetrates earlier exactly the most congenial congeries or system of the other culture. If the religious beliefs of the culture A are more congenial to those of culture B, than, for instance, the political or economic systems of A to those of B, then the religious beliefs of A would penetrate B earlier and more successfully (as we have seen) than the economic or political system. And these religious beliefs of A would penetrate first, as a rule, the religious but not economic or political systems of B. If the military organization of A is more congenial to B than the religious

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peans and their aims. The missionaries "seek essentially to convert the heathen native to Christianity. In pursuit of this policy (they) seek to introduce a new system of morals and general behavior conforming to Christian ideals, and . . . further undertake the secondary task of promoting the general social and material advancement of the people The Administration is concerned primarily with the maintenance of law and order (and taxes). The trader . . . is there to exploit the natives for his own economic benefit and attempts to develop a good market." Respectively all three kinds of the values of European culture were diffused among the tribe. See I Schapera, "The Contributions of Western Civilization to Modern Kxatla Culture," *Transactions of the Royal Society of S. Africa*, Vol XXIV, part iii, pp. 221–252 A. I. Hallowell and F Eggan show that the change in social organization and religion in the native culture, under the contact of the European, comes as early and can be as deep as the change in economic and technological aspects of such a culture. See A. I Hallowell, "Recent Changes in the Kinship Terminology of the St. Francis Abenaki," *Atti de XXII Congr. Intern degli Americanisti* (Rome, 1928), pp. 97–145; F. Eggan, "Historical Changes in the Choctaw Kinship System," *American Anthropologist* (Vol. XXXIX, 1937), pp. 34–52 See also R Linton, editor, *Acculturation in Seven American Indian Tribes* (New York, 1940) Here, contrary to the generalization of the editor, in a number of cases we see also a nonuniform penetration of now the material, now the nonmaterial traits. A series of studies of acculturation among Louisiana French, Canadian French, among the population and castes of India and other peoples display a similar picture: in the fusion of the cultural traits of the interacting groups are exchanged material and nonmaterial traits, without any uniformity of one of these classes of traits penetrating first or earlier than the second See T. Lynn Smith and V. J. Parenton, "Acculturation among the Louisiana French"; H. Miner, "Changes in Rural French-Canadian Culture," *American Journal of Sociology*, November, 1938, pp. 355–378. The same is true in regard to the vertical movement of the values. A valet imitates his master not only in the economic and material traits but as much in manners, speech, beliefs, tastes and so on. So do lower classes in regard to the upper, and vice versa.

system of A, then the military organization of A would tend to be adopted by B earlier than the beliefs of A.[116]

The uniformity is a mere application of the proposition discussed before, when we considered the problem of the cultural best-sellers. Therefore, there is no need to dwell upon it at any length. The facts of history well support it. The cases of the penetration and enormous diffusion of the great religious systems, such as Buddhism, Jainism, Christianity, even Mohammedanism, are mainly the cases in which each of these religious systems invaded and penetrated many different cultures first and more successfully, sometimes leaving intact economic and many other systems of the penetrated cultures.[117] The cases of the enormous spread of certain political creeds or systems, like Parliamentarism, Democracy, Communism, Fascism and so on, are again cases where these systems seem to be more congenial to the cultures in which they spread than to several other systems of these cultures left intact by the penetration of these ideologies. The successful penetration and diffusion of the Western technique and forms of economic and military organization for the last century, and especially the last few decades, are cases where the economic or military or technical systems of the Western and other cultures that adopted these Western systems happened to be more congenial. They were adopted while other systems and congeries of Western culture were not.[118] In the seventeenth and eighteenth centuries, from the total Chinese culture which penetrated the Western culture (together with a few other values) came the Chinese pattern of gardening and some other values that later on were called Romantic.[119]

[116] For instance, the Turks (Ottomans) borrowed the firearms technique from Western culture, the Romans borrowed the Oriental "cataphract" military technique; Japan the Western military technique; and so on.

[117] See an excellent analysis of the penetration and diffusion of Buddhism in China in Hu Shih's "The Indianization of China," quoted. See the histories of diffusion of the great world religions. Script of the Syriac culture and art style of the Hellenic culture penetrated the Hindu culture as early as any of the material values of these cultures. For other facts see Albright's and Latourette's works quoted.

[118] "There are in the East some phases of its spiritual heritage which would not admit a wholesale acceptance of (the Western) Scientific culture in its present form," testifies M. Anesaki. "East and West," quoted, pp 249 ff See in the same volume the quoted studies of L. Wenger, R. Maunier, L Ginsberg, C H Dodd, Hu Shih, for corroboration of the proposition in the diffusion of the Roman Law, of French Law, of Jewish folklore, of Hellenism and Christianity, and of Buddhism.

[119] See A. Lovejoy, "The First Gothic Revival and the Return to Nature," *Modern Language Notes*, November, 1932; and Lovejoy, "The Chinese Origin of Romanticism," *The Journal of English and Germanic Philology*, 1933, pp 1–20.

In the light of this proposition, there is neither logical nor factual ground for either one of the two uniformities claimed by Tarde and the dichotomists. If anything, Tarde's statement that "imitation proceeds from the inner to the outer man," is a more general rule in the process of imitation properly than the opposite rule of the dichotomists. But a penetration and diffusion of cultural value is not limited to imitation: some of the values are imposed, some others penetrate before the population has even an idea of these values. Such values penetrate often not because the population want them, but they begin to want them because they have come in contact with them or because they are imposed. In all such cases, the nature of the values is very different. Therefore, one cannot claim that in penetration of the values the inner desire to have them precedes the outer acceptance of them. Our two propositions seem to meet the test much better and are more adequate than the criticized ones.

XIII. Conclusion

The above sums up the main limited and approximate, but real, uniformities in the field of spatial displacement, mobility, circulation, and diffusion of cultural phenomena. It shows that some general rules exist there. Under special conditions most of them admit deflections and deviations from these uniformities, as under special conditions any uniformity — even physicochemical — shows such deviations. But properly interpreted, these deviations are special cases of the rule and not its exceptions.

The above also shows that even in this simplest form of the change of sociocultural phenomena in social space, we cannot either grasp or understand the essential uniformities without a systematic distinction between the sociocultural systems and congeries, and without an adequate conception of the total culture of any population as a conglomeration of systems, supersystems, co-ordinated systems, and congeries of systems and of single elements. As we pass to a study of more complex forms of cultural change in time, the importance of this distinction will grow.

Chapter Six

TIME UNIFORMITIES: SYNCHRONICITY AND TEMPORAL ORDER IN SOCIOCULTURAL CHANGE

I. The Main Problems

The preceding chapter dealt with the uniformities in migration, multiplication and diffusion of sociocultural phenomena in social space. Time aspect has been intentionally ignored, to a great extent, in such a study, as it is ignored by mechanics in its study of the displacement and transposition of material bodies in physical space. Now we turn to an investigation of the much more complex problem of the *time uniformities* in sociocultural change.

Are there any uniformities in the time aspect of change of culture? If so, what are they? The first group of the time uniformities claimed by various theories concerns the *time synchronicity or uniform time sequence (or nonsynchronicity)* of the change of various sociocultural phenomena. The second group of time uniformities deals with the *phenomena of rhythms, tempos, periodicity or nonperiodicity, acceleration and retardation* of various sociocultural processes. In this chapter we shall deal with the first set of the uniformities.

II. Theories of Synchronicity and Nonsynchronicity of Culture Change

In this field we have the following four rival theories: (1) *all varieties of sociocultural phenomena change synchronously in time;* (2) *different classes or systems of sociocultural phenomena change nonsynchronously but uniformly, certain classes always leading in the change (being first and earliest in time) while the others lag in a certain — again uniform — order;* (3) *all classes of sociocultural phenomena change nonsynchronously and nonuniformly displaying no order but a most fanciful variation in their sequence;* (4) *some classes of sociocultural phenomena change synchronously; some nonsynchronously but uniformly, in the order of the change; some do not show any time uniformity, either as synchronous or nonsynchronous in change.*

A. *Theories of Synchronicity.* As mentioned before (see Chapter Two, Section eleven) the validity or invalidity of any theory of synchronicity, and, by implication, also of nonsynchronicity, cannot be decided upon before we agree as to the meaning of the synchronicity claimed. In order that a change of two or more cultural variables shall be synchronous, we have to know the length of time within which they have to change. Is it in watch time: a second — minute — hour — month — year? Or ten years? A hundred years? Five hundred years? Or what? If it is a week, then why not fifty years? Is not each of these units of time as arbitrary as the other? If two processes changing together within, say, one year, or five, are regarded as synchronous, then why should not two processes changing together within twenty or fifty years be regarded as nonsynchronous?

The question raised discloses at once the first logical weakness of the theories of synchronicity or nonsynchronicity. Most of them, and especially those that operate with the change of comparatively vast classes of sociocultural phenomena, rarely raise the problem of the time-unit as a criterion of synchronicity. Without clearing this up, the whole theory becomes void. From the standpoint of such a time-unit as a second, or an hour, or even one day, most of the sociocultural changes will appear nonsynchronous. From the standpoint of such a time-unit of synchronicity as a thousand or five hundred years, almost all sociocultural processes will be synchronous in their change. *A failure to specify the time-unit of synchronicity makes meaningless all the theories of synchronicity or nonsynchronicity that do not do that.* And most of them don't. Therefore the very dispute as to whether all or certain sociocultural phenomena change synchronously becomes superfluous. This means that the real point is not synchronicity or nonsynchronicity of change, *per se,* but an accurate knowledge of the time length within which given social and cultural processes change. When such data are given, it is unessential whether the processes involved are styled synchronous or not. What is important is that "the processes A and B and C" all change within, say, five weeks, or five years, or fifty, or two hundred years. That is all that is important. The cognitive value consists not in a meaningless statement that they change synchronously or nonsynchronously, but in the statement that they change within such and such definite periods of time.

From this standpoint, the data given in the preceding volumes of this work, which operate mostly with such units of time as twenty, twenty-five, fifty, one hundred, two-hundred-year periods, within which

the major currents of the sociocultural processes studied change together, are definite, and have at least as much value, as the data that prove a change of the processes A, B, C, — say, the number of bank failures, of suicides, of crimes against property — within the period of three months or even less time.[1]

In addition, all the theories of synchronicity, especially in many statistical studies of the fluctuation in time of two or more variables, operate with mechanical "clock time." What appears to be equally durable, or more or less synchronous, in terms of the units of this time, is assumed to have the same duration, tempo, or synchronicity. What appears to be different in terms of the units of clock time, appears to have different duration, tempo, or to be nonsynchronous. Elsewhere it will be pointed out that such a measurement either of duration, or tempo, or synchronicity, is often inadequate and misleading. When the nature of social time is considered in all its manifoldness, the results are often very different from those obtained through use of the mechanical clock time.[2]

[1] In the light of this, all the naïveté of the following criticism must be clear. "A historian knows too much of the throbbing life of mankind to throw centuries into a heap, like friend Sorokin. . . . Why, the meshes of his net are spread so wide that all that counts in history slips right through it" Alexander Goldenweiser "Sociologos," *Journal of Social Philosophy*, July, 1938, p 353 In contradistinction to most of the above meaningless theories of undefined synchronicity or nonsynchronicity (including many such statements of Alexander Goldenweiser himself). "In all of my series of the historical data — wars, revolutions, pictures, sculptures, thinkers, inventions and discoveries, law codes, social relationships, etc., most of them are dated exactly by the year of the event, when the exact dates are known, when they are unknown, they are dated either by the decade or the quarter-century in which the event happened. There is therefore no ground for accusing me of merely 'throwing centuries in a heap.' Is it further any logical fault, in that these data are summarized by 20, 25, 50 and 100 year periods? There is none. Everything depends upon what kind of trends and fluctuations are studied, whether they be short-time or long-time movements. There is no logical reason which prescribes the use of one-minute, or one-day, or one-year or one-hundred-thousand-million-year periods. As a matter of fact, astrophysicists use billion and quintilhon-year periods; the megaparsec used by them means 3.26×10^6 light years; few thousand million years is another of their routine time units. (See Harlow Shapley, "On the Lifetime of a Galaxy," *Time and Its Mysteries* (New York University Press, 1936), pp. 47–53) Biologists and paleontologists deal with one-hundred-thousand-year periods; archeologists operate with the time intervals of centuries and thousands of years" And so on. "The most humorous aspect of this accusation, however, is the fact that it is set forth by an anthropologist whose little scraps of facts are, as a rule, quite dateless and timeless" P. Sorokin, "Pseudo-Sociologos," *ibid.*, pp 362–63.

[2] See P. Sorokin and R Merton, "Social Time," *American Journal of Sociology*, March, 1937 Also the enlightening comments of G. Devereux and M. F Ashley-Montagu, *ibid*, May, 1938, and September, 1938. See especially my forthcoming volume *Sociocultural Causality, Space, Time.*

These considerations are sufficient to dispose of the theories of synchronicity as such, not because they are invalid or valid, but because they are meaningless and superfluous.[3]

III. Theories of Nonsynchronous Uniform Sequences in Sociocultural Change. Sociocultural Lag Theories

The above criticism does not concern the theories that claim the existence of certain uniformities in nonsynchronous sociocultural change. In various forms they contend that certain classes of sociocultural phenomena uniformly tend to change first (in time) while other classes uniformly lag (in time) in a certain order. The first are uniformly leaders, or setters of the pace; the second, followers. Since the central point of such theories is not synchronicity, not even the length of clock time within which they change synchronously or not, but the *relative order of change in time* (no matter what the time interval that separates the leaders from the lagging processes), the above considerations do not invalidate them.

Theories of this kind were set forth long ago and have at the present time several varieties. The main ones probably are typified: (*a*) by the theory of E. De Roberty; (*b*) by Marx, and, in America, by the

[3] In Chapter Two an ambiguity of the term, "change together" was pointed out. It may mean a pure time synchronicity of change of various processes within a certain unit of clock time, in which change the respective processes are not bound by any causal or meaningful ties and are mere unrelated congeries to one another. And it may mean a change of the processes bound together by meaningful or causal or both ties, that are parts of one system. For such a "togetherness of change" the synchronicity or nonsynchronicity of change in clock time is irrelevant *per se*. This important distinction has to be remembered in order to avoid a common and grave blunder of identifying mere time synchronicity with causal or meaningful relationship.

This answers again criticisms like A. Goldenweiser's that I have dealt with too long periods in the preceding volumes and, in spite of that, insisted upon the togetherness of change of painting, sculpture, music, science, systems of truth, etc., though some of these variables changed fifty or even one hundred years after the others. The analysis given in Chapter Two is sufficient to explain that a number of variables can change together, as parts of the same meaningful-causal system, though the change is not synchronous if a too short unit of clock time is taken. And vice versa, the variables can change in the same minute or hour, and yet, be perfect congeries to one another, not bound by any causal-meaningful ties. In my study I have been inquiring primarily as to whether my variables are parts of a system — and in regard to most of them the result has been affirmative — and secondarily, how long is the time unit in which they change together in time.

Both answers are given, and both are free from the above meaninglessness and blunders of the current theories of synchronicity or nonsynchronicity of change of various cultural phenomena.

theories of Ogburn, Chapin, Veblen, and others; (*c*) by those of F. Bacon, A. Coste, A. Weber, and R. McIver; (*d*) by some other theories (geographic, biological, demographic, religious, etc.), partly considered before (Volume One, Chapters Five and Six). However different these theories are in other respects, they all are similar in the contention that there is a uniform time sequence of the change of certain classes of sociocultural phenomena.

We shall begin our analysis with the theory of De Roberty.

According to De Roberty, the sociocultural phenomenon in its pure form[4] consists of the social thought in one of its four main forms: analytical or scientific thought (science); synthesizing or philosophico-religious thought (philosophy and religion); symbolic or aesthetic thought (art); practical or applied thought, representing a rational application of the results of the preceding forms of thought for the realization of a certain practical aim desired (all technology, as an application of the data of science; all practical agronomy, medicine, hygiene, rational or scientific ethics, politics, and so on). Of these main forms of sociocultural thought, each preceding form determines *logically* each succeeding one: science determines and conditions philosophy and religion; these determine art; all three, the practical rational thought. Since any religious and philosophical thought represents a synthesis of the results of the analytical thought (science), for this reason the former is conditioned by, and depends, on a logical plane, upon the latter. The same is true of art in regard to the preceding philosophical and scientific thought. Factually or causally (in the time order) this logical sequence often — but not invariably — follows in the historical sociocultural change. Not invariably, because of the interference of various cosmic and biological factors which, in the concrete historical reality, disturb the logical order and sometimes break the above sequences. Nevertheless, even historically — in time sequence — the logical order is the rule while its violation is the exception.[5] Such is the gist of this theory of uniformity of lag and lead

[4] Any concrete historical event and process is not always a pure sociocultural phenomenon but a mixed cosmo-bio-social fact, in which cosmic and biological forces are always present as conditioning factors, side by side with the sociocultural phenomena So one should not mix the concrete historical processes and the category of the pure sociocultural phenomena which is only one — the major — element in historical phenomena

[5] Here De Roberty's logical order and factual sequence of these classes of social phenomena stand to one another in a relationship somewhat similar to Aristotle's relationship of the final and efficient cause. The final cause on the logical plane is always the first, while in the factual order of time it is not always such.

in sociocultural change.[6] As one can easily see, its order is opposite to that of the theory of Karl Marx. In Marxian theory, technique and technology change first, logically and factually; and scientific, religious, ethical aesthetic "ideologies" lag and change last. In De Roberty's theory, technological thought and technology is but one of the forms of the applied thought. As such it is the last in his series and changes (logically and factually) after the change has taken place in the analytic, synthesizing, and aesthetic thought that conditions the technological thought.[7]

What should be said of the validity of such a theory? If we define the pure sociocultural phenomena in the terms of thought and its main forms in the fourfold classification of De Roberty; and if we take it in its pure meaningful nature, then the classification and the order of lag of De Roberty can scarcely be seriously objected to. It seems to be logically consistent by definition. If, however, we ask whether this logical sequence is uniformly followed in actual historical change, the situation is different. As De Roberty himself admits, there are exceptions, due to the fact that any historical process is a mixture of the cosmic, biological, and sociocultural processes and forces. The interference of the cosmic and biological processes may smash this order and replace it by different ones.

For logical and factual reasons, we probably shall expand the portion of the exceptions admitted by De Roberty himself to such an extent as to make certain that his logical sequence operates historically only in a portion of the sociocultural changes, and by no means in all changes. At the best, historically, *it is a partial and not universal uniformity.*

Logical reasons for such a conclusion are as follows: In order that the logical sequence of De Roberty can become factual, the following conditions must be present: (1) Man and society must be *perfectly rational,* consistent, and logical, starting always with analytical thought, without any preconceived synthesis and bias; accepting, without any deviation, any achievement of the analytic (scientific) thought; deducing logically its bearings upon the religio-philosophical, then the aesthetic, then the practical thought, and infallibly realizing the logical consequences of each preceding form of thought in each subsequent

[6] See the details in my *Contemporary Sociological Theories,* pp. 438 ff. Of the numerous works of E. De Roberty, see especially his *Nouveau programme de sociologie* (Paris, 1904); *Sociologie de l'action* (Paris, 1908).

[7] See De Roberty's interesting paper on the relationship between his and Marxian theories in the *Annales de l'institut international de sociologie,* Vol. VIII.

one. (2) All these forms of thought and their compartments, down to the last detail, must be perfectly integrated, must have perfect "conductivity" from one another, and must not have any margin of autonomy within which they can change without disturbing the other compartments of the sociocultural system. (3) Analytic or scientific thought is assumed to be competent to pass judgment upon supersensory phenomena — such as God, and so on — dealt with by the religio-philosophical thought, which assumption means the admission of a possibility of "scientific" and "unscientific" religion and philosophy. (4) Likewise, we have to assume that any change in scientific and religio-philosophical thought unfailingly affects the phenomena of art, and leads to "scientific" and "unscientific" art. (5) The same has to be assumed in regard to practical thought, in its relationship to the preceding forms of thought. (6) It is necessary further to contend that any change and discovery always begins with the analytical thought and never with the synthesizing or aesthetic or practical thought. This means that no broad religious and philosophical generalization (valid or not) can precede a narrow and specific discovery of the scientific thought; no change in the forms, styles, and content of art can occur before, or independently from, the change in the preceding forms of thought; and the same follows in regard to the applied thought.[8] Finally, such a theory can hardly admit the existence of any Ideational culture-mentality which, as we have seen, in accordance with its major premises, is insensitive to the analytical thought in the sense of the science of empirical phenomena. For such an Ideational mentality, almost all the realm of strictly scientific thought is superfluous, and therefore cannot influence it strongly, even with all its discoveries concerning the empirical reality.

Only with these assumptions can we expect the logical sequence of De Roberty to become factual or historical. If man and society are not entirely logical and rational creatures, they are bound to be often illogical and nonlogical. As such, they may easily fail to grasp, to appreciate, to accept, a new achievement of each preceding form of thought; to deduce logically all the consequences; to carry them into the subsequent form of thought, and to apply them there. Their irrationality, emotions, passions, biases, "prejudices and superstitions," may force them often to reject, instead of accept, a new discovery in

[8] Also there cannot be any retroactive influence of the succeeding form of thought upon the preceding one, especially in the sense of suppressing or eliminating an achievement there and making it ineffective.

scientific thought; or to disfigure it, suppress it, or to draw quite illogical consequences from it; and so on. Under such circumstances, the logical order of De Roberty cannot be carried through and has to give place to a different one. If it is faulty to assume that man and society are completely illogical and irrational, no less fallacious is the assumption that they are perfectly rational and logical. With all its exaggeration, Pareto's theory makes the last assumption impossible. Hence, the inevitable deviation of the historical from the logical order of De Roberty in many sociocultural changes.

The second assumption: that all sociocultural phenomena are perfectly integrated; that there are no congeries; that none of the compartments of culture of De Roberty's four forms of thought has any leeway of autonomy in which changes can occur without influencing tangibly the other compartments — these assumptions are also fallacious factually. The real "conductivity" from compartment to compartment is much less sensitive and straight than the theory of De Roberty assumes. Therefore, due to the presence of congeries; of imperfectly integrated systems; of marginal autonomy, which any system or subsystem has, the real sequence of the change is bound to be often different from the logical one.

Likewise, the third assumption is also questionable. If, by analytical or scientific thought, we mean what is meant by contemporary science and its logico-empirical system of truth, then analytical or scientific thought is incapable of passing any judgment on any theory concerning the supersensory or transcendental world; the nature of God, of the soul, of sin, of ultimate reality, — in brief, the world with which religious and philosophical thought deals. The competence of science is limited to the sensory — empirical — world. Beyond that, *as science,* or analytical thought, it cannot go; *as science,* it can say nothing of God, angels, devils, salvation of the soul, and the like. Therefore, the religious and partly philosophical thought remains essentially independent of the empirical truth of science and its discoveries, so far as their realm of the supersensory or ultimate and true reality is concerned (see further, Chapter Sixteen). Since they are independent (at least, to a considerable degree), not every change in analytical thought influences them; and vice versa, by virture of their immanent change (see further, Chapters Twelve and Thirteen), they can change by themselves, without any preceding change in scientific thought. This will lead again to a deviation of the actual sequence of change from the postulated logical one. The same must be said of the as-

sumptions 4, 5, 6, 7 and 8. They are also neither logically nor factually always true. It is rather naïve to talk of "scientific" or "unscientific" religion and art. Many of their essential traits are outside of such categories. The Gothic or the Baroque styles are neither scientific nor unscientific. Neither is Dante nor Homer; nor Hindu, Taoist, Judaist, nor the Christian idea of God and ultimate reality. Nor are men's practical preferences of chocolate to vanilla ice cream; of blondes to brunettes; of sunrise to sunset; of traveling by car, to going by horse or airplane; or vice versa.

Likewise, we hardly have any firm ground on which to base the claim that the sequence of discoveries is invariably such that a specific and narrow discovery always precedes any broad — religious or philosophical — generalization. The actual reality shows that the broad principles of the world religions (whether Hinduism, Buddhism, Judaism, Jainism, Taoism, Confucianism, Christianity, or Mohammedanism) as well as those of metaphysical and philosophical thought (be it the philosophy of the *Upanishads* and *Vedas;* or that of Pythagoras, Plato, Aristotle, Protagoras, Democritus, Zeno; or that of Plotinus, St. Augustine, and others) were made long ago, before thousands of scientific discoveries were made. And they still remain alive, and have millions of adherents, in spite of an enormous number of scientific discoveries made since.

Daily observation teaches us that the retroactive influence of the subsequent forms of thought upon the preceding ones is a normal phenomenon. Communist or Fascist or Liberal philosophies have suppressed or disfigured many a scientific theory unfavorable to them. Galileo's case is, in a way, a symbol of such phenomena. Many a scientific discovery and invention born prematurely, in a culture too heterogeneous to it, dies out, to be rediscovered, sometimes several centuries later, in a culture with religio-philosophical, aesthetic and practical thoughts more congenial. Generally, in the sociocultural processes, the interdependence of most of the variables is two-sided rather than one-sided.

These logical considerations lead us to expect that the actual order of change would be, and indeed often is, quite different from the logical one in De Roberty's theory.

A slight empirical test of the factual change corroborates this conclusion. As an example, let us take the actual change of De Roberty's forms of thought: analytical or scientific always has to change first; and the applied changes last. From the preceding volumes we can

take two series: the movement of scientific discoveries (as analytical thought) and technological inventions (as applied thought); the movement of the discoveries in biology (theoretical science) and in medicine (applied biology).

Let the reader take from this standpoint, for instance, the Table No. 6, Volume Two, page 136, which gives by ten-year periods the number of discoveries and inventions from 1401 to 1900. Here we see that, for instance, for the period 1401 to 1430 there is no scientific discovery registered. And yet, the same period gives three technological inventions for 1401–10; four for 1411–20; and two for 1421–30.

Similarly, for the subsequent periods of ten years, the parallelism of the movement of the number of discoveries and inventions is not perfect. Now science leads in number; now technology; likewise, the increase from each decade to another in one — say, discoveries — is not always followed by a similar movement in the other, either for the same decade or, as in the case of technology, by lagging, according to the theory, one or two or three decades later. In all the important trends, both variables go together, fairly parallel, but there is no sign that science invariably leads and technology lags.

Similar is the situation with the movement of the discoveries in biology (analytical thought) and medicine (its applied thought). (See the curves and the data on biology and medicine in Volume Two, Tables Nos. 5 and 8, pages 134–35, 139, 148 and others.) Judging by the movement of the number of the discoveries in both fields, there is no possibility of claiming that biology leads and medicine, with a lag, follows.

It is true that the movement of the number of the discoveries in scientific and applied fields is not necessarily an adequate barometer for testing the theory. One scientific discovery may lead to a dozen practical inventions, while another leads to one only. What is important is that all the electrical inventions could take place only after Faraday's discovery of electrical induction. Many a practical medical discovery in the field of fighting infectious diseases could be made only after the discovery of the micro-organisms and bacteria that cause the illness. No radio inventions could take place before the discovery of radio itself and its properties; and so on. In such an argument, De Roberty would be right in a sense that his logical order would remain valid (except for the cases of unconscious and incidental inventions). However, from the standpoint of the actual time sequence, he is not necessarily right. The point is that actually many a technical

or applied invention has been made without a proper knowledge of all the theoretical (analytical) properties involved in the class of the phenomena invented.

The Egyptians and the Babylonians knew how to build enormous structures and how to solve practical difficult problems before algebra, geometry, and mechanics were established. Hannon encircled Africa; Himilcon discovered Great Britain; Columbus, Vasco da Gama, and Magellan crossed the Atlantic, the Indian, and the Pacific Oceans before Copernicus, Kepler, and Newton founded astronomy. The practical art of navigation preceded the science of astronomy as the "social" inventors preceded the "ideological" ones. In the same way, agriculture, cattle breeding, medicine, and surgery did not wait until biology was founded by Bichat and Claude Bernard. Jenner made his discovery of vaccination in 1776 — a century before Pasteur's microbiology found its explanation.[9]

They made music before they knew any theory of it. They could heal many an illness without knowing much of human biology. In other words, in concrete historical reality, the technical invention *ad hoc*, without a knowledge of all the scientific principles involved, often preceded an adequate theoretical (analytical) knowledge of the respective phenomena. Practically, if without Faraday's discovery, Edison's or Jablochkoff's inventions were impossible, their inventions have, in their turn, greatly increased the theoretical knowledge of electricity. So with discovery and inventions of radio. And so with many other scientific discoveries and technical or applied inventions. In this empirical reality, both variables all the time interact with one another. Sometimes an inventor precedes the theoretical scientist; sometimes the scientist precedes the inventor; sometimes, both are incarnated in the same person. Logically, yes, even the inventor has to *know* the specific properties of the thing invented. But practically, he invents the things without a theoretical knowledge of the principles involved. So far as De Roberty himself contrasts the analytical thought with the practical, the inventor is the bearer of a practical thought rather than an analytical one. Since many an invention appeared before the discovery of the general principles of the respective phenomena, the factual sequence of the analytical and practical thought has not been uniformly one-sided as De Roberty may claim. As a rule, both have been in the process of mutual interaction and therefore, now one, now the other occurred first in the time sequence.

[9] A Coste. *L'expérience des peuples et les prévisions qu'elle autorise* (Paris, 1900), pp 6 ff.

If De Roberty were not confronting the analytical with the practical thought, such an argument would be beside the point. Since he makes the confrontation, the actual facts do not support it in its alleged general uniformity.

If from this factual test we turn to the test of the lagging, for instance, of philosophical thought after scientific, of aesthetic thought after both, the results support the uniformity of De Roberty's theory in only a portion of the change. It is probable that a profound revolution in the basic principles of scientific thought influences, to some extent, the status of the religious and philosophical thought; a revolution in both of these forms of thought affects the status of the aesthetic thought and art-phenomena. But this can occur only if all these compartments of thought are a part of one integrated form of culture, and if the conductivity from one of its sectors to another is perfect. In cultural congeries, the influence may not take place or may assume other, and probably nonlogical and inconsistent, forms. Even when all these forms are integrated into one system, it does not follow that *any* change in any of these compartments necessarily must affect the other compartments: the principle of marginal autonomy of any system or subsystem contradicts such an assumption. It also does not follow that the order of the change must necessarily be uniform, always starting with science, then passing to philosophy and religion, then to art. Even concrete organisms of the same species, say azaleas, have a varying order of opening their flowers and leaves in the spring: some azaleas open their flowers first and then leaves; others follow a reverse order. Some human babies begin first to walk, then to talk; others follow a reverse order. Why must much more discrete sociocultural systems — as a rule never perfectly integrated — necessarily have De Roberty's invariable uniformity in the order of their change? As a matter of fact, in Volume Two it has been shown that, for instance, the ups and downs of the rival first principles (idealism-materialism, eternalism-temporalism, rationalism-empiricism, and so on) have had many secondary fluctuations while during the same period the trend of scientific discoveries remained the same, neither increasing or decreasing. We have also seen that the change did not always start with science and then, with some lag, pass to religious and philosophical thought. The same is true of art in its relationship to the changes in the preceding forms of thought. Many a shift in relatively important aspects of art, such as classicism-romanticism, neoclassicism-neoromanticism; the change from the Gothic to the Baroque, the Rococo,

the eclectic architecture; change of the proportion of the genre, the portraiture, etc. — many such fluctuations have occurred in periods during which the curve of scientific discoveries has kept the same trend of increase, or the same trend of decrease.[10]

There is, likewise, no clear evidence that change is always initiated in scientific thought, followed, with a lag, by a change in aesthetic thought. What we see in the data and the curves is that the changes in the major movements of art, science, philosophy, and so on, all occurred tangibly "together," more or less synchronously, in the sense of the duration of a few decades or a century. The rise of the Sensate culture manifested itself in most of the compartments studied around the end of the twelfth and the beginning of the thirteenth century. The rise of the medieval Ideational culture expressed itself in most of the compartments of culture around the end of the third, fourth, and fifth centuries. And there is no evidence that scientific thought started earlier than the others in these basic changes. If anything, there is an evidence that, broadly speaking, they started at about the same time (within decades or a century), and that within this "critical period" the order of the change of the compartments varied: now scientific discoveries starting first, now philosophical principles, now painting, now music, now some other variable.

Here we see the same varying order (within the period of critical turn of the culture) which has been shown in regard to various branches of art, in Volume One, Chapters Five and Six, contrary to the claims of various uniformists in that field.

The net result of this is that the compartments, fields, or forms of thought united into one system, broadly speaking, change together — causally, meaningfully — and in time, no matter whether this time, according to the process, is one year, or a decade, or even a century. But in this togetherness of change of the systems of the supersystem, there is hardly any invariable uniformity as to the time-order of the change of the variables, contrary to the claim of De Roberty's theory. Such a shifting time-order in a system is due to the fact that the system as a whole changes, but not to the fact that one of its components starts the change first and the other components follow. Still less is such a uniformity of time-order to be expected in the change of a culture that is composed of several different systems and congeries.

These conclusions follow from the logical premises considered above:

[10] See *Dynamics*, Vol I, chaps v, vi, *et passim* See also C Lalo, *Esquisse*, quoted, pp. 241–324, W. Deonna, *L'archéologie*, quoted, Vol. II, pp 24 ff , 109, 139 ff., 234.

from these premises the varying time-order of the change of the parts of the systems, and still more of the elements of the congeries, is the only one possible. The actual facts only corroborate the logical conclusions. Therefore, in some cases, De Roberty's time-order of change does occur, but not always; nor can it claim to be a rule, with the deviations from it as exceptions.

This conclusion, as we shall see, will stand the test when confronted with all the other theories of sociocultural lag uniformity.

IV. Theories of Uniform Lag of K. Marx, W. Ogburn, T. Veblen and Others

We have seen in Chapter Four that the essential assumptions of the theories named are similar. According to K. Marx, the uniform sequence of change of the main classes of sociocultural phenomena is given in the two variants (according to the interpretation of the Marxian "economic factor"): A. (1) Changes in the technique of production precede and determine (2) the changes in the economic structure of society — in "the relations of production" and "the property relations" — which, in their turn, precede and determine (3) changes in the political, social and intellectual forms and life of a society. B. In a broader interpretation of "economic factor" the sequence assumes somewhat different, but essentially the same form: (1) The changes in the general conditions of production and exchange precede and condition (2) the changes in the economic structure and class composition (including the property relationships), which, in their turn, precede and determine (3) changes in the class antagonisms, and then (4) those in the field of the social, political and intellectual "superstructure" of a society.[11] In Marx's classical formulation the theory runs as follows:

> In the social production which men carry on they enter into definite relations that are indispensable and independent of their will; the relations of production correspond to a definite stage of development of their *material* power of production. The sum total of these relations of production constitutes the economic structure of society — the real foundation, on which rise legal and political superstructures, and to which correspond definite forms of social consciousness. It is not the consciousness of men that determines their existence, but, on the contrary, their social existence determines their consciousness. At a certain stage of their development, the *material* forces of production in society come in conflict with the existing relations of produc-

[11] See the details and literature in my *Contemporary Sociological Theories*, chap. x.

tion, or what is but a legal expression of the same thing — with the property relations within which they had been at work before. From forms of development of the forces of production these relations turn into their fetters. Then comes the period of social revolution. With the changes of the economic foundation the entire immense superstructure is more or less rapidly transformed.[12]

A simplified version of this theory is set forth by W. Ogburn, and many others, and in another variant by T. Veblen, W. G. Sumner and A. G. Keller. In the incessant change of sociocultural phenomena not all parts of our social organization are changing at the same speed or at the same time. Some are rapidly moving forward and others are lagging. (Hence social maladjustments.) Owing to inventions and discoveries, the change, as a rule, takes place first and proceeds more speedily in the field of material culture (technology, economic phenomena) than in that of immaterial culture, where it is slower, and where it lags. For instance, through the industrial revolution, the material culture of modern Western society has changed enormously during the last hundred years. Meanwhile, our family institution and other social and political forms of organization still remain in the form which was well adapted to the material culture preceding the industrial revolution, but is ill-fitted to the material culture of today. The social disharmony arising from that lack of synchronized speed can be remedied only through "slowing up the changes which occur too rapidly and speeding up the changes which lag." [13]

The reasons for such a discrepancy in the speed and order of change of material and nonmaterial parts of culture consist in the facts: that the inventions in material culture are more numerous and frequent than in nonmaterial culture; that there are more mechanical obstacles to the change in nonmaterial culture than in the material; that the heterogeneity of a society with vested interests hinders the nonmaterial cultural changes more than the material ones; and especially that, inasmuch as the frequency of inventions depends greatly upon the total fund of inventions at the disposal of the society, the material culture is accumulative, while the nonmaterial culture is not

[12] K Marx, *A Contribution to the Critique of Political Economy* (translated by Stone) (New York, 1904), pp. 11–13. At the present time there is a tendency to interpret Marx "idealistically" and to strip his theories of "materialistic" character. It is needless to say that such interpretations are giving not so much the Marxian as the interpreter's views.

[13] W. Ogburn, in *Recent Social Trends in the United States* (New York, 1933), pp. xiii ff.; W. Ogburn, *Social Change* (New York, 1922), pp. 195 ff., *et passim*, especially Parts II and IV.

— therefore, the total fund of inventions in the material culture continually grows and is consequently richer and vaster than in the nonmaterial culture.[14]

For these and other similar reasons the material culture leads in the process of change while the nonmaterial lags. Though reverse cases of change are also given, they are exceptions to the rule that material culture leads and the other lags. In conformity with these propositions, W. Ogburn draws further conclusions that changes in material culture influence the nonmaterial culture more effectively than the latter do the former; and that, with a progressive accumulation of the fund of inventions and discoveries in the material culture, the tempo of the change tends to become faster and faster, as time goes on, because the inventiveness is conditioned by the total fund of inventions at the disposal of a given society.[15]

In view of an essential similarity of the Marxian and Ogburnian theories, their criticism may go together, with additional remarks for each theory.

The first decisive shortcoming of these theories is their lack of clarity concerning what is meant by "material power of production," "material forces of production," "the relations of production," and "superstructure" and "social consciousness" (K. Marx), and respectively, as we have seen, by "the material and nonmaterial culture" (W. Ogburn and others). A vast literature exists as to exactly what Marx meant by his main factor. Marxians and non-Marxians have interpreted it in different ways: some, like K. Kautsky, W. Sombart, A. Hansen, interpreted it as equivalent to the factor of technique; others, like F. Engels, T. Masaryk, E. Seligman, regarded it as including technique, geographic environment, natural resources, extraction, transportation, manufacturing, trade, mechanism of distribution, political regime, and so on.[16]

[14] *Social Change*, pp 257 ff ; 273 ff According to A G. Keller, the reason for earlier and greater variability of the "maintenance mores" is that they are most testifiable and most important. See A G. Keller, *Societal Evolution* (New York, 1931), pp. 208 ff.

[15] *Ibid.*, Part IV, especially pp 268–280. In a more cautious form the essentials of this theory are restated by F S Chapin, in *Cultural Change* (New York, 1928), chap. vii The theory is repeated as valid in a large number of texts in sociology, such as K. Young, *An Introductory Sociology* (New York, 1934), pp. 53–54; E B. Reuter and C. W. Hart, *Introduction to Sociology* (New York, 1933), p. 166; E. T. Hiller, *Principles of Sociology* (New York, 1933), pp. 412–414 (accepted with reservations); J. K Folsom, *Culture and Social Progress* (New York, 1928), pp. 22 ff.; N. Sims, *The Problem of Social Change* (New York, 1939), chap x, and most of the other recent texts

[16] See the literature and details in my *Contemporary Sociological Theories*, pp. 536 ff.

If we accept the first interpretation, then we have the proposition: technique is the primary and leading factor; its change precedes and conditions all other sociocultural phenomena, including science, and all the ideology and forms of social consciousness: art, philosophy, religion, law, ethics, which are the last in the change. Meanwhile, it is evident — and has been pointed out above — that technique itself is but a form of science and knowledge. Any technical device is an incorporation of knowledge concerning the device and as such is often conditioned by the general state of science in that and related fields. Therefore, according to Marx in that interpretation, technical knowledge leads and determines science and knowledge, of which it is a part. Technical knowledge is "material" while the other forms of knowledge inseparable from it are nonmaterial "ideology." In other words, he contrasts as different what is essentially identical (scientific and technological knowledge), and identifies what is different (technical knowledge and something else in the "material forces," which is neither technical knowledge nor anything nonmaterial).

No wonder that factually such a proposition cannot be verified, nor supported, nor rejected. It is a self-contradictory proposition which cannot be tested factually.

The situation is no better if we accept the other, broader interpretation of Marx's "material forces" or "economic factor." It has all the defects of the preceding one and several others in addition. Both variants are logically hazy, and even self-contradictory. For this and many other logical and factual reasons given above and elsewhere, no further criticism is needed here in order to prove the theory invalid.[17]

For the same reason, still less tenable are the dichotomic divisions and sequences of leading material and lagging nonmaterial culture (Ogburn); of the technological leading the nontechnological cultures (Coste, L. Weber and T. Veblen); of the "cultural" lagging the "civilizational" part (A. Weber, McIver, and others). Since the divisions themselves are untenable, as has been shown in Chapter Four, all the derivative conclusions concerning the uniformity of leading and lagging of these divisions fall down of themselves. They represent an interesting and huge superstructure built upon a sandy foundation. The foundation crumbling, the superstructure crumbles also. (See the criticism in Chapter Four.)

[17] See the criticisms in my *Contemporary Sociological Theories*, chap. x; also in this volume of *Dynamics*, chap. iv.

Being untenable in the forms in which they are given, dichotomic theories of social and cultural lag can however assume a somewhat more tenable version. It may run something like this:

> Yes, in a sociocultural system, material and nonmaterial (external and internal) aspects, as well as "theoretical" and "technical" aspects of each class of sociocultural phenomena must and do change together and more or less synchronously in time. But the class of the *natural science* and *its technology* tends to change first, while the classes of the social, humanistic (including political, economic), artistic, religious, philosophical, ethico-juridical mentalities and their techniques tend to lag in the change, preceded and conditioned, as a rule, by the change in the natural science thought and its technology or practice.

Such a variant is fairly far from the real character of the Marx-Coste-L. Weber-Ogburn-Veblen-McIver theories. Nevertheless, with some strain, it may be derived from these. We should be charitable and should give them this chance. The chance given, let us see how valid is such a proposition.

To one's surprise such a version brings it close to the theories of such thinkers as Auguste Comte, with his claim that in the course of time all the forms of thought and their techniques pass through three stages: theological, metaphysical, positive, and that in this passage *mathematics leads, then come in order: astronomy, physics, chemistry, biology, and sociology,* with all the mixed disciplines (like geology or psychology), and with all the technical practices of each discipline.[18] It also becomes a variant of De Roberty's theory that his four forms of thought and their techniques change in a certain uniform order.

What shall we say to this new version? Practically the same that has been said in regard to the theory of De Roberty (or could be said of that of Auguste Comte). First, if we have to deal with the congeries of sociocultural phenomena,[19] including all the main forms of thought and their practices, in congeries no uniform order must be or can be expected. In congeries a man, society, or culture-mentality can have, side by side, fragments of mathematics, theology, chemistry, poetry, law, philosophy, economics, without any integration, any or-

[18] See A. Comte, *Positive Philosophy,* translated by Martineau (New York, 1855), Vol. I, pp. 1–33, *et passim; System of Positive Polity* (London, 1875), Vol. I, pp. 27, *et passim.*

[19] It is not incidental that Comte hardly ever considered the problem of congeries and viewed the whole of mankind and its whole culture as one organism or integrated system Shall we wonder at his universalistic formula?

der and consistency between the fragments. So it follows from the very conception of the sociocultural congeries: anything can change in any order at the mercy of the external and incidental circumstances that rule the modification of congeries. A theory of Einstein in its vulgar form can come into such a congeries and exist side by side with the most primitive magical and religious beliefs; and both can rub elbows with the latest fashion of bobbing hair and the newest movies. As a matter of fact, such a mess exists indeed in many "colonial" cultures of the recently "civilized" natives.

In other words, a uniformity in change can be expected only in an integrated sociocultural world, in the world of a sociocultural system. But in that case, in order that the theory be valid, all the eight indicated assumptions necessary for the validity of De Roberty's theory (see above, p. 294) — with a slight modification — must be present. Without these conditions logically the theory of the uniformity claimed is impossible. Meanwhile, we have seen how improbable and invalid are these assumptions. For this reason only, the theory discussed appears to be highly doubtful in its validity.

Likewise, as was indicated in the case of De Roberty's theory, there is no logical reason why in the change, the natural sciences and their technique must uniformly precede the socio-humanistic-religious-ethical-artistic thought and practice. As a matter of fact, up to the last four or five centuries, the very separation of the natural sciences and philosophy, or even religion — especially in the Ideational culture-mentality — did not exist. Almost all the Greek and medieval thinkers were at the same time scientists and philosophers and moralists, and sociologists and political scientists, and often were theologians. Not a few of them, like Thales of Milet, Pythagoras, Anchitas, Anaximander, Anaxagoras, Democritus, were technological and mechanical inventors.[20] The general term "philosophy" embraced philosophy proper and the scientific disciplines. Hesiod, Homer, Pythagoras, Philolaus, Thales, Heraclitus, Empedocles, Zeno, Anaximander, Anaxagoras, Democritus, Leukippos, Socrates, Protagoras, Georgias, Plato, Aristotle, in Greece; J. S. Erigena, St. Thomas Aquinas, Albertus Magnus, Duns Scotus, Nicolaus Cusanus, Roger Bacon, and other "philosophers" of the Middle Ages. These and a host of others were

[20] See P. M. Schuhl, *Machinisme et philosophie* (Paris, 1938), chap. i; H. Diels, *Antike Technik* (Leipzig-Berlin, 1924), pp. 98 ff ; L Robin, *Platon* (Paris, 1935), F. M. Feldhaus, *Die Technik der Antike und des Mittelalters* (Potsdam, 1931); A. Rey, *La science dans l'antiquité*, 2 vols. (Paris, 1930, 1933).

simultaneously scientists, scholars, philosophers, sometimes technological inventors; social, political, economic scholars; juridical and ethical teachers, not infrequently theologians. For this reason only, to expect that the moments of change of the natural sciences, and of even theology (with their techniques) should be different, and that natural science should invariably precede in the change, is quite improbable. What is more probable is that the change would tend to be "together" and more or less synchronous if the thinkers were consistent — and in a considerable part they were so. If they were not quite consistent, the change would not be in togetherness but also not uniform in its order; for an inconsistent mind there is no need of consistency of, or uniformity in, an order of the change of its thoughts — now it may change its specific scientific theory first and then its philosophy or political ideas or theology; now it may change first its theology and then some scientific theory; and again it may change one, and not change the other "compartments" of thought and practice. Otherwise, if it were changing in a certain uniform order, our inconsistent mind would be consistent, which contradicts the assumption of inconsistency. Thus, in both cases — consistency and inconsistency — the result is not a uniformity of lagging and leading but either a change in togetherness or a lack of any uniformity.

Such a variation of the order of change will, in that case, be still more probable than, as I mentioned, even in the concrete system of plant or animal organisms of the same species, where the order of the change of two or more certain processes varies.[21]

The reasons which Ogburn, Veblen, and others give for the lead and faster change of natural science and its technology, compared with that of the other compartments of the sociocultural system — philosophical, religious, juridical and others, and their techniques — are hardly convincing.

[21] Variation of the order of functions in the organisms of the same species, for instance, in man, is much greater than is usually imagined Some individuals first marry and then discharge the sexual functions; other individuals live a long sexual life before marriage Some drink alcoholic beverages before, some after a meal; and some do not drink them at all. Some become senile first in body and then in mind, others follow the reverse course. Some are religious when young and become atheists when old; others proceed in the opposite way; and still others remain religious throughout their lives And so on. In reality the order of genesis and discharge of most human activities varies from individual to individual, from group to group, even in such a closely integrated biological system as the human organism Still more should it be expected in the change of sociocultural systems Likewise, many cultural values of an individual change without disturbing and changing the rest of his values.

They claim, first, that the speed of change in the field of the material, technological, or natural sciences, and its technology, is far greater than in other forms of sociocultural phenomena (nonmaterial, non-technological, non-natural science). Such a claim is void. Why? Because

It is easy to talk of the greater and lesser speed of change in various fields of cultural and social processes. But when one tries to decide, for example, in which field, law or religion, industry or the family, commerce or vital processes, arts or morals, the speed of change is greater, one stumbles over a set of insuperable difficulties. For such a decision one has to have a unit of velocity of change. Mechanics, in regard to the velocity of motion, has such a unit. It is the resultant of the units of distance traveled by the moving body divided by units of time. This unit evidently is quite inapplicable to the measurement of social change. There is no sense in saying that in a change from the Gothic to the Baroque style, or from Christianity to Buddhism, or from the horse-wagon to the automobile, or from capitalism to communism, or from the Ptolemaic to the Copernican system, so many units of distance are traversed in so many units of time. In order to do this there must be some "unit of social change" devised so that we can measure the comparative velocity of the change in various social processes. Otherwise, all talk of different speeds is idle articulation. Have Professor Ogburn or Veblen or other partisans of this claim offered such a unit of social change? They have not. They have not even made any attempt to do so. *Ergo?* Let the reader himself provide the conclusion.

The conclusion made will be additionally reinforced when one considers that most social changes are not so much quantitative as qualitative; that most of the qualities are quite heterogeneous and irreducible to one another or to any common quantitative denominator. For these reasons we cannot "measure" the comparative speeds of the various "compartments" of culture. If within the same period of time, say one hundred years, steam-power is replaced by electricity; the rococo style in architecture by the neo-classic; Roman Catholicism by Protestantism; Shakespeare by O'Neill; Beethoven by Gershwin; costumes of the sixteenth century by those of the twentieth; monogamic indissoluble family by complete liberty of sex unions; granted all this, can we say where the speed of change was greater and where it was lesser? Hardly. We do not have any common measuring device to determine the comparative degree of change, because the changes are qualitatively incommensurable and irreducible to any quantitative common denominator. It is true that in some fields and in some cases we seem to measure the speed by the "percentage" of the change within each field over a certain period of time. If, for instance, within a period of twenty-five years 50 per cent of horses are "replaced" by motor cars; the divorce rate increases by 25 per

cent; short skirts are entirely replaced by long ones, *i.e.*, 100 per cent; the Republican vote loses 50 per cent; then, it seems, we may say that the speed of change in the field of fashion (using the length of skirt as an index) is four times as fast as that in the field of the family (as measured by the divorce rate); twice as rapid as in the field of the "horse-motor car," etc. I am afraid such a type of conclusion has been drawn, indeed, by many. It appears to be the only meaning which "the speed" of social change, quantitatively measured, can have.

The conclusion is, however, so preposterous that it is hardly necessary to show at length its absurdity. It is enough to say that in most of the social changes this "index" is quite inapplicable where the change is of such a nature that one cannot measure it quantitatively, by percentages: for instance, in a modification of religious, scientific, aesthetic, moral, and other conceptions, in that of tastes, of styles. The ineffectualness of such measurement of social change can easily be seen when one attempts a practical application of it for the solution of social maladjustments or for directing the national policies. The solution consists, as we have seen, in a synchronization of the speed of change in all social processes. If the speed of change is measured by the percentage of the change in each field within the same period of time, then the solution of all the maladjustments seems to mean, for example, that birth-rate has to fluctuate as rapidly (say 75 per cent within fifteen years) as the fashion of dress, as the shift from one religion to another or to atheism, as that from the monogamic to the polygynous or polyandrous family, from capitalism to communism, from poverty to riches, from the horse to the tractor, from monarchy to republic, from epicureanism to stoicism, etc. All these and thousands of other quite different social processes must change at the same "speed" in the foregoing sense of the word if there is to be "synchronization." It is hardly necessary to add that even an unbalanced person can hardly imagine anything more unsound and socially harmful than this kind of "synchronization" and equalization of speeds and this method of "adjustment of social maladjustments."

Further, to see all the emptiness of the theory discussed it is enough to ask one's self, for instance, what type of family structure, what type of religion, is best adjusted to the present industrio-economic set-up? Does the patriarchal or matriarchal family, the childless or ten-child family, low or high divorce rate, provide the best adjustment to contemporary economic conditions? What kind of religion: Christian? Confucian? Buddhist? Atheist? Religion *à la* communist militant materialism? Or that of Elmer Gantry? Which is "the best adjusted" religion to the existing economic conditions? It is enough merely to put such questions in order to make it clear that the theory discussed does not and cannot provide an adequate answer.

Finally, the whole theory, when logically thought through, implies one of

the most questionable kinds of moral, social, religious, and aesthetic cynicism. Does it not hold that those changes which are the earliest in time and speediest in velocity are the best and represent the supreme value to which all other values should adjust themselves? If, therefore, the economic organization or technological process which, according to the theory, changes earliest and most rapidly begins (for whatever reasons) to disintegrate, then religion, art, morals, science, the family, the government, and other social values and organizations, it seems, should disintegrate also in the process of "adjustment" to, and "synchronization" with, these economic conditions. The logical answer to the theory is "yes"; the common sense and really scientific answer is "no." One of the reasons for such an unexpected result of this theory of "adjustment" is that it, like most of the prevalent theories of "adaptation" and "adjustment," leaves these concepts unanalyzed and only scratches their surface.[22]

Farther on, as I stated in my *Theories*, and as W. Wallis aptly put it, "what factors lag will depend upon the point of reference." If we use, not an automobile, but, for instance, society as a point of reference, then, instead of social conditions lagging, it

becomes clear that the automobile has been, and remains, an instance of technologic lag. The success which greeted it in its approximately present form is near demonstration that it was overdue. . . . Its invention lagged far behind social demand. Not only so, after it was socially a going concern the technology lagged so greatly that it required some two decades or longer for it to become technologically a very successful going concern. The lag in technology is shown in almost every phase of its construction. . . . That the modern type of automobile was not built in a day is no occasion for marvel; but that its advent was so long delayed after society's need for it, and its improvement so gradual and piecemeal, is, from the social point of view, a case of egregious lag. If the automobile remains one of the major

[22] P. Sorokin, "Recent Social Trends A Criticism," *Journal of Political Economy*, April, 1933, pp 204–6; see there W Ogburn's "Reply," pp 210–21, and my "Rejoinder," *ibid*, June, 1933, pp. 400–4 See similar criticism of Ogburn's theory in W Wallis, "The Concept of Lag," *Sociology and Social Research*, May–June, 1935, pp. 403–6; R. Merton's article quoted; M. Choukas, "The Concept of Cultural Lag Re-examined," *American Sociological Review*, October, 1936, pp 752–60; J. H Mueller, "Present Status of the Cultural Lag Hypothesis," *ibid.*, June, 1938, pp. 320–27; J. W. Woodard, "Critical Notes on the Culture Lag Concept," *Social Forces*, March, 1934, pp. 388–98; W. Wallis' Rejoinder to A Herman's "An Answer to Criticisms of the Lag Concept," in *American Journal of Sociology*, November, 1937; *ibid.*, March, 1938 See also S. C. Gilfillan, *The Sociology of Invention* (Chicago, 1935), pp 151 ff ; L. Mumford, *Technics and Civilisation* (New York, 1934), pp 316–17; P Sorokin, *Contemporary Sociological Theories* (New York, 1928), pp. 742–46. For critical remarks on T. Veblen's technological theory, see R. McIver, *Society* (New York, 1937), pp. 458–59.

causes of death and mutilation, this is certainly an abundant testimony of technologic deficiency; for these deaths and mutilations are not the aim and object of this technologic device.[23]

With a variation, the same can be said of almost all the lags. For instance, in the field of ethics, the sublime norms of human interrelationship were discovered and formulated thousands of years ago, in the ethical norms of all the great religions, and especially in that of the Sermon on the Mount. Nothing better has been formulated since and can hardly ever be discovered in the future. And yet, in economic and technological relationships, these norms have never been even remotely approached: the norms of profit, egotistic interests of an individual (egotistic man of economics), or at the best, of the *bonus pater familias*, prevailed in economics (material culture). Technology has created not only the means for human welfare but also those for the most efficient destruction of man and man's culture. In this sense, both economic and technological classes have lagged most decidedly behind the nonmaterial culture of ethics. If one arbitrarily assumes the standpoint of natural science and its technology, then many things may appear lagging in other fields of sociocultural phenomena; if one assumes the social, moral, religious, aesthetic, and even "human happiness" standpoint, then many things in natural science — and its technology — will be seen to be lagging.[24]

Factually, regardless of all these considerations, even from the Marxian-Ogburnian somewhat "too simple" standpoint, there is no ground for the claim that the economic technological change always or even ordinarily leads, while the change in nonmaterial culture lags; that the former changes more quickly while the latter moves more

[23] W. Wallis, "An Answer," *American Journal of Sociology*, March, 1938, p 804.

[24] This is the reason for the contrariness of the theories of K. Marx and Max Weber Marx assumed the technological and economic point of reference, and made the rest of the culture, including religion, a mere lagging superstructure of the economic-technological factor. Max Weber methodologically assumed the religious and *Wirtschaftsethik* point of reference and received Capitalism as a somewhat lagging consequence of Protestantism (and other factors). In such a setting, the whole dispute is fairly futile. As has been pointed out in *Dynamics*, Vol. II, pp. 500 ff., the factual situation in this case was that Capitalism did not produce Protestantism, nor did Protestantism create Capitalism, but both were among several consequences of the third "cause," namely, the re-emergence and transformation of Western culture from the dominant Idealistic to the dominant Sensate phase. Max Weber's collection and analysis of the relevant facts is, however, a good evidence that often change in nonmaterial culture precedes (and conditions) the change in technology and economic processes. Regarding other shortcomings of M. Weber's and K. Marx's theories, see my *Contemporary Sociological Theories*, chap. x, and pp. 673–696.

slowly. The existing body of factual data indicate that sometimes it is so, while at other times it is not so; sometimes the change in technology leads, sometimes the change in religion, knowledge, art, ethics, mores leads. Sometimes technique changes while the rest of the culture does not; sometimes the noneconomic and nontechnical part changes while the techno-economic parts do not change.

A few series of facts make this clear. First, technique and economics did not appear in the history of mankind earlier than the other aspects of human culture.

> Intelligence, experience, religious and magic ideas, rules of tabu or mores, norms of conduct, primitive art, activity devoted to ideal aims, recreation and play, and so on, are found in the most primitive societies known to us and operated as early as techno-economic conditions.[25]

Subsequently, in later periods, beginning with the Paleolithic, passing through the Neolithic, the Chalcolithic, the Copper, the Bronze, the Iron Ages and ending with the Machine Age, the societies that were in the same technological age exhibited very different cultures in other respects, and the societies that have had a similarity in this or that sociocultural field have often been in different technological ages, from the standpoint of their technique and economics.

The Paleolithic society had, for instance, predominantly visual painting; the Neolithic, predominantly geometric and nonvisual, which by many would be regarded as a decisive retrogression in the art of painting, in spite of the progress of technique. The Egyptian society did not go into technology beyond the stage of the Bronze Age, nor the Mayan culture beyond the stage of the Stone Age; and yet both, in the field of religion, art, even science, not to mention other fields, reached an exceptionally high stage of development; and the Egyptian changed in these fields during its long existence (without a notable change in technique). A passage of the culture of Mexico, and Peru, in America, from the Stone to the Copper and Bronze Age "are not synonymous with an essentially higher civilization in America."

> The bronze age does not mark the adoption of a new civilization . . . , and the transition from the stone age to the copper age means nothing more than a further step in development, and not the accession of a new people with a new culture.[26]

[25] P Sorokin, *Contemporary Sociological Theories*, p. 525 ff. See there many other facts and literature.

[26] E. Nordenskiold, *Origin of the Indian Civilizations in South America* (Göteborg, 1931), p. 40.

During the Ideational period in the Western culture, as we have seen, the development of scientific and technological inventions stood at a standstill, almost at a zero line for some five centuries; and yet, in spite of this, the medieval total culture experienced a series of profound transformations in its religious, philosophic, artistic, ethical, juridical, political, and other fields, not to mention the concrete changes in mores and manners.

A large number of studies given in my *Contemporary Sociological Theories* leave no doubt that the claimed close relationship between technology-economics and the rest of culture; or the alleged leading role of technology and the lagging role of nonmaterial culture is a decisively untenable hypothesis, whether for primitive peoples, as the correlational study of Hobhouse-Wheeler and Ginsberg and other studies show, or for the historical peoples.[27] Primitive people on the same techno-economic level of lower hunters, higher hunters, pastoral, or agricultural techno-economy, display very different sociopolitical, ethical, and nonmaterial culture; and the people on different levels of the techno-economic stage display, not infrequently, a great deal of similarity in several fields of their culture.

Most recently A. J. Toynbee has given an additional series of relevant facts which demonstrate this situation, especially the fact that "the growth or decline of civilization" (nontechnological culture) is the cause of the respective growth or decline of technology, but that the growth and decline of technique is not the cause of the growth or decline of civilization or nonmaterial culture. The splendid Roman roads were abandoned and went to pieces "not through a failure of technical skill" but because of the breakdown of the Roman Empire, and then (from the fifth to the eighteenth century, A.D.) because of the general state of the Western society which made such roads unnecessary, and a liability rather than an asset.[28] Technical skill was present almost all the time, and when needed, such magnificent roads were built, as for instance, the roads constructed by the British on the Ionian Islands in 1815 and subsequent years. But even those, for sociocultural reasons, were often abandoned. For the same reason of sociopolitical disorganization, other economic and technological devices of Roman society, like maritime transport, shipping services, et cetera, were forsaken.[29]

[27] See the data, literature, and argumentation in my *Contemporary Sociological Theories*, chap. x.

[28] A. J. Toynbee, *A Study of History*, quoted, Vol IV, pp 40 ff

[29] "The economic explanation of the decay of the Ancient World must be rejected

The deterioration and abandonment of the splendid irrigation system of the delta of the Tigris-Euphrates in the centuries after the fifth A.D., especially in the seventh and then in the thirteenth centuries, likewise was the consequence of the social and political breakdown of the Syriac society that preceded it.[30] So also was it with the ruin of the vast and elaborate system of water-storage and irrigation in Ceylon, created by the brilliant Indic civilization. Disorganization of the civilization made impossible the maintenance of this technically perfect system and led to its ruin.[31] Similar was the story of the ruin of the system of irrigation of the Pontine marshes. Before our very eyes the old but magnificent Chinese river-conservation and irrigation-canal system has gone to pieces, not for any lack of technical skill but because of the sociocultural disorganization of the country.[32] Likewise the number of inventions in Great Britain sharply declined for the years of war, of 1914–1920, and the rate of increase of inventions notably decreased in the United States for the period of the Civil War, 1861–1865.[33] Similar decreases are noticeable for other periods of strenuous wars in these or other countries.[34] In Russia, especially in the years 1917–1922, the revolution and civil war ruined the cities, the roads, the factories, almost the whole technology of the country. So does the second World War ruin the contemporary technique in our time.

If from the techniques of irrigation, canals, roads, and water-conservation we pass to the technique of building, architecture, sculpture, painting, calligraphy, and literature, the cases of the abandonment and deterioration of these technologies again have often been due not to the loss of skill but to either a lack of demand or need for them, or to the impossibility of their maintenance, due to the sociopolitical disorganization, or especially to the change of the mentality. In preceding volumes of *Dynamics* it has been shown how architecture, sculpture, music, painting, literature changed with the transition from the Ideational to Idealistic and Sensate, or from the Sensate to Ideational super-

completely . . . The economic simplification of ancient life was not the cause, but one of the aspects of the more general phenomenon of social disorganization" M Rostovtzeff, *The Social and Economic History of the Roman Empire* (Oxford University Press, 1926), pp 302 ff., 432 ff.

[30] A. J. Toynbee, *op. cit.*, Vol V pp 42–43.

[31] *Ibid.*, p. 44.

[32] *Ibid.*, pp 49 ff.

[33] See the figures in *Dynamics*, Vol. II, pp 163–172.

[34] See *ibid.*, for England, pp. 168–169

systems. The change was due not to the loss of the previously existing techniques (say Sensate or Ideational) in the period of the transition, but was due to the change of the mentality which made the technique and what was built or created with it unneeded, not sought for. As the demand for Sensate techniques in all these fields evaporated in the Ideational phase, the Sensate techniques and their products declined and went out of use; the demand for Ideational techniques disappearing in Sensate society, the Ideational techniques were abandoned. The same is true of the disappearance of the techniques and products of Sensate philosophy, law, science, ethics, economic comfort, in Ideational society, and vice versa. In all such cases, not a loss of technical skill, as such, produced the respective change of the techniques, but the loss of demand, due to the transformation of mentality, produced a decline and then deterioration of the respective techniques in all these fields.[35]

For somewhat similar reasons, as Toynbee rightly says, the technique of the cuneiform script that served for more than three thousand years went out of use in the first century B.C.; so with the Egyptian hieroglyphic and demotic technique of writing; the Idealistic Greek architecture of the fifth century; the Arabic alphabet, less clumsy than the adopted Latin alphabet, abandoned by Turkey in 1928; the decline of the noble, classic styles in art in our days and its replacement by the strange, excessive, and pathological styles in sculpture, music, literature, theater, and in other fields of the fine arts. In all such cases, the reason is not that suddenly there was a lack of technical skill in the first periods of abandonment of these techniques. It was certainly present, as it is present in our day: our artists can, if they want to, create in the "classic" styles, and they do so, when they desire. If, nevertheless, the style declines, the reason is that they want to create (or think they create) in different styles with different techniques. Decline of the demand for certain techniques, no matter in what field, from manufacturing of commodities to a religious service, often preceded a change in the existing technique and led to its decline and disappearance.

Further on Toynbee, using the somewhat debatable terms of "growth and decline of civilization," gives a series of facts showing that often the technique of a given society or culture improved, while the rest of the civilization declined and deteriorated. Dropping the evaluative terms of "improvement and deterioration," Toynbee's facts testify in

[35] See *Dynamics*, Vols I, II, III, *passim*.

that case to the fact of change — even improvement — of the technique without any change of the rest of the culture, or its change in the opposite direction. In Minoan civilization, the improvement of its technique coincided with the decline and dissolution of the Minoan civilization or culture. The victorious "iron-sworded" Dorians were barbarians in their culture in comparison with the bronze-sworded Minoans. In America, Mayan civilization remained in the stone-age technique, and yet was higher culturally than the culture of other American civilizations with the metal technology, in which the progress of metal technique (after 600 A.D.) coincided with their decline and dissolution. In Rome, a progress in arms and military technique was followed by a regress of the Hellenic culture. And so on, to our own time, when the technology has been feverishly progressing, while the total culture of the West has been rapidly declining and disintegrating.[36]

On the other hand, an enormous mental transformation was made by man between the Lower and Upper Paleolithic ages: he changed from the *Homo Neandertalis* into *Homo Sapiens*. "Yet this immense psychic revolution was not accompanied by any corresponding revolution in technique." [37]

All this means that there is no uniformity of close relationship of technology-economics with the rest of the culture, or of a leading change of techno-economic culture in comparison with its other parts. Therefore, for this reason also, the claim of the dichotomic theories is untenable.

The loose connection between these dichotomic parts we have seen also in *Dynamics* (Vol. Three, Chapter Eight). We shall see it again in this volume (Chapter Seven).

Other arguments of Ogburn and Veblen are still less convincing. We shall see in Chapter Seven that in the field of nonmaterial culture, inventions and discoveries are not scarcer than in the field of material culture, as they claim.[38]

Judged by a number, the figures and the curves in Volume Two, Chapter Three, show that the curve of the discoveries in the natural sciences (which are supposedly nonmaterial culture) runs almost parallel with that of technological inventions (material culture). In that form, the proposition of Ogburn is quite untenable. But it is untenable even in the form of a confrontation of natural science and its

[36] See the details in A. J Toynbee, *A Study of History*, Vol. III, pp. 154–174.
[37] *Ibid*, Vol III, p 172.
[38] W. Ogburn, *Social Change*, p. 257.

technology with other fields of sociocultural life, as we shall see presently. We have seen (Chapter Four) they are all accumulative. Then different epochs of the same culture and different cultures at the same period show now one culture or one sector of sociocultural life crowded with achievements and discoveries, while at another epoch or in another culture, another sector turns out to be creative. (See further, the figures and tables in Chapter Seven.) There is no ground on which to elevate a partial case into a universal uniformity, as Ogburn and others do.

Still less serious is the argument that the nonmaterial culture inventions find more mechanical obstacles than those of material culture; [39] or that scientific discovery meets fewer obstacles than a new creation in other fields of sociocultural life. The author gives practically no inductive or even factual evidence for such a claim. Likewise, we have seen in Chapter Four that the argument that material culture is accumulative while nonmaterial culture is not so, or is less so,[40] is baseless. No more valid is the claim, as we have seen, that the material or natural science inventions diffuse faster, and are accepted more easily, than the nonmaterial or the non-natural science novelties.[41] Even during the last two decades, some nonmaterial (or non-natural science and its technology) culture-complexes, like Communism, Fascism, Totalitarianism, Oxford Movement, jazz music, diffused and have been adopted probably by a far greater number of individuals (or groups) on this planet than automobiles, airplanes, tractors, or almost any new machine or tool. And so it was in the past, especially in the periods of domination of Ideational culture. There is no ground on which to claim such a proposition, or its opposite, as a universal uniformity.

Summing up the proffered *logical* and factual reasons,[42] we see that even in this version of universal lead by natural science with its technology over the other sectors of the sociocultural system, the uniformity of the claimed lag is untenable.

This conclusion is well corroborated by those factual data that are obtainable and that will be given in the next chapter. They take account mainly of the quantitative aspect of the movement of various sectors of sociocultural life, and as such are not quite conclusive, but

[39] W. Ogburn, *ibid*, p 259.
[40] *Ibid.*, pp. 73 ff, 103, *et passim.*
[41] *Ibid.*, pp. 273 ff
[42] See some others in the quoted critical studies mentioned above.

they are incommensurably fuller, more complete, and therefore more conclusive than the insignificant bits of facts (merely a few illustrations) offered by the criticized theories. With subsequent qualitative analysis they become quite significant. For the present, it is enough to draw the reader's attention to the factual data that have been already given in the preceding volumes.

These data give, first, the movement of the number of the natural science discoveries — in their total and in each of these sciences — and that of technological inventions connected with the natural sciences from the sixth century B.C. up to the twentieth century, by twenty (for the period 1401 to 1900), by ten, and by one-hundred-year periods. These figures and curves are given in Volume Two, Chapter Three. The unquestionable conclusions this series leads to are two: (1) All in all, the movements of the discoveries of the natural sciences, and the natural science technological inventions, run quite close, practically parallel and identical, not only in all major fluctuations, but in most of the minor ones. (2) The minor discrepancies of these two curves are much slighter than those between the movements of discoveries in various natural sciences themselves (for instance, in mathematics, physics, chemistry, and biology). This holds for the whole Western world, for Greece, Rome, Arabia, and for separate European countries. As the series are systematic, and given for the longest time known, and the results hold for long as well as for shorter periods, the incontrovertible conclusion is: *there is no slightest factual ground on which to claim that technological (in the sense of the technology based upon the natural sciences) inventions uniformly are more abundant than the natural science discoveries; that the rate of increase is uniformly greater for the technological inventions; that these lead the change while the natural science lags. So far as technology is (inconsistently) identified by Marx, Ogburn, Veblen and others with "material" culture (or "material power" and "forces") while the natural sciences as such are classed with the nonmaterial (or in Marxian terms, into "superstructure" and "ideology"), these data decidedly refute the claim that material culture (or its Marxian and Veblenian equivalents) uniformly leads in change, while nonmaterial culture (or its Marxian and Veblenian equivalents "ideology," "superstructure," etc., in that case the natural sciences) lags uniformly. Such claims in this setting are baseless factually, as should be expected on the basis of the above logical analysis.*

The same conclusions are reached if we confront the movement of

discoveries in biology (theoretical, nonmaterial science) with those in medicine (applied technology of biological science). (See *Dynamics*, Volume Two, Chapter Three.) The data do not permit us to say that inventions in medical technology outrun or lead or are more abundant than those in biology.

The next chapter (seventh) will give still more convincing and more complete series of the movement of discoveries and inventions in the natural sciences, technology, philosophy, theology; and then in social science, humanities, statesmanship, music, literature, philosophy, religion, business, and a few other main compartments of the sociocultural world. These series — incomparably fuller than those presented by the partisans of the criticized theories — quite definitely refute any variations of their theories, and corroborate the different propositions partly mentioned above, to be more fully developed in following chapters.

For the present, these criticisms, together with those of Chapter Four, are sufficient to repudiate the above theories of time-uniformity of a certain order in the change of the sociocultural phenomena. Not De Roberty's, nor the social lag theories, nor the Comtian, nor any similar theories stand the test. They elevate a partial case into a universal rule.

Such a conclusion is still more valid in that a number of more detailed theories concerning the uniform order of change of various arts were also found deficient and suffering from the same sickness: a partial case taken for a universal uniformity.[43]

With a slight variation, the same can be said of all the theories which take a certain class of sociocultural phenomena (sometimes even cosmic or biological phenomena) and claim that it always leads the change while the rest[44] of the sociocultural classes always lag. Whether the leading class is religion, ethics, law, a form of division of

[43] See a criticism of the theories of Petri, Ligeti, and others in *Dynamics*, Vol I, chaps v and vi.

[44] It is also typical of all these theories that they throw into one heap the rest of the sociocultural phenomena, which in fact is the greater part of the sociocultural world. For instance, the Marxian theory throws into one heap all the ideology, science, philosophy, art, religion, ethics, law, mores, as though these make, in their totality, an insignificant part of the sociocultural world; as though they all represent something identical and insignificant in their totality, changing and living together. Such a "misfocusing," lack of sense of proportion, reminds one of the simpleton's division of the world: "our village and the rest of the world" Here the theories do exactly the same: they take their pet "village" (economic, geographic, biological, etc., factor) and throw into one heap the rest of the sociocultural world!

labor, a political organization, a race, heredity, density of the population, climate, sunspots, or what not — all such theories, so far almost entirely speculative, suffer from a similar weakness, and cannot stand an elementary logical and factual test.[45]

The general conclusion of the preceding analysis is that all the known varieties of a uniform sociocultural lag theory are fallacious, so far as they elevate a partial case into a general rule.

Before offering a constructive theory concerning the temporal order in the change of sociocultural phenomena, a series of data are given in the next chapter. They are inserted here, partly for a further factual substantiation of the given criticism of the dichotomic and other theories, and partly to bring to light several characteristics of the change of cultural systems and congeries overlooked by the above theories. Together with the enormous material given in the preceding volumes of *Dynamics*, they furnish further corroboration of the existence of our supersystems of culture and their tidal waves. These data supply also an additional factual basis for corroboration of our constructive theory of the temporal order in the change of sociocultural phenomena developed in the subsequent chapters.

[45] Further criticism is given in my *Contemporary Sociological Theories*.

Chapter Seven

TIME UNIFORMITIES: SYNCHRONICITY AND TEMPORAL ORDER IN SOCIOCULTURAL CHANGE (*Continued*)

I. Creative Pulsation of Various Subsystems of Culture in Time

The data are taken from John W. Boldyreff's unpublished study. These tables — two for each specified country: one absolute, another percentile — give all the names of historical persons mentioned in the *Encyclopaedia Britannica* (the ninth edition) for each specified period of fifty years, in each of ten specified fields of culture: religion, statesmanship, literature, scholarship (humanistic, juridical, and social sciences), science (including technology), philosophy, business, fine arts, music, and miscellaneous (which embraces all the other unspecified fields in which the mentioned historical persons became famous). In the tables with absolute "geometric averages" these averages for each field in each period give the geometric average of the number of such persons mentioned and of the number of lines devoted to them in the *Encyclopaedia*.[1] Usually the more prominent the person, the longer the space and the greater the number of lines he receives. The geometric average for each period represents, then, a figure that takes into account not only the number but also the prominence of such persons in each specified field for each period. It is, then, a rough quantitative-qualitative index of the status of the respective field of culture for each period. Reading these geometric averages vertically in columns, we get a rough idea of the rise and decline of the creativeness and achievements in, and importance of, each field in the course of time. The last column in these absolute tables gives an arithmetic average of the geometric averages for all ten fields for each fifty-year period. This arithmetic average is an indicator of the total creativeness of cultural values in all ten fields for each fifty-year period. This

[1] It was ascertained, after testing, that the curves of the number of leaders and of the number of lines were closely associated.

column sums up, so to speak, the fluctuation of the creative forces of the total culture of either the specified country or of the whole "World" (mankind) in the course of time by fifty-year periods. The percentile tables (again for the whole "World" and for specified countries) turn the absolute geometric averages for each period into the percentages which each field has in the total ten fields, taking these as a hundred percent.

Reading horizontally each line of the percentile figures for each period, we obtain thus a rough index of the comparative role, importance, and conspicuousness of each field in the total culture of the ten fields in that period, as well as an index of which fields the greatest number of the historical persons have manifested their activities in, during such a period. Reading each column vertically, we obtain an approximate indicator showing in which periods which of the fields rose and declined in its *comparative* importance, measured by the number and prominence of the historical persons that made their names historical in that field.

Though the number and prominence of the historical persons is not quite an adequate measure of the discoveries, inventions, and creative achievements in these fields for each period, nevertheless, as a rough measure of that, it certainly can be taken. In order to become "historical" and to leave traces in history, any person must certainly achieve or create something extraordinary, far above even the notable achievements of a given time. Otherwise, especially after several decades and centuries, the names would be forgotten.

The creation of a new musical, literary, religious, ethical, philosophical or artistic value is as much an achievement as the invention of a new technological appliance. Introduction of a new military technique, or a new device in the political, economic, or social organization is again as much an achievement in the sense of a creation of a new, or improvement of the old, system and technique in these fields, as is a creation of a new, or an improvement of the old, technique in a purely mechanical and technological field. Even an organization of the sociopolitical forces that leads to an expansion or contraction of the boundaries of the States or the privileges and disfranchisements of the social classes; to a social promotion or demotion of the social groups; or to a modification of the behavior of thousands of human beings, is again a change as conspicuous as making new canals, a new irrigation system, new dams that change the distribution, direction, and working of the natural forces; or introducing a standardized or factory system of

production of various commodities. In brief, practically any of the historical persons must have done something that introduced some notable modification in the sociocultural world as efficacious as technological modification is.

According to our tastes and biases, some of us may evaluate these achievements as of positive value, some others as of negative value; but in either case they are and must be extraordinary. Being such, they are "achievement," "creation," "discovery," "invention," "transformation," "modification," "a notable deed," whether they are in the field of science or religion, statesmanship or literature, business or philosophy, fine arts or some other field.[2]

In so far as the above geometric averages are rough, but hardly misleading, indicators of "cultural creativeness" in each of the fields of culture, as such, they give us the rough measure not only of the movement of great men in history, in each field and in all main fields, but also of the movement of "creativeness" — achievements, discoveries, inventions, modifications, transformations — in each of these fields and in their totality from period to period. Being a far more systematic and complete record of the achievements and deeds, they make a factual basis infinitely more valid and solid than the few shreds of

[2] If somebody not quite aware of his biases, should say that the achievements of Darwin or Edison are always positive values, while those of Napoleon, Caesar, St Augustine or Rockefeller are rather negative values, by such a statement he would demonstrate only his personal taste and bias There are many who regard certain scientific discovery and invention negatively (how violently has the Darwinian theory been attacked, for instance), while there have been millions of Frenchmen who admired and most highly valued — and not without reason, from the standpoint of such Frenchmen — the political and military achievements of Napoleon; or Romans who lauded Caesar. An objective observer can in such a case say only one thing: Darwin as well as Napoleon both have achieved something extraordinary — each in his field — that has made their names immortal. The same can be said of practically all the historical persons. If somebody should further say that achievements in science or scholarship remain, while those in political or religious or other fields come and go, he again would be wrong: many a theory in science that gives immortality to its creator is later abandoned and replaced by other theories; in this respect they also come and go. On the other hand, whether it be such an achievement in science, music, statesmanship, business, or any other field, each of them has had its consequences and has had such great effects on the subsequent situations in its fields, that it has entered into it as an imperishable element, even when the theory is later abandoned — even as when the empires of Genghis Khan crumbled, as when the cult of Mithra died out, being absorbed by Christianity, and as when polyphony or the fugue of the composers of the thirteenth to sixteenth century were absorbed by more complex and manifold musical forms of later musicians In brief, in all these respects — objectively — there is hardly any important difference between the achievements of the great historical persons: they all remain "achievements" and all bear ineffaceable consequences.

facts on which most of the theories of social and cultural change are based.[8]

[8] Of course, if we had had a systematic and complete inventory of all the achievements in each of these fields — similar, for instance, to the inventory of the scientific discoveries and technological inventions summed up in Volume Two, Chapter Three, the indicators would have been more adequate But for many fields such inventories are nonexistent and impossible. Therefore we are forced to take the next best substitute for those, namely the number and prominence of the historical persons for each period in each field How closely the movement of scientific discoveries and inventions agrees, for instance, with the movement of the number and prominence of men of science and inventors, has been tested in Volume Two, where both series are given (see Table 5, pages 134 ff). The result demonstrates that both curves — that of scientific discoveries and inventions and that of men of science and inventors — are quite parallel. This means that the substitution of the one set of data for the other is permissible and justifiable, if the direct inventories of the achievements in all the fields of culture are unavailable

So far as the source of the historical names is concerned, the *Encyclopaedia Britannica* with all its defects, remains generally one of the best for our purposes. Its evident shortcomings are, first, incompleteness; but this more or less equally concerns all the past periods, with the exception of perhaps the most recent period of the last two centuries and all fields. In that respect, for the purposes of our comparisons, the shortcoming is unessential It is more or less equally incomplete for all the past periods and for all the fields Its second shortcoming — very great — is its incompleteness concerning historical persons of the Oriental cultures particularly But each Oriental culture we compare with itself at different periods. Therefore, the incompleteness involves more or less equally all the periods of each of such cultures. If we were comparing it with other cultures, especially with the British, which is comparatively too complete and given too much space in the *Encyclopaedia,* as are all English-speaking countries (see about that Volume Two of *Dynamics,* pages 143 ff), then the comparison would be evidently misleading. As we do not do that, the shortcoming becomes comparatively harmless. Its third shortcoming is evidently the natural bias of the editors in allocating the number of lines to each historical person But such bias again concerns more or less equally all the fields of culture and all the periods; therefore they neutralize one another to a considerable degree Most serious of all is a shortcoming somewhat independent of the *Encyclopaedia* or of any other source, namely: the anonymous and collective character of cultural achievements in the periods of domination of Ideational and partly Idealistic culture. In the preceding three volumes this has been shown clearly. Such a collectivity and anonymity of the creations of such periods leaves in the annals of history a much smaller proportion of the names of the individual creators than, for instance, in the individualistic periods of Sensate culture. This leads to an undue lowering of the indicators for the Ideational and heightening of them for the Sensate periods. This has to be borne in mind in the vertical reading of each column However, in their horizontal (percentile) reading, it hardly affects the comparative prominence of each field of culture, in Ideational as well as Sensate and Idealistic periods.

A further serious shortcoming is due to the discrepancy between the influence exerted by a leader during his physical existence and the influence exerted later on. It is not a rare phenomenon when a leader's influence during his physical existence is negligible in comparison with the influence exerted by him during later periods. The actual influence of St. Paul or Lao-Tzu or Vico during their physical existence was very small in comparison with that exerted by them later on, sometimes several decades, even centuries, after their death. Meanwhile, in our compilation all their influence (measured by the number of lines devoted to a leader in the *Encyclopaedia*) is assigned to the periods of their physical

After these explanatory remarks we are ready to examine and analyze the tables which appear on the following pages.

existence. This naturally distorts, somewhat, the real situation. However, the distortion is not catastrophic. First, because there are historical persons whose influence actually lasted only during a short portion of their life, evaporating sometimes entirely during the later part of their existence. If the first type of cases gives a premium in influence to the period of the physical existence of the leader and penalizes the influence in subsequent periods, the second type of cases spreads the influence beyond the period of the actual existence of such leaders In the large mass of names used, both types of cases somewhat neutralize each other Second, when an influence of a leader grows enormously after his death, this is manifested by the appearance of a large number of his disciples in such later periods, many of whom are historical persons. As a result, such periods give us a large number of historical persons, each with a number of lines devoted to him. For this reason, such periods, for instance, the centuries from the third to the sixth A.D. *in the field of Christian religion, receive their due in the geometric averages and reflect* the growth of Christianity in these centuries fairly adequately. For these and similar considerations, the shortcoming mentioned is, though serious, not decisive by any means

To sum up. this source and all possible other sources have several shortcomings like the above; nevertheless, for our purposes most of these are unessential and do not lead to misleading results, with the exception of the just mentioned undue lowering in Ideational and heightening in the Sensate periods of the number of the historical personages.

TABLE 1. WORLD. GEOMETRIC AVERAGES

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Arithmetic Average
B.C. 4000–3951	—	8 4	—	—	—	—	—	—	—	—	0.8
3000–2951	—	6 4	—	—	—	—	—	—	—	—	0.6
1500–1451	—	—	—	—	—	10 0	—	—	—	—	1 0
1050–1001	39.0	48 3	—	—	—	—	—	—	—	—	8 7
950– 901	17.9	—	—	—	—	—	—	—	—	—	1.8
900– 851	13.7	21 8	44 6	—	—	—	—	—	—	—	7 9
850– 801	—	18 0	—	—	—	—	—	—	—	—	1.8
800– 751	10.6	19 2	10.9	—	—	—	—	—	—	—	4 1
750– 701	53 4	18 2	—	—	—	—	—	—	—	—	7.2
700– 651	9 8	—	19 3	—	—	—	—	—	—	—	2.9
650– 601	36 2	21 7	34 8	—	—	—	—	—	—	—	9.3
600– 551	69 5	39 2	25 7	—	—	41 0	—	—	6.6	—	18.2
550– 501	42 3	104 4	12 8	—	—	122 7	—	8 7	7 6	—	29 9
500– 451	30 8	96 7	105 8	5 9	3 8	64 8	—	2 8	26 9	—	33 8
450– 401	3 6	168 0	144 4	80.3	14 1	110 4	—	9 3	48 4	—	58 8
400– 351	2.8	175 0	26 3	57 4	10 3	214 3	—	5 2	27.1	3.1	52 2
350– 301	—	281 7	32 1	31 2	4 4	145 3	5 5	—	50.6	—	54 4
300– 251	—	70 4	51 7	1.7	30 9	91 6	14.3	—	—	—	26.0
250– 201	—	155 0	42 7	5 8	33 6	8 5	—	—	—	—	24 6
200– 151	—	111 7	81 0	38 6	—	13 0	—	4.6	—	—	24.9
150– 101	6 7	37 5	12 3	5 4	12 9	11 4	2 2	—	—	—	8.6
100– 51	5 6	265 9	95 2	23 2	7.5	14 8	—	26 0	—	—	43.8
B.C 50– 1	13 1	216 0	219 5	128 1	23 2	4 0	—	—	15 3	—	61 9
A D. 0– 49	253 4	125 6	41 3	41 1	8 4	55 3	—	18 5	2 8	2.2	54 9
50– 99	36 4	170.7	159 8	55 1	14 1	46 8	—	—	3 7	—	48.7
100– 149	132 3	37.3	54 1	71 7	38 7	2 2	—	11 2	—	—	34.7
150– 199	97 3	70 4	68 3	34 4	10 3	38 6	—	—	2.6	—	32 2
200– 249	155 2	77 3	16 7	15 2	—	19 6	—	—	—	—	28.4
250– 299	135 6	36 6	3 8	1 7	4 3	—	—	—	—	—	18.2

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 1 WORLD GEOMETRIC AVERAGES — *Continued*

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Arithmetic Average
300– 349	200.0	75 8	—	29 5	9 4	22 9	—	5 7	—	—	34 3
350– 399	307.9	78.7	41 9	34 7	15 0	18 0	—	—	3 3	—	50.0
400– 449	197.3	83 7	33.8	50 6	—	—	—	—	—	—	36.5
450– 499	35.5	86 8	—	53 1	—	20 1	—	—	—	—	19.6
500– 549	56.4	119 3	11.9	58 8	4 7	28 6	—	—	—	—	28.0
550– 599	80 3	40 6	22 4	15.2	7 4	—	—	—	—	—	16.6
600– 649	199.4	52.0	44.2	7.2	4 1	—	—	—	—	—	30.7
650– 699	78 5	1 7	14.6	—	—	—	—	—	—	—	9.5
700– 749	54 0	34 1	—	12 2	12 0	—	—	—	—	—	11.2
750– 799	34 4	55 2	—	8.1	—	—	—	—	—	—	9.8
800– 849	76 3	60 8	4.6	24 1	—	—	—	—	—	—	16.6
850– 899	129.8	80 4	—	45.0	8 9	16 6	—	—	—	3 1	28.4
900– 949	80.2	54 0	7 8	15.5	3 3	9 7	—	2 4	—	8 0	18 1
950– 999	59.1	93 1	48 0	19 7	—	5 8	—	—	—	—	22 6
1000–1049	94 6	129.3	14 3	8.8	29.2	—	—	—	—	10 5	28.7
1050–1099	195.1	211 6	23.1	25 5	6 3	28 3	—	—	—	—	49 0
1100–1149	152.6	132 7	20 0	110 0	—	29 7	3 0	—	—	—	44 8
1150–1199	222 4	182 0	63 9	54 4	—	56 3	—	4 5	—	—	58 4
1200–1249	136.9	195 1	41 4	62 6	18 9	8 8	—	8 6	4 7	—	47 7
1250–1299	156.3	185 0	47 2	64 4	13 2	21 4	16 9	—	35 8	—	54.0
1300–1349	108.7	180 8	108 2	53.1	8.8	34.3	15 0	—	78 1	—	58.7
1350–1399	195.8	193 8	142 5	32 5	14 8	—	29 5	5 0	36 6	—	65.1
1400–1449	161.4	222 0	56 0	90 8	4 6	33 2	40.1	14 3	157 7	—	78.0
1450–1499	231 9	393 4	120 2	213.5	12.1	8 9	100.7	29 0	442 1	12.1	156.4
1500–1549	805.8	504 4	409.2	220.3	96 3	65 3	82 3	116 6	790 4	10 8	310.1
1550–1599	626 6	782 3	782 1	363 9	187.0	49 1	70 0	149 2	262 3	75 9	334.8
1600–1649	512 6	927.0	828 9	441 7	295 0	328 5	71 7	138 2	686 0	38 4	426.8
1650–1699	901 1	1063 1	942 8	389.3	420.7	303.2	68 1	57 7	560 1	78 1	478.4
1700–1749	634 2	786 4	842 6	527.7	451 0	318 8	77 9	181.2	249 0	149 1	421.8
1750–1799	452 4	2329 9	1666 5	995 2	1318.0	404 5	271 3	397 3	597 9	295.8	872.9
1800–1849	944 6	3201 0	2765 0	2022 2	2042 2	535 3	692 7	530 2	1327 7	390 4	1445.1
Totals	9287.3	14937.4	10406.2	6646 4	5199.4	3361.6	1561.2	1726 2	5423 3	1077.5	5962.9

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 2. WORLD. GEOMETRIC AVERAGES. PERCENTAGES

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Total Percentage
B.C. 4000–3951	—	100.0	—	—	—	—	—	—	—	—	100
3000–2951	—	100 0	—	—	—	—	—	—	—	—	100
1500–1451	—	—	—	—	—	100 0	—	—	—	—	100
1050–1001	44.7	55 3	—	—	—	—	—	—	—	—	100
950– 901	100.0	—	—	—	—	—	—	—	—	—	100
900– 851	17 1	27 2	55 7	—	—	—	—	—	—	—	100
850– 801	—	100 0	—	—	—	—	—	—	—	—	100
800– 751	26.0	47 2	26 8	—	—	—	—	—	—	—	100
750– 701	74 6	25 4	—	—	—	—	—	—	—	—	100
700– 651	33.7	—	66 3	—	—	—	—	—	—	—	100
650– 601	39 1	23 4	37 5	—	—	—	—	—	—	—	100
600– 551	38 3	21 5	14.1	—	—	22 5	—	—	3.6	—	100
550– 501	14 2	34 9	4 3	—	—	41 1	—	2 9	2 6	—	100
500– 451	9 2	28 7	31 4	1.7	1.1	19 2	—	0 8	7 9	—	100
450– 401	0 6	29 2	25 0	13.8	2 4	19 1	—	1 6	8 3	—	100
400– 351	0 5	33 6	5 1	11.0	1 9	41 1	—	1 0	5 2	0.6	100
350– 301	—	51 2	5 8	5 6	0 8	26 4	1 0	—	9 2	—	100
300– 251	—	27 0	19 8	0 7	11 9	35 1	5 5	—	—	—	100
250– 201	—	63 1	17 7	2.3	13.4	3 5	—	—	—	—	100
200– 151	—	44 9	32 5	15 5	—	5 2	—	1 9	—	—	100
150– 101	7 6	42 4	14 0	6.1	14 6	12 8	2 5	—	—	—	100
100– 51	1.2	60 7	21 7	5 3	1.7	3 4	—	6 0	—	—	100
B.C. 50– 1	2 1	34 9	35 4	20.7	3 8	0 6	—	—	2.5	—	100
A.D. 0– 49	46 2	22 9	7 5	7 4	1.5	10 1	—	3 5	0 5	0 4	100
50– 99	7 5	35 1	32 8	11 3	2 9	9 6	—	—	0 8	—	100
100– 149	38 1	10 8	15 8	20 5	11 1	0 5	—	3 2	—	—	100
150– 199	30 2	21 9	21 2	10 7	3.2	12 0	—	0 8	—	—	100
200– 249	54.7	27 2	5.9	5 3	—	6 9	—	—	—	—	100

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 2. WORLD. GEOMETRIC AVERAGES PERCENTAGES — *Continued*

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Total Percentage
250– 299	74 5	20.1	2 1	0 9	2 4	—	—	—	—	—	100
300– 349	58 2	22 1	—	8 6	2 7	6 7	—	1 7	—	—	100
350– 399	61.8	15 7	8 4	6 9	3 0	3.6	—	—	0.6	—	100
400– 449	54 0	22.9	9 2	13 9	—	—	—	—	—	—	100
450– 499	18 1	44.4	—	27 2	—	10 3	—	—	—	—	100
500– 549	20 2	42 7	4 2	21 0	1 7	10 2	—	—	—	—	100
550– 599	48 4	24 5	13 5	9 1	4 5	—	—	—	—	—	100
600– 649	65 0	16.9	14 5	2 3	1.3	—	—	—	—	—	100
650– 699	82 8	1.7	15 4	—	—	—	—	—	—	—	100
700– 749	48 1	30 3	—	10 9	10 7	—	—	—	—	—	100
750– 799	35 2	56 5	—	8 3	—	—	—	—	—	—	100
800– 849	46 0	36 7	2.8	14 5	—	—	—	—	—	—	100
850– 899	45 7	28 3	—	45 0	8 9	16 6	—	—	—	1.1	100
900– 949	44 3	29 8	4 3	8 6	1 8	5 4	—	1 4	—	4 4	100
950– 999	26.2	41.2	21.3	8 7	—	2 6	—	—	—	—	100
1000–1049	33.0	45 1	4 7	3 1	10 3	—	—	—	—	3.8	100
1050–1099	39 8	43 2	4.7	5 2	1 3	5 8	—	—	—	—	100
1100–1149	34.1	29 6	4 5	24 5	—	6 6	0.7	—	—	—	100
1150–1199	38 1	31 1	11 0	9 3	—	9 7	—	0.8	—	—	100
1200–1249	28.7	40 9	8 7	13 1	3 9	1 9	—	1 8	1.0	—	100
1250–1299	28 9	34 3	8 8	11 9	2 4	4 0	3 1	—	6.6	—	100
1300–1349	18 5	31 0	18 4	9 0	1 5	5 8	2 5	—	13.3	—	100
1350–1399	30.1	29 8	21 9	5 0	2.3	—	4 5	0 8	5 6	—	100
1400–1449	20.7	28 5	7 2	11 6	0 6	4 3	5.1	1 8	20.2	—	100
1450–1499	14 8	25 2	7 7	13 6	0 8	0 5	6.4	1 9	28.3	0 8	100
1500–1549	26 0	16 3	13 2	7 1	3 1	2 1	2 6	3 7	25 6	0.3	100
1550–1599	18 7	23 4	23 4	10 7	5 6	1 5	2 1	4 5	7 8	2.3	100
1600–1649	12.0	21 8	19 4	10 3	6 9	7 6	1 7	3 3	16.1	0.9	100
1650–1699	18.8	22 2	19 7	8 1	8 9	6 4	1 4	1 2	11.7	1.6	100
1700–1749	15.0	18 6	20 0	12 4	10 7	7 6	1 8	4 3	5 9	3.5	100
1750–1799	5 2	26.8	19 1	11 4	15 1	4 6	3 1	4 5	6.8	3.4	100
1800–1849	6.5	22.2	19 1	14.0	14 1	3 7	4.8	3.6	9.2	2.8	100

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 3. GREECE. GEOMETRIC AVERAGES

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Arithmetic Average
B.C 1050–1001	—	5 6	—	—	—	—	—	—	—	—	0.6
900– 851	—	—	44 6	—	—	—	—	—	—	—	4.5
850– 801	—	18 0	—	—	—	—	—	—	—	—	1.8
800– 751	—	—	10.9	—	—	—	—	—	—	—	1.1
700– 651	—	—	19 3	—	—	—	—	—	—	—	1.9
650– 601	5 6	14 4	34 8	—	—	—	—	—	—	—	5.5
600– 551	—	33 0	25 7	—	—	41 0	—	—	6 6	—	10.6
550– 501	4.1	36.1	12 8	—	—	101.5	—	8 7	7 6	—	17.1
500– 451	—	82.2	105 8	5 9	—	20 9	—	2 8	26 9	—	24.5
450– 401	—	126 2	144 4	80 3	14 1	110 4	—	5 8	48 4	—	53.0
400– 351	—	151 3	26 3	57 4	10 3	214 3	—	5 2	27 1	3.1	49.5
350– 301	2.8	237.7	32 1	16 8	4 4	145 3	—	—	50 6	—	49.0
300– 251	—	56 9	40 3	1 7	30 9	66 1	14.3	—	—	—	21.0
250– 201	—	31 0	14 1	—	33 6	8 5	—	—	—	—	8.7
200– 151	—	46 2	11 1	38 6	—	8 2	—	—	—	—	10 4
150– 101	—	9 7	—	5 4	12 9	11 4	2 2	—	—	—	4 2
100– 51	—	10 0	11 4	11 0	3 1	7 3	—	—	—	—	4.3
B C. 50– 1	—	—	—	—	10 0	4 0	—	—	—	—	1.4
A D. 0– 49	12 4	—	—	3 7	3 1	55 3	—	—	2 8	—	7 7
50– 99	14 6	—	—	—	—	17 8	—	—	—	—	3 2
100– 149	35.7	—	—	52 7	38 7	2 2	—	6.0	—	—	13 5
150– 199	48 8	—	45 3	18 8	—	38 6	—	—	2.6	—	15 4
200– 249	42 8	—	—	—	—	19 6	—	—	—	—	6.2
250– 299	51 3	—	—	—	—	—	—	—	—	—	5.1
Totals	218 1	858 3	578 9	292 3	161.1	872 4	16 5	28 5	172.6	3 1	320.2

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 4. GREECE. GEOMETRIC AVERAGES. PERCENTAGES

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Total Percentages
B C 1050–1001	—	100 0	—	—	—	—	—	—	—	—	100 0
900– 851	—	—	100 0	—	—	—	—	—	—	—	100 0
850– 801	—	100 0	—	—	—	—	—	—	—	—	100 0
800– 751	—	—	100 0	—	—	—	—	—	—	—	100.0
700– 651	—	—	100 0	—	—	—	—	—	—	—	100 0
650– 601	10.2	26 3	63 5	—	—	—	—	—	—	—	100.0
600– 551	—	31 0	24 2	—	38 6	—	—	—	6 2	—	100 0
550– 501	2 4	21 1	7 5	—	—	59 4	—	5 1	4 5	—	100.0
500– 451	—	33 6	43 3	2 4	—	8 6	—	1 1	11 0	—	100.0
450– 401	—	23 8	27.3	15.2	2 7	20 8	—	1 1	9 1	—	100.0
400– 351	—	30 6	5.3	11 6	2 1	43 3	—	1 0	5 5	0 6	100.0
350– 301	0 6	48.5	6 6	3 4	0.9	29 7	—	—	10 3	—	100.0
300– 251	—	27.1	19 2	0 8	14 7	31 4	6 8	—	—	—	100 0
250– 201	—	35 6	16 2	—	38 5	9 7	—	—	—	—	100.0
200– 151	—	44.3	10 7	37.1	—	7 9	—	—	—	—	100 0
150– 101	—	23 2	—	13 1	31 0	27 4	5 3	—	—	—	100.0
100– 51	—	23.4	26.6	25 7	7.2	17 1	—	—	—	—	100.0
B.C 50– 1	—	—	—	—	71 4	28 6	—	—	—	—	100.0
A.D. 0– 49	16.1	—	—	4 8	4 0	71 5	—	—	3.6	—	100.0
50– 99	45.1	—	—	—	—	54 9	—	—	—	—	100.0
100– 149	26.4	—	—	39 0	28 6	1 6	—	4.4	—	—	100 0
150– 199	31.7	—	29 4	12 2	—	25 0	—	—	1 7	—	100.0
200– 249	68 6	—	—	—	—	31.4	—	—	—	—	100 0
250– 299	100.0	—	—	—	—	—	—	—	—	—	100.0

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 5. ROME (ITALY). GEOMETRIC AVERAGES

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Arithmetic Average
B.C. 650– 601	—	5.2	—	—	—	—	—	—	—	—	0.5
550– 501	—	10.8	—	—	—	—	—	—	—	—	1.1
500– 451	—	8.7	—	—	3 8	—	—	—	—	—	1.3
450– 401	—	15.7	—	—	—	—	—	3 0	—	—	1.9
400– 351	—	16 2	—	—	—	—	—	—	—	—	1.6
350– 301	—	9.7	—	—	—	—	—	—	—	—	1.0
300– 251	—	12.6	11.1	—	—	—	—	—	—	—	2.4
250– 201	—	54.3	24 4	5.8	—	—	—	—	—	—	8.5
200– 151	—	53.4	64.2	—	—	—	—	4 6	—	—	12.2
150– 101	—	26.7	12 3	—	—	—	—	—	—	—	3.9
100– 51	—	241.1	76.0	12.1	4 2	6 7	—	26 0	—	—	36.6
B.C. 50– 1	—	183.4	197.0	119.1	12.4	—	—	—	15 3	—	52.7
A.D. 0– 49	31.5	97.2	35.0	30.1	5 0	—	—	18 5	—	2.2	22.0
50– 99	10 0	154.7	159.8	41.3	14 1	28 9	—	—	3 7	—	41.3
100– 149	81.8	32 0	54.1	18 7	—	—	—	5 0	—	—	19.2
150– 199	32.5	70 4	10 2	15.3	10.3	—	—	—	—	—	14.3
200– 249	97.7	77.3	16.7	15.2	—	—	—	—	—	—	20.7
250– 299	72.7	36 6	3.8	1 7	4 3	—	—	—	—	—	11.9
300– 349	51.0	47.0	—	9.7	—	—	—	—	—	—	10 8
350– 399	109 7	45 7	24 1	34.7	—	—	—	—	—	—	21 4
400– 449	85.9	32 4	13 5	14 8	—	—	—	—	—	—	15.7
450– 499	14.9	39 2	—	29.8	—	—	—	—	—	—	8.4
500– 549	52.9	8 8	—	12 3	—	19 8	—	—	—	—	9.3
550– 599	34.7	22 8	4 7	—	—	—	—	—	—	—	6.2
600– 649	15.6	—	—	—	—	—	—	—	—	—	1 6

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 5 ROME (ITALY). GEOMETRIC AVERAGES — *Continued*

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Arithmetic Average
650– 699	25.3	—	—	—	—	—	—	—	—	—	2 5
700– 749	18.7	—	—	—	—	—	—	—	—	—	1 9
750– 799	16.3	1.7	—	8 1	—	—	—	—	—	—	2.6
800– 849	14 7	—	—	—	—	—	—	—	—	—	1.5
850– 899	55 0	—	—	—	—	—	—	—	—	—	5 5
900– 949	22 8	—	—	—	—	—	—	—	—	—	2 3
950– 999	39 6	—	—	5 4	—	—	—	—	—	—	4.5
1000–1049	73 9	—	—	—	—	—	—	—	—	10 5	7 7
1050–1099	68 1	15 1	—	—	—	—	—	—	—	—	8.3
1100–1149	38 1	23 1	—	5 0	—	—	—	—	—	—	6.6
1150–1199	74 3	8 9	—	—	—	—	—	—	—	—	8.3
1200–1249	48 5	60 8	3 8	—	13.6	—	—	8 6	4.7	—	14 0
1250–1299	130 4	30 4	9 4	—	13 2	—	—	—	35.8	—	21.9
1300–1349	64 6	6 3	96 1	13 9	—	—	—	—	78.1	—	25 9
1350–1399	55.6	12 4	6 1	—	—	—	4 7	5.0	36 6	—	12.0
1400–1449	49.6	51 7	2 6	59 9	—	25 3	—	—	139.2	—	32.8
1450–1499	165 0	64 7	24 0	116 2	—	3 0	—	11 6	362 4	7.6	75.5
1500–1549	172.3	57 3	133 9	50 6	33 9	—	—	15 2	612 4	4.3	108.0
1550–1599	162.3	69.7	7 5	21 4	63 0	14 7	—	39.4	151 2	33 3	56.3
1600–1649	51 3	29 2	11 7	67 3	12 7	57 6	9.2	20.9	170.9	17.8	44.9
1650–1699	26 1	8 3	5 0	24 0	32 7	—	—	11 6	74 8	26.5	20.9
1700–1749	74.5	34 8	3 8	68 0	29 7	—	—	25 6	12.4	43.2	29.2
1750–1799	33.4	38 5	102 0	53 1	96 3	3 4	—	37 6	65 3	45 8	46 5
1800–1849	32.8	111 9	15.7	62 1	58 7	36 5	8 0	27 7	33 4	63.3	45.0
Totals	2204.1	1926 7	1128.5	915 6	397 9	195 9	21 9	260 3	1796 2	254 5	911 1

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 6. ROME (ITALY). GEOMETRIC AVERAGES. PERCENTAGES

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Total Percentages
B.C. 650– 601	—	100 0	—	—	—	—	—	—	—	—	100.0
550– 501	—	100 0	—	—	—	—	—	—	—	—	100.0
500– 451	—	69.6	—	—	30 4	—	—	—	—	—	100.0
450– 401	—	84 0	—	—	—	—	—	16 0	—	—	100.0
400– 351	—	100 0	—	—	—	—	—	—	—	—	100 0
350– 301	—	100 0	—	—	—	—	—	—	—	—	100 0
300– 251	—	53.2	46 8	—	—	—	—	—	—	—	100 0
250– 201	—	64 3	28.9	6 8	—	—	—	—	—	—	100 0
200– 151	—	43 7	52 5	—	—	—	—	3 8	—	—	100 0
150– 101	—	68 5	31 5	—	—	—	—	—	—	—	100 0
100– 51	—	65 9	20 8	3 3	1 1	1 8	—	7 1	—	—	100 0
B.C. 50– 1	—	34 8	37 4	22 6	2 3	—	—	—	2 9	—	100 0
A.D. 0– 49	14 4	44 3	15 9	13.7	2.3	—	—	8 4	—	1 0	100 0
50– 99	2 4	37 5	38 8	10 0	3 4	7 0	—	0 9	—	—	100.0
100– 149	42 7	16 7	28 2	9 8	—	—	—	2 6	—	—	100 0
150– 199	23 4	50 8	7 4	11 0	7 4	—	—	—	—	—	100 0
200– 249	47 2	37 4	8 1	7 3	—	—	—	—	—	—	100.0
250– 299	61 1	30 7	3 2	1 4	3 6	—	—	—	—	—	100.0
300– 349	47 4	43 6	—	9 0	—	—	—	—	—	—	100.0
350– 399	51 2	21 3	11.3	16 2	—	—	—	—	—	—	100.0
400– 449	58 6	22.1	9.2	10 1	—	—	—	—	—	—	100.0
450– 499	17 8	46 7	—	35 5	—	—	—	—	—	—	100.0
500– 549	56 4	9 4	—	13 1	—	21.1	—	—	—	—	100 0
550– 599	55.8	36.6	7.6	—	—	—	—	—	—	—	100.0
600– 649	100.0	—	—	—	—	—	—	—	—	—	100.0

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 6. ROME (ITALY) GEOMETRIC AVERAGES. PERCENTAGES—*Continued*

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Total Percentages
650– 699	100.0	—	—	—	—	—	—	—	—	—	100.0
700– 749	100 0	—	—	—	—	—	—	—	—	—	100.0
750– 799	62.5	6.5	—	31 0	—	—	—	—	—	—	100.0
800– 849	100.0	—	—	—	—	—	—	—	—	—	100.0
850– 899	100 0	—	—	—	—	—	—	—	—	—	100.0
900– 949	100 0	—	—	—	—	—	—	—	—	—	100.0
950– 999	88 0	—	—	12 0	—	—	—	—	—	—	100.0
1000–1049	87.6	—	—	—	—	—	—	—	—	12.4	100.0
1050–1099	81.9	18 1	—	—	—	—	—	—	—	—	100.0
1100–1149	57.6	34.9	—	7.5	—	—	—	—	—	—	100.0
1150–1199	89.3	10 7	—	—	—	—	—	—	—	—	100.0
1200–1249	34 7	43 4	2.7	—	9 7	—	—	6 1	3 4	—	100.0
1250–1299	59 5	13 9	4.3	—	6 0	—	—	—	16.3	—	100 0
1300–1349	24.9	2 4	37 1	5 4	—	—	—	—	30 2	—	100.0
1350–1399	46 2	10 3	5.1	—	—	—	3 9	4 1	30 4	—	100.0
1400–1449	15.1	15 8	0 8	18 2	—	7 7	—	—	42.4	—	100 0
1450–1499	21.9	8.6	3 2	15 4	—	0 4	—	1.5	48.0	1 0	100 0
1500–1549	16.0	5.3	12.4	4 7	3 1	—	—	1 4	56.7	0.4	100.0
1550–1599	28 9	12.4	1.3	3 8	11 2	2 6	—	7.0	26.9	5 9	100.0
1600–1649	11.4	6 5	2.6	15 0	2 8	12 8	2.1	4 7	38 1	4.0	100 0
1650–1699	12.5	4.0	2.4	11 5	15 6	—	—	5 5	35 8	12.7	100 0
1700–1749	25.5	11.9	1.3	23 3	10 2	—	—	8 8	4.2	14.8	100 0
1750–1799	7.2	8.3	21 9	11 4	18.6	0 7	—	8 1	14.0	9.8	100 0
1800–1849	7.3	24.9	3.5	13 8	13 0	8 1	1 8	6.1	7.4	14.1	100.0

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 7. FRANCE. GEOMETRIC AVERAGES

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Arithmetic Average
150– 199	14.3	—	—	—	—	—	—	—	—	—	1.4
250– 299	5.8	—	—	—	—	—	—	—	—	—	0.6
300– 349	9.1	—	—	—	—	—	—	—	—	—	0.9
350– 399	32 5	—	—	—	—	—	—	—	—	—	3.3
400– 449	38.7	—	—	—	—	—	—	—	—	—	3.9
450– 499	10.2	—	—	—	—	—	—	—	—	—	1.0
500– 549	—	17.2	—	—	—	—	—	—	—	—	1.7
550– 599	8.0	—	5 2	—	—	—	—	—	—	—	1.3
600– 649	10.2	1.7	—	—	—	—	—	—	—	—	1.2
650– 699	—	1.7	—	—	—	—	—	—	—	—	0.2
700– 749	13.6	8 6	—	—	—	—	—	—	—	—	2.2
750– 799	8 4	—	—	—	—	—	—	—	—	—	0 8
800– 849	28 4	24 2	—	—	—	—	—	—	—	—	5.3
850– 899	17.3	24 3	—	—	—	16 6	—	—	—	—	5.8
900– 949	—	14 0	—	4 5	—	—	—	—	—	8 0	2.7
950– 999	3.4	2 0	—	3.7	—	—	—	—	—	—	0.9
1000–1049	—	6 0	6.6	—	—	—	—	—	—	—	1.3
1050–1099	46.4	12 1	—	—	—	15 0	—	—	—	—	7.4
1100–1149	75.9	15 4	—	10 2	—	21 7	3.0	—	—	—	12.6
1150–1199	43.4	6 0	—	5 0	—	—	—	—	—	—	5.3
1200–1249	8 7	12 4	16 4	28 2	3.7	—	—	—	—	—	6.9

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 7. FRANCE. GEOMETRIC AVERAGES — *Continued*

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Arithmetic Average
150–1299	—	20.1	—	33.3	—	—	16 9	—	—	—	7.0
100–1349	17.6	13.0	—	—	8 8	14 9	—	—	—	—	5.4
150–1399	15.1	39.3	47.9	—	5.3	—	—	—	—	—	10.1
100–1449	39.4	34 8	27.5	13.8	—	—	11 4	—	—	—	12.7
150–1499	22.9	47 4	15 3	12.2	—	—	—	—	—	—	9.8
100–1549	11.1	73.9	67.8	16.4	—	12.9	7 1	32.0	14 2	—	23.5
150–1599	31 8	209 8	146 6	107.0	22 9	27.6	6 3	23 8	20 1	7.1	60 3
100–1649	70.2	159.2	123.7	90.7	20 5	64 3	—	33.1	67 3	4.3	64.3
150–1699	189.9	149.1	325.1	108.8	47 6	83 7	34.6	—	101.1	—	104.0
100–1749	43.9	146 1	143 6	154 4	116 9	25.8	26 3	35 3	93 2	16 4	80.2
150–1799	28.3	522.8	279 1	211 3	350 7	164 9	25 0	171.2	124 8	17.8	189.6
100–1849	53.9	689.5	435.3	405 4	415 5	132 8	80.8	79 5	292 0	57 9	264.3
Totals	898 4	2250.61	1640.1	1204.9	991.9	580 2	211 4	374 9	712.7	111.5	897.9

) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 8. FRANCE. GEOMETRIC AVERAGES. PERCENTAGES

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Total Percentages
150– 199	100.0	—	—	—	—	—	—	—	—	—	100 0
250– 299	100.0	—	—	—	—	—	—	—	—	—	100.
300– 349	100.0	—	—	—	—	—	—	—	—	—	100
350– 399	100.0	—	—	—	—	—	—	—	—	—	100
400– 449	100.0	—	—	—	—	—	—	—	—	—	100.
450– 499	100.0	—	—	—	—	—	—	—	—	—	100.
500– 549	—	100.0	—	—	—	—	—	—	—	—	100
550– 599	60.6	—	39 4	—	—	—	—	—	—	—	100
600– 649	85.7	14 3	—	—	—	—	—	—	—	—	100.
650– 699	—	100 0	—	—	—	—	—	—	—	—	100.
700– 749	61.3	38.7	—	—	—	—	—	—	—	—	100.
750– 799	100.0	—	—	—	—	—	—	—	—	—	100
800– 849	54.0	46 0	—	—	—	—	—	—	—	—	100.
850– 899	29.7	41.8	—	—	—	28 5	—	—	—	—	100
900– 949	52.8	—	—	17.0	—	—	—	—	—	—	100
950– 999	37.4	22 0	—	40.6	—	—	—	—	—	30.2	100
1000–1049	—	47.6	52 4	—	—	—	—	—	—	—	100.
1050–1099	63.1	16.5	—	—	—	20 4	—	—	—	—	100.
1100–1149	60.1	12 2	—	8.1	—	17 2	2 4	—	—	—	100.
1150–1199	79.8	11.0	—	9.2	—	—	—	—	—	—	100.
1200–1249	12.6	17 9	23 6	40 6	5 3	—	—	—	—	—	100.
1250–1299	—	28 6	—	47 4	—	—	24 0	—	—	—	100
1300–1349	32.4	24.0	—	—	16 2	27 4	—	—	—	—	100.
1350–1399	14 1	36 5	44.5	—	4 9	—	—	—	—	—	100
1400–1449	31 0	27 4	21.7	10 9	—	—	9 0	—	—	—	100
1450–1499	23 4	48 5	15.6	12.5	—	—	—	—	—	—	100
1500–1549	4 7	31.4	28 8	7 0	—	5.5	3.0	13 6	6 0	—	100.
1550–1599	5.3	34.8	24.3	17.7	3 8	4 6	1.0	4 0	3.3	1.2	100.
1600–1649	11.1	25.1	19.6	14.3	3 2	10.2	—	5.2	10.6	0.7	100.
1650–1699	18 3	14.3	31 3	10 5	4 6	8 0	3.3	—	9.7	—	100.
1700–1749	5 5	18 2	17.9	19.3	14 6	3 2	3 3	4 4	11 6	2.0	100
1750–1799	1.5	27.6	14 7	11 2	18 5	8 7	1.3	9.0	6.6	0 9	100.
1800–1849	2.0	26.1	16.5	15.4	15 7	5.0	3.1	3.0	11.0	2.2	100.

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Busine
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 9. ENGLAND. GEOMETRIC AVERAGES

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Arithmetic Average
250– 299	4 4	—	—	—	—	—	—	—	—	—	0 4
350– 399	4 7	—	—	—	—	—	—	—	—	—	0.5
400– 449	14.1	—	4.5	—	—	—	—	—	—	—	1.9
450– 499	—	4 4	—	—	—	—	—	—	—	—	0 4
500– 549	—	—	—	8 7	—	—	—	—	—	—	0.9
550– 599	37.5	9 2	—	—	—	—	—	—	—	—	4.7
600– 649	3.2	12 9	23 8	—	—	—	—	—	—	—	4.0
650– 699	30.2	—	—	—	—	—	—	—	—	—	3.0
700– 749	3.7	—	—	12 2	—	—	—	—	—	—	1.6
800– 849	8 8	10 3	—	—	—	—	—	—	—	—	1.9
850– 899	16 4	22.7	—	7 9	—	—	—	—	—	—	4.7
900– 949	13 4	17 7	—	—	—	—	—	—	—	—	3.1
950– 999	6.3	21.2	—	—	—	—	—	—	—	—	2.8
1000–1049	22 6	59.2	—	—	—	—	—	—	—	—	8.2
1050–1099	37 5	67 2	—	6 1	—	—	—	—	—	—	11.1
1100–1149	20 1	32.4	—	60 3	—	—	—	—	—	—	11 3
1150–1199	56.9	46.6	15 0	26.1	—	14 4	—	4 5	—	—	16.3
1200–1249	32.3	37 7	—	10.9	—	—	—	—	—	—	8.1
1250–1299	—	56 5	4 5	7 3	—	21 4	—	—	—	—	9.0
1300–1349	4.7	63 5	5.7	22.3	—	—	—	—	—	—	9.6
1350–1399	46.8	37 7	70.4	16.6	—	—	20 3	—	—	—	19 1
1400–1449	29.7	61.0	10.0	11 8	—	—	7.4	—	—	—	12.0
1450–1499	12.1	112.0	35.1	28 8	—	—	—	17 0	3 5	—	20.9
1500–1549	233.6	192.2	105 5	76 5	—	8 8	12 2	25 1	—	—	65 4
1550–1599	217.5	297.9	396 4	137 9	40 6	3 0	55.9	70 0	5 7	24 5	124.9
1600–1649	237.8	433.6	520 8	145 8	158 4	157 7	46.4	74 0	27 8	6 0	180 8
1650–1699	520 4	660 6	492 8	176 2	250 5	133 4	26 3	41 4	93 4	37.9	243.3
1700–1749	363 3	347.1	600.1	178.5	146 2	263 2	22.3	111.8	88.2	37.4	215 8
1750–1799	222.4	977.3	760.3	443 7	397.2	38.5	189 4	136.9	321 7	66.0	355.3
1800–1849	407.0	1209.9	1346 3	784.5	869 6	116 9	410 4	288 9	739.5	80 9	625.9
Totals	2607 4	4790.8	4391.2	2162.1	1862.5	757.3	790.6	769.6	1279.8	252.7	1966.9

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 10 ENGLAND. GEOMETRIC AVERAGES. PERCENTAGES

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Total Percentages
250– 299	100.0	—	—	—	—	—	—	—	—	—	100.0
350– 399	100 0	—	—	—	—	—	—	—	—	—	100.0
400– 459	75.8	—	24 2	—	—	—	—	—	—	—	100.0
450– 499	—	100.0	—	—	—	—	—	—	—	—	100.0
500– 549	—	—	—	100.0	—	—	—	—	—	—	100.0
550– 599	80 3	19 7	—	—	—	—	—	—	—	—	100.0
600– 649	8 0	32 3	59 7	—	—	—	—	—	—	—	100.0
650– 699	100 0	—	—	—	—	—	—	—	—	—	100.0
700– 749	23.3	—	—	76 7	—	—	—	—	—	—	100.0
800– 849	46 1	53 9	—	—	—	—	—	—	—	—	100 0
850– 899	34 9	48 3	—	16 8	—	—	—	—	—	—	100 0
900– 949	43.1	56 9	—	—	—	—	—	—	—	—	100 0
950– 999	22.9	77 1	—	—	—	—	—	—	—	—	100.0
1000–1049	27.6	72 4	—	—	—	—	—	—	—	—	100 0
1050–1099	33 8	60.7	—	5 5	—	—	—	—	—	—	100.0
1100–1149	17 8	28 7	—	53 5	—	—	—	—	—	—	100 0
1150–1199	34 8	28.5	9.2	16 0	—	8 8	—	2 7	—	—	100.0
1200–1249	39.9	46 6	—	13 5	—	—	—	—	—	—	100.0
1250–1299	—	63 0	5 0	8 1	—	23 9	—	—	—	—	100 0
1300–1349	4.9	66 0	5 9	23 2	—	—	—	—	—	—	100.0
1350–1399	24 4	19 6	36 7	8 7	—	—	10 6	—	—	—	100.0
1400–1449	24 8	50 9	8.3	9 8	—	—	6 2	—	—	—	100 0
1450–1499	5 8	53 7	16 8	13 8	—	—	—	8 2	1 7	—	100 0
1500–1549	35 7	29 4	16 1	11 7	—	1 4	1 9	3 8	—	—	100.0
1550–1599	17.4	23 8	31 7	11 0	3 3	0 2	4 5	5 6	0 5	2 0	100 0
1600–1649	13.1	24 0	28.8	8 1	8 8	8 7	2 6	4.1	1 5	0 3	100 0
1650–1699	21 4	27 2	20 2	7 2	10 3	5 5	1.1	1 7	3 8	1 6	100 0
1700–1749	16 8	16 1	27 8	8 3	6 8	12 2	1 0	5 2	4.1	1.7	100 0
1750–1799	6 3	27 5	21 4	12 5	11 2	1 1	5 3	3 8	9 1	1 8	100 0
1800–1849	6.5	19 4	21.5	12.5	13 9	1 9	6 6	4.6	11 8	1 3	100.0

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 11. GERMANY. GEOMETRIC AVERAGES

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Arithmetic Average
400- 449	—	27 3	—	—	—	—	—	—	—	—	2.7
450- 499	—	11 3	—	—	—	—	—	—	—	—	1.1
650- 699	3 1	—	—	—	—	—	—	—	—	—	0.3
700- 749	6 6	—	—	—	—	—	—	—	—	—	0.7
750- 799	5.2	14.7	—	—	—	—	—	—	—	—	2.0
800- 849	6 0	—	—	11 9	—	—	—	—	—	—	1.8
850- 899	5.6	5.7	—	—	—	—	—	—	—	—	1.1
900- 949	4 0	8 7	—	—	—	—	—	—	—	—	1.3
950- 999	4.1	20 4	10 9	—	—	—	—	—	—	—	3.5
1000-1049	6 0	14 9	—	5 8	—	—	—	—	—	—	2.7
1050-1099	9 2	12 3	—	4 6	—	—	—	—	—	—	2.6
1100-1149	—	21 2	—	4 5	—	—	—	—	—	—	2.6
1150-1199	8 8	36.1	15 3	—	—	—	—	—	—	—	5.0
1200-1249	23.1	34.1	16 1	—	—	8.8	—	—	—	—	8.2
1250-1299	—	19.8	5 4	—	—	—	—	—	—	—	2.5
1300-1349	10.3	18.3	—	—	—	15 5	—	—	—	—	4.4
1350-1399	9.2	22.0	—	—	—	—	—	—	—	—	3.1
1400-1449	17.7	24 7	—	—	—	—	—	9 3	—	—	5.2
1450-1499	13.9	25.8	35 6	32 1	12.1	5.5	—	—	38 9	3.9	16.8
1500-1549	255 5	18.3	21 2	47 4	51.4	—	—	9 7	106 7	6 2	51.6
1550-1599	28.4	20.2	27 8	15 4	19.7	—	—	—	4.8	4 0	11.6
1600-1649	46.4	49 8	14 5	27 1	42.9	16 9	5 7	—	—	10.0	21.3
1650-1699	28.2	24 7	24.4	31 3	28 4	47.9	—	2.4	—	4 5	19.2
1700-1749	88.0	71.8	39.1	62.6	45.5	18 9	4 4	—	11 4	42 4	38.4
1750-1799	84.7	108 8	315.9	170.5	166.9	169 4	5.3	—	26.8	41 8	109.0
1800-1849	313.1	206 6	341 8	477 4	458 8	198 7	90 6	53 4	189 9	103 8	242 8
Totals	977 1	817.5	868.0	890.6	825 7	481.6	106.0	74.8	378.5	216.6	561.5

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 12. GERMANY. GEOMETRIC AVERAGES. PERCENTAGES

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Total Percentages
400– 449	—	100 0	—	—	—	—	—	—	—	—	100 0
450– 499	—	100 0	—	—	—	—	—	—	—	—	100.0
650– 699	100 0	—	—	—	—	—	—	—	—	—	100.0
700– 749	100.0	—	—	—	—	—	—	—	—	—	100.0
750– 799	26 1	73.9	—	—	—	—	—	—	—	—	100.0
800– 849	33 5	—	—	66 5	—	—	—	—	—	—	100.0
850– 899	49 6	50.4	—	—	—	—	—	—	—	—	100 0
900– 949	31 5	68.5	—	—	—	—	—	—	—	—	100 0
950– 999	11 6	57 6	30 8	—	—	—	—	—	—	—	100.0
1000–1049	22 5	55.8	—	21 7	—	—	—	—	—	—	100.0
1050–1099	35.3	47.1	—	17 6	—	—	—	—	—	—	100 0
1100–1149	—	82 5	—	17 5	—	—	—	—	—	—	100 0
1150–1199	14.6	60.0	25 4	—	—	—	—	—	—	—	100 0
1200–1249	28 1	41.6	19 6	—	—	10 7	—	—	—	—	100.0
1250–1299	—	78.6	21 4	—	—	—	—	—	—	—	100 0
1300–1349	23 3	41 5	—	—	—	35 2	—	—	—	—	100 0
1350–1399	29 5	70 5	—	—	—	—	—	—	—	—	100.0
1400–1449	34 2	47 8	—	—	—	—	—	18 0	—	—	100.0
1450–1499	8.3	15 4	21 2	19.1	7 2	3 3	—	—	23 2	2.3	100 0
1500–1549	49 5	3 5	4 1	9 2	10 0	—	—	1 8	20 7	1.2	100 0
1550–1599	23 6	16 8	23.1	12 8	16 4	—	—	—	4 0	3.3	100.0
1600–1649	21 8	23 3	6 8	12.7	20 1	7 9	2.7	—	—	4.7	100.0
1650–1699	14 7	12 9	12 7	16 3	14 8	25.0	—	1.3	—	2.3	100 0
1700–1749	22.9	18 7	10 2	16.3	11 8	4 9	1 2	—	3.0	11.0	100 0
1750–1799	7 8	10 0	29 0	15 6	15 3	15.5	0 5	—	2 5	3.8	100.0
1800–1849	12 9	8.5	14 0	19.6	18 8	8 2	3 7	2 2	7.8	4.3	100.0

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 13 AUSTRIA, HUNGARY, BOHEMIA GEOMETRIC AVERAGES

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Arithmetic Average
1100–1149	—	—	—	2 4	—	—	—	—	—	—	0.2
1200–1249	6 0	—	—	—	—	—	—	—	—	—	0.6
1350–1399	39 9	—	—	—	—	—	—	—	—	—	4.0
1400–1449	1 7	9 6	—	—	—	—	—	—	—	—	1 1
1450–1499	—	10.3	—	—	—	—	—	—	—	—	1.0
1500–1549	16 8	6 8	—	—	—	—	—	—	—	—	2.4
1550–1599	—	17 2	—	—	—	—	—	—	4 4	—	2 2
1600–1649	—	60 7	5 4	8 1	—	—	—	—	—	—	7 4
1650–1699	8 7	24 1	5 0	—	—	—	—	—	—	7.4	4.5
1700–1749	3 1	50 3	—	—	—	—	—	7 7	—	—	6 1
1750–1799	7 7	49 7	3 4	35 2	21 2	—	—	18 0	—	93.5	22 9
1800–1849	12 5	114 0	99 2	62 9	12 0	5 2	12 3	11 9	13 4	52.8	39 6
Totals	96.4	342.7	113 0	108 6	33 2	5.2	12 3	37 6	17.8	153.7	92 0

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 14. AUSTRIA, HUNGARY, BOHEMIA. GEOMETRIC AVERAGES. PERCENTAGES

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Total Percentages
1100–1149	—	—	—	100 0	—	—	—	—	—	—	100.0
1200–1249	100 0	—	—	—	—	—	—	—	—	—	100.0
1350–1399	100 0	—	—	—	—	—	—	—	—	—	100 0
1400–1449	15.0	85 0	—	—	—	—	—	—	—	—	100.0
1450–1499	—	100.0	—	—	—	—	—	—	—	—	100.0
1500–1549	71.2	28.8	—	—	—	—	—	—	—	—	100.0
1550–1599	—	79.6	—	—	—	—	—	—	20 4	—	100.0
1600–1649	—	81.8	7 3	10.9	—	—	—	—	—	—	100.0
1650–1699	19.2	53.3	11 1	—	—	—	—	—	—	16.4	100.0
1700–1749	5 1	82.3	—	—	—	—	—	12 6	—	—	100.0
1750–1799	3.3	21.7	1 5	15 4	9.3	—	—	7.9	—	40.9	100.0
1800–1849	3.2	28 8	25 0	15 9	3.0	1 3	3 1	3 0	3.4	13.3	100.0

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 15. RUSSIA, POLAND. GEOMETRIC AVERAGES

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Arithmetic Average
200– 249	3.7	—	—	—	—	—	—	—	—	—	0.4
950– 999	—	2 2	—	—	—	—	—	—	—	—	0.2
1100–1149	—	—	—	8 4	—	—	—	—	—	—	0.8
1200–1249	—	6 1	—	—	—	—	—	—	—	—	0.6
1300–1349	—	3 7	—	—	—	—	—	—	—	—	0.4
1350–1399	—	2 2	—	—	—	—	—	—	—	—	0.2
1450–1499	—	4 4	—	—	—	—	—	—	—	—	0.4
1500–1549	5 0	—	—	—	10 8	—	—	—	—	—	1.6
1550–1599	9.8	8 1	4.2	—	—	—	—	—	—	—	2.2
1600–1649	4 0	—	—	—	3 8	—	—	—	—	—	0.8
1650–1699	—	23 3	—	—	—	—	—	—	—	—	2.3
1700–1749	—	55 2	4.6	—	11 5	—	4 6	—	—	—	7.6
1750–1799	5 3	83 1	8 8	15 3	35 3	—	2 8	—	—	—	15.1
1800–1849	—	115 3	82.3	43 2	6 4	—	17 7	—	—	19.5	28.4
Totals	27.8	303.6	99.9	66.9	67.8	—	25 1	—	—	19.5	61.0

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 16. RUSSIA, POLAND. GEOMETRIC AVERAGES. PERCENTAGES

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Total Percentages
200– 249	100.0	—	—	--	–	--	--	–	—	—	100 0
950– 999	—	100 0	—	--	–		–	--	—	--	100 0
1100–1149	—	–		100 0	-	-	—	-	—	—	100 0
1200–1249	—	100 0	-	--		--	--	–	—	—	100 0
1300–1349	—	100 0	—	--	-	--	—	—	—	—	100 0
1350–1399	—	100 0	—	-	–	--	—	-	—	—	100 0
1450–1499	—	100 0	—	—	-	—	—	—	—	—	100 0
1500–1549	31 6	—	—	—	68 4	—	—	—	—	—	100 0
1550–1599	44 3	36 7	19 0	—	--	—	—	—	—	—	100.0
1600–1649	51 3	—	—	—	48 7	—	—	—	—	—	100 0
1650–1699	—	100 0	—	—	—	—	—	—	—	—	100 0
1700–1749	—	72 7	6 1	—	15 1	—	6 1	—	—	—	100 0
1750–1799	3.5	55 2	5 8	10 2	23 4	—	1 9	—	—	—	100.0
1800–1849	—	40 5	28 9	15 2	2 3	—	6 2	—	—	6.9	100.0

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 17. U. S. A. GEOMETRIC AVERAGES

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Arithmetic Average
1600–1649	8.7	9 7	—	—	—	—	—	—	—	—	1.8
1650–1699	57.6	5 2	—	—	—	—	4 0	—	—	—	6.7
1700–1749	7.6	—	—	—	—	—	—	—	—	—	0 8
1750–1799	35 5	319 3	19 0	20 8	3 8	—	25 6	16 1	11 6	—	45.2
1800–1849	82 4	423 9	176 4	74 9	125 0	11 0	54 6	46 9	31 1	—	102.6
Totals	191 8	758.1	195 4	95 7	128 8	11 0	84 2	63.0	42 7	—	157.1

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

TABLE 18. U. S. A. GEOMETRIC AVERAGES. PERCENTAGES

Period	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	Total Percentages
1600–1649	47.3	52.7	—	—	—	—	—	—	—	—	*100.0*
1650–1699	86.2	7.8	—	—	—	—	6 0	—	—	—	100.0
1700–1749	100.0	—	—	—	—	—	—	—	—	—	100.0
1750–1799	7.8	70.7	4 2	4 6	0 8	—	5 7	3 6	2 6	—	100.0
1800–1849	8.0	41.3	17 2	7 3	12 2	1 1	5 3	4 6	3 0	—	100.0

(I) = Religion (II) = State (III) = Literature (IV) = Scholarship (V) = Science (VI) = Philosophy (VII) = Business
(VIII) = Miscellaneous (IX) = Fine Arts (X) = Music

II. Conclusions

These tables are instructive in many respects. Let us consider, one by one, the principal conclusions they lead to.

A. *Accumulative character of historical persons and — by inference — of the achievements in all ten fields of culture in the course of time.* Whether we take the figures for the "World" or for any of the specified countries, in all these fields the number of the historical persons and of the achievements respectively, systematically grows in the course of time, if we add the indicators of each subsequent period to the preceding ones. By virtue of addition, this cannot be otherwise. This evident fact is mentioned only to show that in this respect there is no difference between the fields of culture: they all are accumulative, and accumulation in the fields of the "nonmaterial" culture — religion, statesmanship, social sciences, humanistics, literature, fine arts, and music — is neither slower nor less, but rather greater and faster, than in the field of science and technology, or especially business ("the material culture"). Thus there is no ground for dividing the fields into "accumulative" and "nonaccumulative," as the above dichotomic theories contend.

B. *Roughly linear tendency of such an accumulation.* By virtue of this same addition, the direction of the process of accumulation naturally assumes a linear character, in the course of time, in all ten fields. The only difference between various parts of the linear curve is that some parts of it are ascending faster than others, and that some parts of it are stationary plateaus. Again the very character of addition does not permit the curve to go down: it can only go up under such procedure. Leaving the problem of whether such an addition-procedure is the correct way of finding out the real direction of the process, this fact of linearity in all fields is mentioned again to show that, contrary to the dichotomic theories, there is no difference in this respect among all the fields. When the method of cumulative addition is applied equally to all fields, all fields will appear to be "linear" in their direction in the course of time.

C. *No fundamental difference is shown in regard to accumulative-nonaccumulative and gradual-erratic character of the science-technology-business series, on the one hand, and the religion-philosophy-statesmanship-art-scholarship series, on the other, when their indicators by periods are considered.* In view of an insistence, on the part of the above dichotomic theories, that "science-technology-material cul-

ture-civilization" are accumulative and change steadily, while religion-philosophy-art-scholarship, as the fields of "nontechnological-nonmaterial-cultural" systems, are nonaccumulative and move more erratically, it is advisable to stop for a moment and look at the movement of the indicators from period to period of each of these series. When such a study of the indicators (absolute geometric averages) for the World or specified cultures is made, it becomes evident that the claim of the theories is untenable. In the World series, last period, 1800–1849, the indicators of *all ten fields* reached the highest level, unprecedented before; so also for the period 1700–1849. After 450 A.D., up to roughly 1000, the indicators of all ten series descend, some to a zero level. In the remainder of the periods their movement is such that no ground is given for the claim that some of the series are steadily accumulative while the others are not; that some systematically tend to give a greater and greater number of discoveries or historical men, while others do not. As a matter of fact, in this respect they all move erratically, now rising, now falling, even to zero. In other words, in the major tidal waves, almost all ten series move more or less alike and in a similar direction, parallel; in minor movements their deviations are such that there is hardly any reason to claim that the fields of one dichotomic division move more closely together and more nearly parallel than the fields belonging to different dichotomic divisions.

When we attempt to verify the results by taking other — also reliable and more complete data — they bear out the conclusion. Take from this standpoint more complete data about the natural scientists and the scholars (in social and humanistic sciences) in Arabian culture. Respective indicators for the following centuries are as follows: [4]

ARABIA

Period	*Natural Sciences*	*Humanities*
700– 750	—	6
750– 800	30	15
800– 850	95	47
850– 900	119	28
900– 950	88	35
950–1000	107	49
1000–1050	140	56
1050–1100	45	37
1100–1150	79	40
1150–1200	92	67
1200–1250	74	64
1250–1300	99	58

[4] The data are taken from *Dynamics*, Vol. II, table 8, p. 148.

Here, in seven of ten periods, both series move similarly, in the same direction; in three periods, in the opposite direction.

If we compare the movement of scientific discoveries and technological inventions with that of creativeness in philosophical thought, in music, and of even a number of historical, ecclesiastical writers,[5] the century indicators are as follows:

GRAECO-ROMAN AND WESTERN WORLD

Period	*Number of Scientific Discoveries and Inventions*	*Number of Philosophers (weighted)*	*Number of Musicians (weighted)*	*Number of Christian Ecclesiastical Writers*
B C 600– 501	31	31	24	
500– 401	40	118	36.5	
400– 301	60	192	18	
300– 201	45	169	9	
200– 101	17	71	2	
B C 100– 0	32	110		
A D 1– 100	61	77	2	6
101– 200	27	223	5	29
201– 300	8	132	7	21
301– 400	16	113	6.5	58
401– 500	4	99	12	54
501– 600	13	63	6	30
601– 700	4	21	8	15
701– 800	4	13	3 5	16
801– 900	6	39	11 5	22
901–1000	7	9	5 5	16
1001–1100	8	47	12	16
1101–1200	12	93	16	38
1201–1300	53	183	53 5	27
1301–1400	65	190	28 5	24
1401–1500	127	44	65	47
1501–1600	429	236	178 763[6]	40
1601–1700	691	537	213 1010[7]	138
1701–1800	1574	583	217 1155[8]	
1801–1900	8527	1578	286 5 2343[9]	

[5] For science and philosophy the data are taken from *Dynamics*, Vol II, Table 5, pp 134–35, and Table 15, p. 188 From Table 5 is taken the column "Grand Total," which sums up all the discoveries and inventions known for each century period. From Table 15 is taken the column "Grand Total," which gives the number of philosophers known for each period, weighted (multiplied) on a scale from 1 to 12, according to their influence. The names of these philosophers and the value attached to each are given in "Appendix to Chapter Four" at the end of that volume. Note that in this case not the number of weighted scientists is compared with the number of weighted philosophers (as it is in the above Boldyreff's data) but the number of scientific discoveries and inventions with the number of philosophers.

The indicators for music represent for each century the number of musicians weighted

[6] Lapshin's data. [7] *Ibid.* [8] *Ibid.* [9] *Ibid.*

The data show, first, that in the last four centuries all the indicators rapidly rise in all the four series (the series of ecclesiastical writers unfortunately ending in 1700); second, throughout the Middle Ages, roughly from the fourth century A.D. to the twelfth, the indicators of all the four series go down and stay low; third, the centuries from the sixth to the third B.C. in all three series are marked by a comparatively high creativeness; in the remainder of the periods all the series vary, but without any trace of accumulative nature in some and a lack of it in others; and without any particular difference between the science series and the other series in regard to one another. In brief, the results are essentially the same as those given by the above Boldyreff data, in spite of the fact that here we compute not the number of scientists and inventors, but that of scientific discoveries, and inventions; and that the other series are derived from other sources than the *Encyclopaedia Britannica*. This means that the results of Boldyreff's series are corroborated and the claims of the dichotomic theories are once more repudiated.

D. *Intermittent and Nonlinear Direction of the Series from Period to Period.* This also means that the geometric averages of the

on a scale from 1 to 3 points up to the sixteenth century, and from 1 to 6 points from the sixteenth to the twentieth century, given by the *Arbre généalogique: l'évolution de l'art musical depuis les origines jusqu'à l'époque modern* by Alexandre Denéréaz (Lausanne, 1916). In his table he uses three different sizes of letters for each musician up to the sixteenth century and six different sizes of letters for each musician after the fifteenth century: the larger the letter, the bigger the caliber of the musician. Besides the indicators derived from Denéréaz's work, for the sixteenth to nineteenth centuries, another set of indicators for music is given. These indicators are taken from a special list prepared by Professor I. I. Lapshin, on the basis of the best histories of music. He ranks all musicians in 12 ranks, giving thus the values from 1 to 12 to each musician, according to his importance. In Denéréaz's table, there are 894 names given; 89 for Graeco-Roman musicians from the eighth century B.C to the third A.D. (inclusive); 63 names for the Western Christian world from the fourth century A.D. to the eleventh inclusive; and 742 names for the subsequent centuries. In Lapshin's list for the last four centuries there are some thousand names. The ranking of the two authors does not entirely coincide Nevertheless, in spite of some discrepancies in ranking, the results for each century in both lists are essentially similar, almost identical.

Finally, the list of the prominent theological and ecclesiastical writers (up to 1700, because it goes only to 1730) is taken from M. N. S. Guillon's *Bibliothèque choisie des pères de l'église Greque et Latine* (Paris, 1828–34), in 27 volumes. The work has a strong Catholic bias. Even such names as Luther, Calvin, Wesley are not included. If they were included, then the indicators for the last two centuries would have been still higher than they are. But with that, it is one of the fullest and best sources for the purpose. Here the figures given represent a number of such writers for each century, without any weighting (all are given a value of one). The computation from the work was made by John W. Boldyreff.

historical persons (their number and prominence) for each fifty-year period in Boldyreff's series as well as in the others, do not show any linearity but fluctuate most erratically between zero and diverse figures for different periods. No linear trend toward either increase or decrease of the geometric averages from earlier to later periods is noticeable, when the whole series is taken. More than that: even in the World series, there is no single field which does not contain one or many periods when the indicator falls to zero, meaning that not a single person in such a field became historical, and — with the exception of the "anonymous" Ideational periods — no important achievement in the field was made. Even the most continuous and the least intermittent fields of Religion and Statesmanship have one or more periods with such intermittency or sterility. For each of the separate countries, such intermittent periods are naturally much more numerous.

This means again that the creativeness of various periods in each of the ten fields and in all of them (see the arithmetic averages) is not constant. It fluctuates enormously and violently. There are periods when no achievement, no historical person, appears in a given field, and very few in all the fields taken together. Such periods can be characterized as "the sterile or unanimous (for Ideational culture) periods."

There are periods which are not sterile or "unanimous," but exceedingly scant in the fruitfulness of achievement. Finally, for each field and for the whole human culture, there are periods of blossoming, of an explosion of creativeness and diversity, manifested by a large number of persons who become historical through their contribution to a given field, or to all fields. From this standpoint, the creative life of each field or of the whole culture, has its "lulls" and "effervescent" periods, periods of stagnation, sterility, and exhaustion (or unanimity for Ideational periods), and those of creative *élan*, and blossoming or diversity.

E. ***The series of Religion and Statesmanship are the least intermittent, while the Business series is the most intermittent, the other fields occupying intermediate positions,*** and literature, science, scholarship, philosophy being less intermittent than fine arts, music and miscellaneous. So far as the series mean not only the number (and prominence) of historical persons but also — in a rough way — the creativeness in a respective field, this suggests that Religion and Statesmanship provide a more continuous stream of creative historical per-

sons than any other field; that the stream of creativeness in the field of economic and business achievements is the least continuous, most fragile, and most apt to dry up; while other fields occupy an intermediate position. This is equally true of the data of the World, as well as of those of almost all of the specified countries. This refutes again the contention of the above dichotomic theories that technological, economic, and scientific "inventions and discoveries," or creativeness, are most continuous and accumulative, while religious, political, scholastic, humanistic, and others are nonaccumulative, noncontinuous, most erratic, and intermittent. The data do not support such claims at all.

F. *In the World series, as well as in almost all the series for separate countries, the fields of Religion and Statesmanship indicate historical persons and creative achievements (inventions, discoveries, etc.) earlier than any other field; next comes literature, and last comes the field of business, other fields occupying intermediate positions. In these other fields, philosophy, fine arts, science, and scholarship all appear at about the same period (in the World series) and without any uniform order of their appearance in the series of separate countries.*

This result again repudiates the claims of the dichotomic and other theories that the "material-technological-scientific-civilizational" parts of culture lead in change, while the "nonmaterial-nontechnological-nonscientific-cultural" parts lag in change. Our data reveal quite a different story. They show that the first creations or discoveries, and respectively the earliest historical persons, were made in the fields of the religious and sociopolitical organization of mankind or its separate groups, the very fields which, according to the dichotomic theories, are most lagging and least changeable. Evidently the data do not support such claims at all.

Such an early emergence of the persons who organized religion and contributed to the social and political organization of various parts of mankind is rather comprehensible. Social and political (including military) organization of a group is its earliest and paramount necessity. Without it, the group could not survive. It could go on without conspicuous achievements in fine arts, in business, in philosophy, scholarship, science, and technological inventions, but it could not exist without some order, discipline, unification, and organization. Hence, the early emergence of the historical persons and their achievements in that field. The same is no less true in regard to religion. For the

earliest cultures, groups, and nations, religion was the condition without which no real and durable social, economic and political organization was possible. Any such organization presupposes the existence of definite norms, rules, and mores, to be followed and obeyed by the members; a definite distribution of rights, duties, and functions among them; a definite set of rules defining what is "mine" and "not mine," what is "right" and "wrong," "sacred" and "profane," "permitted" and "tabooed," "sinless" and "sinful," "legal" and "criminal." (See Volume Three, Chapter One, of *Dynamics*, for an analysis of the organized social group.) Without such norms and rules, no social, political, or economic organization is possible.[10] These rules, at the early stages of culture and organized groups, were given exactly in the form of religious (and partly magical) systems of beliefs and practices.

It was religion that indicated what was "sacred" and "profane," "right" and "wrong," "good" and "sinful," "permitted" and "tabooed." It was religion (as Frazer, Fustel de Coulanges, B. Kidd, E. Durkheim, C. A. Ellwood, and many others have shown) that made out of a collection of individuals a unified social system. On the other hand, the unity of the group incorporated itself first of all and most of all in its religion.

We may not go so far as to say that "the Sacred" (the God) of religion is nothing but the group itself, as Durkheim seems to claim. But we cannot deny that religion is one of the supreme factors in and manifestations of this unity. For these evident reasons, no durable social and political organization was possible without a religious organization of the group (only ephemeral, purely compulsory unifications by the conquerors of the conquered are possible without such a religious basis).[11] Hence the early emergence of the persons — as historical persons — who made contributions to the field of religion, who were "discoverers" and "inventors" of religious values, and religious organizers.

[10] This has been well shown by R Stammler in his *Wirtschaft und Recht nach der materialist Geschichtsauffassung* (Leipzig, 1896), L Petrajitzky, *Die Lehre vom Einkommen* (Leipzig, 1893), M Weber, *Gesammelte Aufsatze zur Religionssoziologie*, 3 vols. (Tubingen, 1922–23); F de Coulanges, *The Ancient City* (Boston, 1900); J G Frazer, *Psyche's Task* (London, 1913); and many other works analyzed in my *Contemporary Sociological Theories*, chap. xii See also J. Dowd, *Control in Human Societies* (New York, 1936), chap. xxi, *et passim;* E A. Ross, *Social Control* (New York, 1901)

[11] See also A J Toynbee, *op. cit.*, Vol VI, pp 149 ff ; see his theory of the role of Universal Church, Transfiguration and the God Incarnate in Man.

In the light of these considerations the early emergence of creativeness in the fields of religion and sociopolitical organization becomes comprehensible. Achievements in these fields were indeed the earliest and most urgent necessities of society.

This being so, the factual fallacy of the dichotomic theories becomes particularly evident.

G. *The fields of Religion and Statesmanship are not only the earliest in the emergence of their creative achievements, but all in all they are the most important fields in regard to the comparative number of historical persons and their achievements, as indicated by all the fields.* Look through the horizontal — percentile — lines of the indicators of either the World table, or those of the separate countries, when all the fifty-year periods are considered; and then look at the final cumulative figures, "Totals" (in the series for the World and for separate countries), and the above conclusion becomes clear. All in all, there is no other field which can even remotely rival these fields; especially such fields as business, fine arts, or even science (with technology). With the exception of the last two centuries, all these fields give for most of the periods a much more modest percentage of the historical persons (and respectively achievements) than the fields of Religion and Statesmanship. Such a fact testifies additionally to the validity of the preceding statement that these two fields have been the most vital necessity to any culture and group in order for them to exist and survive. All the other fields were comparatively a luxury. Of course, there are many pacifists who may regard Alexander the Great, Charlemagne, or Augustus as the most bloody and contemptuous human creatures, much less important than a prominent painter, poet, scholar, or scientist. Likewise, there are many "free-thinkers" for whom any religion and its exponents, such as Buddha, Moses, Christ, Mohammed, Confucius, and all other religious inventors and organizers, are but manufacturers of "opiate for the people." However, history and the life of culture have been paying little attention to the voices of such persons, and justifiably so. We may dislike religion, statesmanship, and the like; yet our dislike cannot make their paramount importance, and their paramount quota of the historical persons, nonexistent.

The greatest continuity (or the least intermittency) of the historical persons and their notable deeds in the fields of Religion and Statesmanship; the earliest emergence of such leaders; their largest percentage among those supplied by all the other fields; and the highest cumulative

indicators they have (see the Totals) — these characteristics all agree with and mutually support one another, in substantiation of the above explanatory remarks, and in repudiation of the claims of the dichotomic theories.

H. *Movement of Religious Leadership and Creativeness.* If now we glance at the World series (which is mainly the Graeco-Roman and the Western cultures series, because the other cultures contribute a very small portion of the indicators), we can easily see an *excellent corroboration of our characterization of various centuries of these cultures as predominantly Ideational, Idealistic, and Sensate.* Two series — Religion (I) and Business (VII) — are important from this standpoint. Supersensory religion — and such are the religions whose leaders enter into our tables — by its nature is a cultural system typical of Ideational culture, as Business is of Sensate. The rise and prominent role of business is a good sign of the rise and prominence of Sensate culture. If now we turn to the World percentile table, we can easily see, first, a high percentage of the historical persons in the field of religion for the period 750 B.C. to 501 B.C., — the Ideational period, according to our analysis given in the preceding volumes; and zero for business and economic Sensate activities. For the whole world culture, this indicates that the period of 750 to 500 B.C. was the time of great religious creativeness, and of the emergence of great religious leaders and systems.[12] Second, beginning with 501 B.C., the indicators of religion rapidly fall and reach the zero line in the period 350 to 151 B.C., while just at that period business emerges and reaches one of its highest points in the period 350 to 101 B.C. (its indicators are generally much lower, comparatively, than those of other fields, especially religion and statesmanship). This period was characterized as Sensate on the basis of other symptoms in the preceding volumes. Third, beginning then with 150–101 B.C., religion re-emerges, though it stays on a low level, while business submerges again to zero line. We are in a period of the beginning of decline of Sensate culture and re-emergence of the Ideational stream. Fourth, beginning with

[12] "The great religions have their beginnings in the centuries from the eighth to the fifth B.C This is the age of Taoism [and Confucianism] in China; of the Upanishads, of Buddhism and of the precursors of Hinduism in India; of Zoroaster in Iran; of the Orphic-Pythagorean movement in Greece; and of the Hebrew prophets. The coincidence is more than curious; it is an instance of that simultaneity in progress and decline, comparable to geological epochs of upheaval and subsidence, of which the history of civilization has other striking examples· we think of the centuries about 3000 B C in Egypt, Babylonia and Elam, Crete and China, the first maximum in this strange and unexplained periodicity." G. F. Moore, *History of Religions* (New York, 1913), Vol I, p ix.

150 A.D., religion rises and stays, with minor fluctuations, very high, up to 1200 A.D., while business is submerged to the zero line. This period was characterized as Ideational. Fifth, beginning with 1200 A.D. the indicators of religion start, with minor fluctuations, to decline, while in 1100–1149 business for a moment re-emerges, though it stays on a very low level (0.7 only), in order to re-emerge more strongly in 1250–99, and remain for the rest of the subsequent centuries. We have thus for the thirteenth century and the end of the twelfth, an almost exact repetition of the Idealistic constellation of the centuries 500 to 301 B.C. We are in an Idealistic period of the Western culture. Sixth, for the subsequent centuries, the indicators of religion (in per cent) tend to decline, with minor fluctuations, reaching a very low indicator for the period 1750–1849, while the indicators of business rise and reach the highest point in all the preceding centuries. Obviously we are, during these centuries, in a rising tide of Sensate culture, as has been shown in the preceding volumes.

If, instead of the World tables, we take separately the tables (percentile) for Greece, Rome (Italy), and then separately for the principal European countries — France, England, Germany, Austria, Spain-Portugal, Italy, Greece, Belgium-Netherlands, Austria-Hungary-Bohemia, Russia-Poland, Switzerland, Sweden-Norway-Denmark — and finally the United States of America, they all corroborate these results well, some of them even more strikingly than the World tables. (See in the tables for all these countries the per cents for Religion and Business from period to period.) Thus these data, different from those used in the preceding volumes and derived from a different source, unequivocally corroborate the conclusions given before about the rise and decline of Ideational, Idealistic, and Sensate phases in Graeco-Roman and Western cultures.[13]

[13] Particularly significant is an exceedingly low per cent of Religion for the most recent periods 1750–1849. It fell to 5.2 and 6.5 instead of 100, or 20 to 80 per cent during the Ideational centuries. This clearly signifies the especially Sensate character of the cultures of that period; the sterility and aridity of Religious creativeness of the last few centuries, and the consequently insignificant percentage of great religious leaders yielded by recent times. The subsequent periods, 1850–1940, seemingly continued this trend and reduced the percentage of Religious leaders to a probably still smaller figure. Shall we wonder that in the twentieth century religion began to be disdained, persecuted, liquidated and challenged openly in a number of countries, while in others it has lost still more of its virility, vigor, and creativeness. Diluted in various forms by "liberal ministers" and writers, it has turned into merely a vulgarized and second-class "Social Gospel," little different from the program and credo of various political factions, with religious services and sermons little different from second-class lectures on social problems (the only dif-

I. *Opposite Movements of Creativeness in Religion and Business. This means also that, all in all, the periods of blossoming of religious (Ideational) creativeness and of economic (Sensate) creativeness tend to be somewhat mutually exclusive, in other words, tend to be negatively associated and to move in tangibly opposite directions.* When the religious creativeness is very high (measured by the number and percentage of the historical persons in this field), the creativeness and importance of economic and business activities tends to fall, often to the zero line, in the sense of not indicating any single historical person in this field; and vice versa. Idealistic periods (500–301 B.C., A.D. 1199–1299) are more favorable to business; while religious creativeness declines there, business creativeness re-emerges. Such is the relationship between these two systems and their pulsation as shown by the data of the World tables as well as the Graeco-Roman and those of most of the European countries, taken separately. Here, quite unexpectedly, and from different sources, we find an excellent corroboration of the conclusions and the data concerning the fluctuations of the economic standard of living and its connection with the type of cultures given in Volume Three, Chapter Eight. There, on the basis of the factual study of the rise and decline of economic (Sensate) well-being, we arrived at exactly the same conclusions that are now given by the present series of data. Such a coincidence is certainly symptomatic and its reasons are given in Chapter Eight of Volume Three. They are well summed up in the Gospel's statement that it is impossible to serve two lords: God and Mammon; and in "Verily I say unto you, that a rich man shall hardly enter into the Kingdom of Heaven," and that "it is easier for a camel to go through the eye of a needle, than for a rich man [or society] to enter into the kingdom of God." Two systems indeed have been moving in opposite directions as to their creativeness, blossoming and decadence.

When the attention is given to, and the main value is sought in, the supersensory (Ideational) world of God, little attention is devoted to the value of the economic and material world; and vice versa. Hence, the alternation of creativeness in these fields. This does not mean that in the Sensate periods of business creativeness no religion exists; nor

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ference being a few bits of poor music before and after the sermon). Such a qualitative status of many a Christian denomination is by itself a *testimonium pauperitatis* of it, at the present time. For a real revival of religion, a new wine of a transcendental, and purely Ideational religion is needed. But it can come only with a new rise of Ideational culture, which is not here as yet.

that in the Ideational periods no business functions and no economic activity is discharged. It means only that in Ideational periods the religious, in the Sensate periods the business, *creativeness* blossoms. Religion in Sensate periods continues to function, but mainly either in the routine manner of continuing what was created before, or in the form of "watering the strong wine of Ideational religion" by Sensate elements. Business in Ideational periods continues to function, but again either in a routine continuation of what was created before, or by sprinkling it with Ideational (religious) elements.[14]

J. *Relationship of Movements of Creativeness in Religion and Statesmanship.* Studying the percentile data concerning the movement of the historical persons (and respective achievements) in these two fields, we see that the relationship is more complex than that between Religion and Business. At first glance it appears to be erratic, incidental, showing neither positive nor negative association, nor uniformity of any kind. However, a deeper insight shows a complex, but fairly definite, relationship between the two series. First, in the World series, as well as in those of the separate countries, we notice several periods where their movements are *mutually exclusive and opposite:* when one rises, the other declines; not infrequently one rises to 100 per cent, the other falls to zero. For instance, in the World series, the period 500 to 0 B.C. was marked by submergence of Religion to zero, and by a conspicuous rise of the indicators of Statesmanship and sociopolitical leadership. Thus also is the period 1750–1849 marked by a great decrease of religious indicators and a comparatively large increase in, and high level of, the indicators of political leadership. On the other hand, the period 100 to 1200 A.D. is marked by a great rise of the indicators of religious leadership, while up to 999 A.D. the political leadership remains comparatively low. In the two series for separate countries, this opposite movement happens many times and in a very clear-cut way — one series showing 100 per cent, the other zero; and vice versa. Such are, for instance for Greece, the periods: 850–801, 300–51 B.C., 0–249 A.D.; for Rome (Italy), the periods

[14] It is to be noted again that the revival of creativeness in business began several centuries before the emergence of Protestantism: business had re-emerged already in 1100–1149. This means again that the progress of economic activities was due not to Protestantism, as Max Weber and Tawney and others claim, but that both — business progress and Protestantism (together with other values of Sensate culture) — were the consequences of the transformation of the Ideational supersystem of culture into a Sensate supersystem. In practically all the subsystems of European cultures, this transformation began in the twelfth century. See further a footnote on page 500, Volume Two, of *Dynamics.*

650–0 B.C., 600–1049 A.D.; for France, the periods 150–499 A.D., 650–699, not to mention a few other periods when their movements were opposite; for England, the periods 250–449, 450–499, 650–699, and others; for Germany, 400–499, 650–749, 1100–1149; for Spain, the periods 450–499, 600–649, 700–1199, 1350–1399, 1700–1849; and so on.

Second, in another series of cases, we see that *the movement of the two series is parallel,* both rising or declining or fluctuating at the same time. Third, there are periods when their movements are *"neutral,"* neither opposite nor parallel.

How explain such variety of relationship? What general conclusions are suggested by it? First, the opposite movements in the decline and rise of the indicators of leadership in religion and sociopolitical activities, especially when they reach 100 per cent in one and zero in another, suggest that the function of the sociopolitical organization of society and maintenance of its order is performed now mainly by religious (Theocratic) leaders and government, not by the Secular political leaders and government. If it is not performed by one, the other is emerging and taking up the function. Such is the first conclusion suggested. Second, it means that the two political forms of Theocratic and Secular government alternate in the history of the world as well as in that of the separate countries. Most of the periods [15] of the exclusively high indicators of religious leadership, with zero or very low indicators of Statesmanship, mean practically the periods of Theocracy and the domination of Religion and Ideational culture; while most of the opposite periods, with low Religion indicators and comparatively high indicators for Statesmanship, mean a secular government and domination of Sensate culture with little, if any, religious and Ideational foundation for their power. It has been shown in Volume Three, Chapter Five, that theocratic régimes are connected with the Ideational, while the secular is linked with the Sensate culture. So here we find, again somewhat unexpectedly, a corroboration of the theory of alternation (plus, of course the Mixed) of these forms of government developed in Volume Three and their connection with Ideational, Idealistic, and Sensate cultures. For instance, if we take the period of 1700–1849, in the tables for the World as well as for practically all separate countries, we notice the great

[15] Most, but not all, because the data of the *Encyclopædia* are evidently incomplete, and therefore 100 per cent in one and 0 in the other, especially for the earlier periods, often mean just such incompleteness of the *Encyclopædia* or of existing historical knowledge.

decline and very low percentage of the religious leaders, and a comparatively high percentage of statesmanship leadership. We know that that was a period of domination of purely secular governments and of Sensate culture. The same is true, for instance, of Greece for the period of 301–0 B.C.

On the other hand, either in the World series or those of Greece and Rome, we see a rapid rise and high level of the indicators for Religion, and zero, declining, or low levels for Statesmanship in the period — for Greece — 650–601,[16] and 0–249 A.D.; for Rome and Italy, for the period 100–1199 A.D., and for all the European countries for most of their medieval centuries.[17] We know already that these periods were either those of re-emergence and rapid growth, or of domination of the Ideational-Religious culture.[18]

These considerations, then, explain the opposite movements of the indicators of the religious and sociopolitical leadership in our series.

As to their parallel movement, it is also explainable. When, as in the periods of domination of the established Ideational culture, the religious and the secular powers are in harmonious relationship, as was the case, for instance, throughout the Middle Ages, or in Greece and Rome after the legalization of Christianity; when the secular government is a servant or, at least, a partner of the Church (Ideational forces) backing and backed by religion, both the spiritual and secular, the religious and sociopolitical, leaders can exist side by side,

[16] Also for the period of 900–651 B.C., when "literature" occupies 100 per cent However, we must bear in mind that it is "literature" for us but not for the Greeks For them it was religious scripture rather than mere literature, and these leaders were religious leaders for them, rather than merely literati and men of letters.

[17] Pseudo exceptions, like Spain and others, are easily comprehensible when the specific circumstances for these countries are remembered, such as the fact that, in the period 700–1002, for which period there is a zero indicator for Religion which was 100 per cent for the period 600–649, Spain was a mere name and was not a Christian but a Moorish country. Hence, 100 per cent for the Statesmanship indicator for this period and zero for Religion. After 1150 the indicator for Religion at once rises and remains high, even up to 1699, after which it drops to zero or a little higher. When, similarly, the necessary circumstances for each country are remembered, almost all the apparent exceptions from the rule will appear pseudo exceptions.

[18] As a fairly uniform detail, it should be noted that the religious indicators generally tend to be higher in the early centuries of Christianity and the early Middle Ages than in later medieval centuries. The possible explanation is that when a new great religion, and with it Ideational culture, emerges, in the period of its emergence and growth it needs and usually does have a greater number of outstanding leaders with more vital and creative activities than when its victory and existence are secured and the functions assume a kind of routine — though still religious — character. Such is the suggestion given by our series.

co-operating in their work, and performing their functions together, without absorbing one another, and without driving one another from existence or prominence. Under such conditions, it is but natural to expect that the indicators for both will go — as they actually do — in the same rather than in the opposite direction. And that is exactly what we see in those portions of the series where their indicators are either parallel or without any evident opposition in their direction.

In the light of these considerations, what appears to be incidental and "orderless" in the mutual movement of the indicators for Religion and State displays a definite order, logic, and two-sided uniformity of opposite and parallel movements.

K. *Movements of Literature, Fine Arts, and Music.* Each of these phenomena may be Ideational, or Idealistic, or Sensate. But, as most of the creations of Ideational periods are anonymous and collective, their individual authors are not mentioned, and do not appear in the *Encyclopædia* with the same frequency as the creators in these fields in Sensate periods. This is one reason why we should expect that the indicators of leaders in these fields would be lower for the periods of domination of Ideational culture than for the Sensate periods (except for a few Ideational creators like Homer, Hesiod, and the like, but these again are considered by the *Encyclopædia* as not religious or Ideational leaders, but merely as great literary men).

The same result is produced by the still lingering bias that such works as the Lives of Saints, or ikons, or religious statues, or the plain chant of the Middle Ages are not exactly literature, or fine arts, or music. These terms are still mainly reserved for what can be called Sensate (and therefore individualistic, with the names of their authors) literature, art, and music. And that is exactly what we find in the *Encyclopædia*. Therefore, its literary, artistic and musical leaders, with few exceptions, are mainly the creators of Sensate literature, art, and music. For these two reasons we should expect that, a few incidental cases excepted, the indicators of leadership in these fields will be comparatively high for the periods of domination of Sensate and low for those of Ideational cultures. And that is exactly what, with a few mentioned exceptions, we find in the World tables as well as in practically all the tables for separate countries. With the exception of early leaders in these fields (for Greece and Rome) who should rather be classified with Religion, practically everywhere the indicators for these fields emerge late, and mostly in Idealistic or rising Sensate periods; the indicators are low for all throughout the Ideational

medieval period (for separate countries mainly on a zero level). Then, around the Idealistic period, 1200–1300, first literature, then, mainly after 1400, the fine arts and music re-emerge, and continue to grow and flourish unintermittently — and comparatively high — throughout the subsequent centuries, especially the sixteenth, seventeenth, eighteenth and nineteenth. Such a movement of the indicators for the leadership in these fields again corroborates my diagnosis of the periods of domination of Ideational and Sensate cultures in Greece, Rome, and Euro-America.

Since these movements are varieties of the movement of Sensate culture, it follows that they go mainly in a direction opposite to the movement of the indicators of religious leadership. The tables corroborate this conclusion.

L. *Movement of Science-Leadership.* We know that science is mainly an embodiment of the truth of the senses (plus truth of reason). As such it is predominantly a subsystem of a Sensate culture, as has been explained and shown in Volume Two (*passim*, and Chapters One, Two, Three). It has also been shown there that the movement of scientific discoveries and technological inventions rises with a rise of Sensate culture and declines with a rise of Ideational culture. For these reasons, we shall expect that the indicators of scientific leadership in our present tables will be low for the Ideational, and high for Sensate periods, beginning to rise or re-emerge in the Idealistic period. That is exactly what we find in the tables for all the European countries and the United States of America, and for Greece and Rome (with very few purely incidental exceptions). In all European countries, science indicators emerge from zero line only after 1200, and in most only after 1400: then they begin to rise and, all in all, have been rising up to the present time, with minor fluctuations and with a lower percentage in the last period of 1800–49 in several countries. In Greece and Rome likewise, the golden age of science indicators were the Idealistic and Sensate periods: 450 B.C. to 149 A.D. in Greece, and 100 B.C. to 299 A.D. in Rome. Thus, here again we find a clear-cut corroboration of the conclusions given in the preceding volumes of *Dynamics*. The science subsystem is a part of Sensate culture and rises and falls with it.

M. *Movement of Scholarship and Philosophy.* Both of these subsystems can be Ideational or Idealistic or Sensate in their character (see Volume Two, *passim*). Therefore their Ideational — and partly Idealistic — currents can be expected to move together with the Ideational, or, in our case, the Religious stream; their Sensate streams

will be moving with Sensate culture, in our case, with Business indicators. When the indicators for Philosophy and Scholarship are given without any division between Ideational and Sensate, as is the case with our indicators here, their movement should be expected to be neither positively nor negatively associated either with Religion, as the most conspicuous Ideational variable, or with Business and Science, as the most conspicuous Sensate variables. And that is what we find in our data. "Scholarship" is high in some Sensate and Idealistic and Ideational periods, and is low again in some Sensate and Ideational periods. So also is Philosophy. The only slight centering of their indicators, mainly around the last four Sensate centuries, is explainable by the fact that again in Ideational periods there is more conformity and unanimity of humanistic and philosophical thought, and its anonymity is merged with religion; therefore such periods possibly do not produce as many individual scholars as individualistic and nonconformistic Sensate culture. But even this centering is very slight and shows that the percentages of "Scholarship" and "Philosophy" have not been systematically growing throughout the Sensate centuries, and have not been higher than in many periods of the Ideational medieval, or Ideational and Idealistic Graeco-Roman cultures. For the reasons indicated, such a result is to be expected. If "Scholarship" and "Philosophy" were here divided into their Ideational, Sensate and Idealistic currents, as has been done in Volume Two of *Dynamics,* then there is hardly any doubt that "Ideational-Religious-Rational-Mystical-Idealistic-Eternalistic-Realistic" scholarship indicators would be moving parallel with the indicators of Religion, while "Sensate-Materialistic-Empirical-Temporalistic-Nominalistic" (Agnostic - Positivistic - Pragmatic - Instrumental - Operational - Behavioristic) Scholarship and Philosophy percentages would be rising and falling parallel with those of Sensate culture and, in our indicators, with Business and partly with Science, and Sensate Fine Art, Literature, and Music.

Thus, in the apparently disorderly movement of the indicators for these subsystems of the cultures studied, there is also a definite order, logic, and subtle uniformity.

N. *Negative and Positive Significance of the Material Given.* The negative significance of the above data and analysis is that they repudiate clearly and unequivocally all the main claims of the above dichotomic theories. They show, first, that the two systems into which the total culture of a country, area, or mankind is supposedly divided:

material-nonmaterial, technological-nontechnological, civilization-culture, etc., are mere fictions. Second, they show that the claimed differentials of these dichotomic systems, such as the accumulative, systematic, gradual, universally diffusive change of one and the nonaccumulative, sudden, nonuniversally diffusive character of the change of the other division, are nowhere noticeable. When the same criteria are applied, namely, the criteria of addition, all fields are accumulative and linear; when the indicators of each period are taken one by one, none shows a perpetual linear trend of the indicators, but gives an erratic fluctuation instead. When the matter is taken from the standpoint of continuity and nonintermittency, the fields of the supposed nonmaterial, nontechnological, noncivilizational culture, such as religion, statesmanship, and literature, show, if anything, greater continuity, lesser intermittency, in the achievements of historical persons than the fields of the material, technological, and civilizational culture, like business and science. Fourth, the movement of these variables in regard to one another is again quite different from what is claimed by these theories. According to their claim, the fields of the material-technological-civilizational culture as such should change together in a linear way, while the sectors of the nonmaterial, noncivilizational culture should also change together, each main system changing differently from the other. Our data have shown that the real situation is very different. The indicators of such supposedly nonmaterial culture as religion, literature, fine arts, music, scholarship, philosophy, and statesmanship move in a very different manner, now in opposition, now parallel, now in an indefinitely "neutral" way, in regard to one another. On the other hand, indicators of such mixed sectors as business and natural science (with technology), which belong to one of the dichotomic systems ("material," "technological,"), move much more parallel — and together — with the indicators of fine arts, music, literature, and partly statesmanship, which belong to the nonmaterial, nontechnological culture. Such a fact testifies to the invalidity of the dichotomic claims, and the fictitious character of their systems. If, indeed, each of the dichotomic systems were a real system, its subsystems should move together and much more parallel with one another than with the subsystems of the other dichotomic division. Our facts show that this is not so, and that a number of the sectors belonging to different dichotomic classes move much more closely with one another than the subsystems of the same division. These negative results, together with my previous criticism of these theories, are suf-

ficient to throw them out of the realm of valid scientific theories. Such are some of the negative results of our data.

Their positive value is a strong confirmation of the Ideational, Sensate, and Intermediary supersystems of culture as real and, so far, vastest supersystems; and second, an additional corroboration of the theory of change of culture formulated in this work. The theory of Ideational-Sensate cultural supersystems does not separate specific classes of sociocultural phenomena into the Ideational or Sensate type, as the dichotomic and other theories do. Instead, it cuts across all the fields and all the classes of sociocultural phenomena, and says that practically any of these — fine arts, philosophy, political organization, scholarship, even, to a less degree, religion and business — may be Ideational, may be Sensate, may be Idealistic or Mixed. To which type of culture-mentality it will belong depends not so much upon the nature of the class (whether it is fine art, or technology, or literature) as upon the character of the culture-mentality embodied in it. Fine Arts may and have been, as has been shown in Volume One, now Ideational, now Sensate, now Idealistic, now eclectically Mixed. The same is true of philosophy, scholarship, a political régime (Theocracy and Secular Government), even, within narrow limits, of religion, business, and science, with technology. The real Ideational supersystem is made not of this or that specific class of social phenomena (for instance, of all the religions as religion, all the arts as art, plus all the philosophy as philosophy, all the technology as technology), but only of Ideational religion, Ideational philosophy, Ideational arts, Ideational technology, and so on. The same is true of Sensate and Idealistic supersystems of culture. Such systems have been the living realities, functioning as real systems, and changing as real systems, in each of which all its subordinated subsystems have been changing together, in the same direction, as the parts of the whole. This has been demonstrated in the preceding volumes, and has been shown by the analysis of the data of this chapter. We have seen indeed that of all the nine classes of our phenomena, when properly understood, those which are predominantly Ideational, like religion, the Ideational phases of statesmanship, scholarship, philosophy, and literature, have been changing together; and the same is true of the predominantly Sensate (in the setting of the *Encyclopædia*) phenomena of business, fine arts, music, science, and Sensate (secular) forms of government. Only in the light of the Ideational-Sensate theory of sociocultural systems is the movement of our nine fields of culture comprehensible, making

sense, and showing a uniformity, instead of looking like an erratic, chaotic, and incomprehensible puzzle.

But the movements of each subsystem, though concerted in the main fluctuations, are not tied together closely, especially in the minor fluctuations of each subsystem field. This corroborates the proposition concerning the margin of autonomy which each system or subsystem has. Finally, throughout all the series, there are scattered temporary ups and downs, which appear to be somewhat "incidental," out of harmony with the main concerted movements. In others words, they look like the movement of congeries, that emerge or submerge, out of tune with the main "movement of the symphony" being played at that time by the main supersystems. From this standpoint, look at such figures, for instance, as 38.6 for science in Greece, for the period 600–551 B.C., or 30.4 for science in Rome, for the period 500–451 B.C., or 100 for scholarship in England, for the period A.D. 500–549, or 66.5 for scholarship in Germany, for the period 800–849 A.D., and so on. Such phenomena are "incidents," "congeries," invariably found in any culture at any moment. Due to special combinations of various unforeseen circumstances (diffusion, migration, importation, exile, lucky heredity, earthquake, flood, war, pestilence, fire, and similar chance circumstances), they are apt to occur in any culture, at any moment.

To sum up, the data fully corroborate the main propositions of our theory of sociocultural change.

Herein lies the positive significance of the data, which are, let the reader make no mistake about that, the fullest, most systematic, and most impartial data so far given by any theory of culture and culture change. Perhaps, to inexperienced minds, the shortness of the tables and the dry character of the figures may appear less impressive than a vivid description of Cleopatra's affairs or some other historical event, or than an account of the fifty-year lag of labor legislation, or than a concrete description of the lag of formal marriage after sexual intercourse among a given "primitive group." These have been the kind of demonstrations given by various dichotomists and other theorizers on change of culture. It is needless to add that such illustrations do not and cannot prove anything. They literally amount to nothing as evidence.[19] Instead of these irrelevant bits of amusing

[19] It is curious to note that many so-called "scientific" persons see the "fact-finding" character of a work exactly in such purely illustrative, purely descriptive shreds of pseudo facts, in their irrelevancy incapable of being any evidence of any generalized proposition whatsoever. Such a bias is a sign of a conspicuous pseudo scientism in the social and humanitarian research of our times.

illustration, the above tables, taken together with many series of even more complete data presented in the preceding volumes, compose a body of very solid factual evidence in favor of our theory and against the other theories.

O. *Into which fields of culture do good brains go and when?* It is often said that good brains and men of genius usually go into a certain field, for instance, into the field of science or technology, and that just because they go there these fields blossom and progress. In passing, we can note the superficiality of such a statement. It is superficial in two senses: first, in the assumption that good brains go into any certain field by, so to speak, their own choice, and that in going there they cause its blossoming; second, in the assumption that good brains and human genius always go only into certain fields and do not go into other fields. Both assumptions are evidently wrong, in the light of our data and theory. The second assumption is repudiated by the fact that each of the ten fields of culture has its day of brilliancy and effervescence and its period of aridity and sterility. For effervescence in each field, especially for a "historical" appearance there, the greatest masters, with first-class brains and talents, are evidently necessary. Therefore, since each of the ten fields has had its heyday, in that period it evidently had an abundant influx of the best brains and talents. On the other hand, since each field, including science, has had its periods of sterility and aridity, in such periods evidently it had little or no influx of the best brains and best genius. These confrontations are sufficient to dispense with the second assumption of such theories and claims. Doing away with this second assumption does away also with the first, that not the character of the culture of a given period determines which of its fields will blossom and therefore will attract the best brains and genius, but that the talented individuals as such determine which field they will enter and will cause to blossom.

Such an individualistic and singularistic interpretation is evidently one-sided and does not solve the problem. If, as our data show, there are periods of brilliancy and dullness in each field, and that each field, respectively, has now a rich influx of talents and now a scarcity, the conclusion is evident that the status of culture at a given moment is the prime factor determining to which of its fields the best brains and talents are attracted and to which they are not. In Ideational and Idealistic periods, the brains of the Socrates, Platos, St. Pauls, St. Augustines, Gregories, Gildebrandts, St. Thomas Aquinases, and the like are attracted mainly to the field of religion and the fields related to it;

while other fields, including those of science and technology, seemingly attract few of the best brains, since those fields show sterility and aridity of creativeness. In the periods of Sensate culture, the best brains are seemingly attracted to the fields of science, business, and secular government, since these fields prosper and scintillate mainly in such periods. This means that choice of the fields that attract the best brains at a given period is largely determined by the status of the culture of a given period for a given country. Of course, most of the best brains make their choice freely, without any evident coercion, sometimes even contrary to it, but their psychological free choice is determined by the sociological and cultural situation: in an Ideational culture they freely choose the fields of religion and other related fields; in a Sensate culture, the field of science or business or Sensate art. Psychologically, the choice is free, but socioculturally it is determined subtly by the character of the dominant culture.[20] Otherwise it would be incomprehensible why the best brains now freely decide to go mainly into the field of religion, now into that of business, and now into that of science or arts. Such facts — and our data show they are facts — would otherwise be a pure mystery. The theory advanced here solves it easily and puts the matter in the right light.

From this standpoint it is quite probable that, during the last two centuries especially, a high proportion of the best brains and talents has entered mainly the Sensate fields of sociocultural activities, such as science, business, technology, sensate arts, sensate philosophy, scholarship, and so on; and a much smaller proportion of such talents has entered the (Ideational) field of Christian religion, and the other related fields. Throughout the Ideational Middle Ages, the situation seems to have been reversed, the majority of the talents entering mainly Ideational fields of culture. So much for this point.

P. *Differential Spectra of National Cultures.* Looking at the data (absolute and percentile) of different countries, the above tables give a concise and rough outline of the spectrum of the culture of each country at different periods, and of the differences that exist in such cultures. For instance, taking the period 1800–49, for England, France, Russia, and the United States, we find that percentile indexes

[20] This sometimes appears dramatically, in the biographies of some prominent men. St. Thomas Aquinas became what he was and specifically assumed the Dominican Order, contrary to the great pressure of his family. On the other hand, a number of prominent scientists or artists became such contrary to the pressures of various groups and forces. The subtle pressure of the existing culture is the most powerful "voice" that enchants and lures the best brains of the time.

for religion for each of these countries are respectively: 6.5; 2.0; 0.0; and 8.0; which means roughly that England and the United States were more fortunate in religious leadership and creativeness than Russia and France. In regard to philosophy, the indicators are respectively: 1.9; 5.0; 0; and 1.1; which means that in this respect France was more fortunate than other countries; in regard to music: 1.3; 2.2; 6.9; and 0; which means that for that period in the culture of Russia, music played a much more important part and Russia was more fortunate in this respect than the rest of the countries compared. An analysis of the data from this standpoint is outside the scope of this work; but the above remarks suggest that through a proper use of the data one possibly can get a much more accurate idea of the character of the culture of each country, of its change from period to period, and of the differences between the cultures, than in many other ways in which "national cultures" have been studied and compared.[21]

[21] It is certainly much better than the Spenglerian-Toynbee ascription to each culture of some dominant penchant that supposedly characterizes it throughout all its historical existence. Modifying Spenglerian "morphological" characteristics, A J. Toynbee states, for instance, that "the Hellenic civilization displays a manifest tendency towards a predominantly aesthetic *habitus*," while the Indic civilization tends towards religion, the Western towards machinery. *A Study of History*, Volume III, pp 384–85 A mere glance at our tables (and also at the tables in the preceding volumes of *Dynamics*) is sufficient to show that the aesthetic penchant of the Graeco-Roman civilization, as it is shown by the indicators of literature, fine arts and music, was a very intermittent trait — prominent in some of the periods and very low in others. The scientific-technological penchant of Western culture was almost on the zero line from the fifth to the fifteenth centuries A D Only after the twelfth century did it begin to show itself. Likewise, the conspicuously religious penchant of the Indic culture shows itself only in the periods 500–451 B C, 600–649 A.D, 1600–1649 and 1800–1849 A D, in other periods being low and inconspicuous (the table on India is not in the text but is in my possession with similar computations made for it).

All this means that the claims that ascribe some specific characteristic to any particular culture as something that dominates it from its emergence to its dissolution are baseless and misleading. The penchants of each long-existing "civilization" are changing in different periods, and especially with the change of the periods of domination of Ideational-Idealistic-Sensate supersystems. Arabic civilization was much more scientific and technological in the centuries from the seventh to the thirteenth than Western civilization during these centuries Western civilization was dominantly religious during the centuries from the fifth to the thirteenth and probably more religious than India for some centuries of its history. (See, about secular periods in the history of India, especially B K. Sarkar, *The Positive Background of Hindu Sociology, Introduction to Hindu Positivism* [Allahabad, 1937]) Instead of these summarily misleading ascriptions of certain perennially dominant penchants to various cultures, the above tables give a much more accurate picture of which of the creative activities is really dominant in each period of the history of a total culture of a given country and which of these decline and rise in the course of time, from period to period.

So much for the data and their results. Together with all the above criticism of the dichotomic and other theories they permit us to leave these pseudo theories buried in peace. The data gave us an additional proof of the reality of our supersystems and their tidal fluctuations. They disclosed some characteristics of change worthy of further analysis. Now we can attempt to lay down our constructive theory of the temporal order in the change of sociocultural phenomena.

III. Constructive Hypothesis concerning the Temporal Order in Change of Sociocultural Phenomena

If then neither Negativistic, nor Synchronistic, nor Social Lag Uniformistic theories are acceptable, what is the right answer to the problem? Does not the preceding criticism and rejection of uniformistic theories lead practically to the Negativistic position? It does not. There is still wide room for a theory that cuts across all these, incorporates into itself all that is sound in them, rejects their fallacies, and gives in an integrated synthesis the solution that seems to be truer than any of these theories. What, then, is it?

A. *One must clearly separate congeries from a system, in the study of such a change. By the very nature of congeries — whether they are isolated traits or congeries of systems — one cannot expect any uniformity in their change, except that of a lack of any general uniformity.* Congeries are incidental in their nature; their relationship to the coexisting systems is also incidental. Therefore a wide range of diverse possibilities in their change and in that of their relationship to the adjacent systems is the only possibility that can be expected.

Since the change of congeries is hardly predictable and not uniform, we may leave it without further analysis. The best one can do there is to give a more or less accurate description of how a given congeries has changed in a given period; what have been the external — also incidental — factors that caused it. But such a description can in no way give any general uniformity applicable to all congeries, or even to most of them.

B. This means that uniformities can be sought for only in the change of a system, whether it is a sub-subsystem, subsystem, or the supersystem composed of all these subsystems. Here we can look for a uniformity, if not of a universal and quite rigid type, at least of a more or less general nature and sufficiently precise to be meaningful and valuable. *The main uniformity here has been formulated above*

(Chapter Two), *namely: the empirical sociocultural system changes in "togetherness" of all its important elements.*

Since the system changes as a whole, the main direction of the change in all important parts would be essentially the same: however different it appears in its various parts, this multiplicity represents only different aspects of the change of the whole system in a certain direction. In an aging organism, the concrete forms of a change of its various parts are different: the hair becomes thinner and more grayish, the wrinkles on the face more numerous and deeper, the physical vigor wanes, glands and muscles undergo a change different concretely from one another and from the above changes, and so on. And yet, in spite of the concrete diversity of the forms of the change of all these parts, there is no doubt they all are but different — and interrelated — symptoms of the aging of the whole organism. We have seen the same in the change of the integrated subsystems of the supersystems studied. However different concretely are such symptoms of a change of culture from, say, Ideational or Idealistic to Sensate form, as increasing visualism in painting and sculpture; decrease of religious topics in art in favor of secular topics; growth of empiricism *vs.* rationalism and mysticism; temporalism *vs.* eternalism; utilitarianism *vs.* the ethics of absolute principles; increasing frequency of subsocial types in art and literature; shift of leadership from the theocratic groups to the military and the rich classes; replacement of the familistic by the contractual or compulsory relationships; and so on — however different they look to the superficial onlooker, they all are but various symptoms of the change of the larger supersystem of culture (in which they all are subsystems) from the Ideational and Idealistic to the Sensate type. Herein is a point worth remembering to all who view sociocultural life mechanically and want to study it in the purely mechanical way of a mere confrontation of two variables and observe the merely surface resemblance or difference of the variables. They are bound to miss the most important thing in the change — the change of the whole system — and to identify as similar symptoms what is different, and to separate as different what is similar.

C. *The change of the system in "togetherness" means further that in its essential character it represents an unfolding of the immanent potentialities of the system* (see further, on immanent change, Chapters Twelve and Thirteen), *subject to some variation due to the influence of the external agencies.* If we know the system, the range of the possibilities of mutation of its main forms, the succession of the phases of

mutation, we can tentatively foresee the character of the rhythms it has, the recurrence of the forms it unfolds, even the succession of the phases, if the system's nature contains a certain uniform order of their succession (like an organism passing from childhood to senility). (See further, Chapters Eight, Nine and Ten.)

D. We shall see that *certain sociocultural systems have a fairly uniform sequence of succession of their phases:* a phase A fairly uniformly precedes in such a system a phase B, and B precedes phase C (as in an organism childhood precedes maturity and this precedes old age and senility). In *application to the phases of the same system we can talk of which of these lead and which lag.* But such a setting of the problem of lead and lag has nothing to do with the above theories of lead and lag. They seek uniformity, not within the same system, as uniformity of the order of succession of the system's phases, but as a purely mechanical sequence of any two sociocultural variables — whether they are constituents of a system or congeries — without any distinction whatsoever between these classes and without any clear idea as to what is meant by synchronicity or nonsynchronicity of change or other important implications concerning rhythm, tempo, and direction of change.

E. The change in togetherness means further that *various parts or subsystems of the system may have different rhythms, tempos, and even periodicities in their functioning* (like different rhythms, tempos, and periodicities in the activities of various organs, rhythm of heart, lungs, peristaltic motion of the intestines, of our organism). But this in no way would lead to the conclusion that they all are unrelated or isolated rhythms, or to any claim that some of them lead uniformly and others lag in their change. All this diversity is again but a multiplicity of rhythms of various subsystems in one larger system. (See further, Chapters Eight, Nine and Ten.)

F. This leads to the synchronicity or nonsynchronicity of change of various parts of the system. *Togetherness of change does not require or imply a mechanical instantaneous synchronicity of change,* as has been explained above, and in Chapters Two, Four and Nine. On the other hand, depending upon the vastness of the system and the profoundness of the change, *all the important subsystems of the system are changing more or less "together" in time, providing we give a proportionate length of astronomical time for each process,* corresponding to its nature. If we take a subway system of a big city, a change — an obstruction in one of its important channels — affects notably the

greater part of the system sometimes within a few minutes of the obstruction. Here the derangement of a considerable part of the system's functioning diffuses within a few minutes after the obstruction of its parts. If, on the other hand, we take such changes as war and birth rate, here a decline of the birth rate takes place nine months after the beginning of the war. And yet this does not prevent the claim that these two processes are interrelated and change "together," with a lag of nine months in the movement of birth. Likewise, an emanation of light from a galaxy of the Milky Way and its arrival at this planet a few "thousands of millions of years" after this emanation in no way hinders the conclusion that these two phenomena are causally connected, in spite of the "thousands of millions of years" that separate them. Similarly, if the cultural transformations are vast and deep, like that of the change of a culture from its dominant Ideational to dominant Sensate supersystem, some of the subsystems, like music, may now lag, now lead the change, sometimes by several decades; and yet, this does not hinder it from changing "together" with the whole supersystem of culture. In view of the depth and vastness of the transformation, and the long time required for it — time measured by centuries in the past — the above lead or lag becomes proportionately as small as a lag of several minutes necessary to diffuse the consequences of the subway's obstruction in one part over its other parts. A purely mechanical application of a certain — and the same — unit of mechanical time to all sociocultural processes, to decide whether they are or are not synchronous, is senseless and superficial. It assumes the absurdity that all processes must have the same tempo of change, regardless of the nature and magnitude of the system and the depth and caliber of the change.

G. So far as the *temporal order of change of the components of a system is concerned, on a logical plane, and, as a rule, on an empirical plane also, the component of the meanings in a system tends to change first, while the component of the material vehicles changes second. In the temporal order of the change, the first tends to lead, the second tends to lag.* So far as vehicles of the meanings contain also the technique of the manifestation and objectification of the meanings, this means also that *the technique of any sociocultural system tends to lag in change in comparison with the change of the meanings in the system.* Such is the only logical setting of the problem of the lead and lag of the "meanings and technology," or of the "nonmaterial and material culture," if by the nonmaterial we mean the system of meanings; by technology or

material culture, the system of its vehicles. The proposition concerns not just two mechanically chosen variables, but *two components of the same system.* Only in the setting of the system is the proposition valid.

The reasons for its validity are partly logical, partly empirical. Logically, we have seen that in an emergence of any empirical sociocultural system there are three stages: conception, objectification, and socialization (see Chapter Two). So far as the stage of conception, that is, of a unification of two or more meanings into a consistent whole, is the condition without which no system can emerge; and so far as its objectification into vehicles and technique is the second phase, possible only after the phase of conception occurs; the change in the meanings is logically, and often factually (if all three stages are not telescoped together), the prior, while the stage of objectification follows. Likewise, due to the loose relationship between the nature of the meanings and the physicochemical and biological properties of the possible vehicles (see Chapters One and Two), it is the meanings which choose the vehicles, and not the vehicles which choose the meanings. Therefore, each time the meanings change notably, the component of the vehicles tends to change also, either in the form of dropping some objects that previously were vehicles, or adding some new objects that previously were not vehicles, or articulating new meanings through the unchanged assortment of the vehicles and technique. Such is the situation on the logical plan of priority, and such it is, with some exceptions (see further) in the empirical time sequence. Finally, when the system of meanings disintegrates, its vehicles as vehicles (that is, as sociocultural phenomena) disintegrate also: they cease to be socioculturally what they were. "Chalice" may become a drinking cup; a religious relic, a lady's ornamental jewel; a church building, a warehouse, or a communist club. These considerations are sufficient to show the logical priority of the component of the meanings, in comparison with that of the material vehicles and the technique, in the change of a system.

Factually, such a priority or temporal lead of the component of the meanings in a change of the sociocultural system, and temporal lag of the component of the vehicles (including the technique), we find as a prevalent rule in the change of the system when it changes "immanently," by virtue of its own life process. (See further, on immanent change, Chapters Twelve and Thirteen.)

First, no vehicles and technique emerge in any system prior to the emergence of its system of meanings. And vice versa, when a system of meanings emerges, if it is going to be grounded in empirical reality,

it finds its system of vehicles and develops its technique. Before the system of the meanings of Christianity or of any other religion emerged, there were no Christian churches, Christian frescoes, ikons, statues, ritual, ceremonial vestments, symbols, priests, and all the vast assortment of the vehicles of Christianity. The same is true of any religious, scientific, artistic, juridical, or any other system. Before the system of meanings of physics was conceived, there were no laboratories, instruments, books on physics, nor any assortment of its vehicles, nor a technique of physical research and study. If no law norm is conceived, no statute is enacted; no court and police, no judicial ritual and technique for its enforcement is established.

Before the conception of a picture by an artist, there is no vehicle of this conception and no technique of its painting. There may be plenty of paint, canvas, and brushes, but their mere presence does not make out of them a picture generally, or the conceived picture specifically. Only after the conception, if the artist decides to objectify it, do they become vehicles, and in this process of becoming vehicles change in their sociocultural nature: canvas and paint are transformed into a component of a Madonna of Raphael, or Self Portrait of Dürer; or a piece of marble becomes a component of the *Pieta* of Michelangelo. Before the system of meanings of Communism or the Nazi brand of Totalitarianism had been conceived, there were no "red shirts" or "brown shirts," no signs of "hammer and sickle" or "swastika," no other assortment of their vehicles — from buildings and canons and rituals of the Communist or Nazi parades, up to the books, pamphlets, radio talks, pictures, and statues, that objectify the system of meanings of Communism or the Nazi doctrine. So also with any vehicle, whether it is a machine, library, book, record of music, paper, ink, or what not.

Second, when in a given empirical system, its system of meanings changes, any notable change in that component leads to some change in the totality of its vehicles. Any notable change in a scientific theory leads to some changes in the vehicles of the respective science: if a theory is discarded, it disappears from the pages of the books in that science; it ceases to be expounded in lectures; its technique is not required to be studied and taught any more; its instruments and tools also fall into oblivion or are made to serve quite different systems of meanings. If, before its discard, it had buildings, funds and other material means of its objectification, all of this disappears or passes into the service of other theories and meanings. On a larger scale,

this can be seen in the change of the vehicles with the change of the system of truth from the Ideational truth of faith to that of Reason and Senses (see *Dynamics*, Volume Two, Chapters One to Three); or from theology as the queen of sciences to the exact and natural sciences as the main systems of knowledge and truth. When theology and truth of faith were dominant, the main schools for the propagation of such knowledge were monastic, church, and cathedral schools, with monks, priests, and clerics as the teachers. When the truth of senses and empirical sciences began to grow, the schools became secular, separated from churches, monasteries, and cathedrals, and the teachers became secular teachers, scientists, and scholars. This concretely may be seen from the following tables.[22]

Period	*Number of Monasteries in France*	*Number of Universities in Europe*
300– 399	11	
400– 499	40	
500– 599	262	
600– 699	280	
700– 799	107	
800– 899	251	
900– 999	157	
1000–1099	326	
1100–1199	702	4
1200–1299	287	13
1300–1399	53	21
1400–1499	26	35
1500–1599	—	20
Total	2502	93

During subsequent centuries the number of the institutions of secular higher learning increased by 31 in the seventeenth century, by 51 in the eighteenth, by 423 in the nineteenth, and by 150 in the period from 1900 to 1930.[23]

When a change in the system of truth occurs, its vehicles change respectively, not only in the change of the school buildings and personnel, but in thousands of other ways, from the kind of textbooks to the

[22] See J. W. Thomson, *Economic and Social History of the Middle Ages* (New York, 1928), pp. 603–4; W A Lunden, *The Dynamics of Higher Education* (Pittsburgh, 1939), p 58.

[23] See W. A. Lunden, *op cit.*, p. 95; see there also several other data concerning the number of the cathedral-monastic schools and the growth of the secular schools and institutions.

character of the buildings, laboratories, libraries, instruments, and so on.

When a notable change in the system of meanings of the Christian religion took place, whether in the form of this or that "heresy," or "*filioque*," or "Protestantism," its external vehicles in the "heretical," "Eastern," or "Protestant" variations of the system of meanings changed also in thousands of ways, from the character of the church buildings to the character of the books published, the dress of the clergy, the technique of the ritual, and so on.

When a conception of the system of art meanings changes, as when the conception of the Ideational art is replaced by Sensate, or "Classic" by "Romantic," or "Linear" by "Malerisch," the vehicles change also, and so does the technique of painting or sculpture. In brief, when the component of the meanings in a given sociocultural system changes, its change leads to a change in its vehicles, and, as a rule, this change in the vehicles comes ordinarily later in the temporal order than the change in the meanings.

The same lead by the component of the meanings and lag of the components of the vehicles is caused in different ways and for somewhat different reasons. The gestation and activity of meanings in human minds goes on, so to speak, incessantly: the life of meanings flows all the time like a stream, no matter whether it is sluggish and slow, or fast and tempestuous.[24]

Meanwhile the system of vehicles in which it is objectified is not so elastic as to be able, like the meanings, to change instantaneously, after a change in the system of the meanings occurs. Some of the systems of vehicles, like a snail-shell, become heavy, unwieldy and intractable after their consolidation and "institutionalization." They often ossify and harden [25] to such an extent that they become incapable of changing perennially: an enormous effort has to be exerted on the part of the agents of the system in order, from time to time, to bring them into correspondence with the notably changed system of meanings. These can change and often do change gradually, continuously, in accordance

[24] As mentioned before, meanings are in a continuous change according to Hegel Regardless of Hegel, all the systems of meanings that are "problematical" and contain explicit or implicit contradiction or uncertainty tend to change also until the contradiction and uncertainty are eliminated or masked. See E. Barthel. *Die welt als Spannung und Rhythmus* (Leipzig, 1928).

[25] See, on ossification and deterioration, E A Ross, *Principles of Sociology* (New York, 1938), chaps. xlviii–l On the intractability of institutionalized vehicles, see A. J. Toynbee, *op cit.*, vol IV, pp 133 ff.

with the continuous experience. The vehicles cannot do that. At best, they can change only from time to time. Hence their lag in the change in comparison with the component of the meanings in the system.

This phenomenon can be observed in the change of almost any great system. If we take a *law* system,[26] its system of meanings (norms) in the sense of what is just and what is not, what is fair and what is not, is incessantly changing in the experience and conscience of the population.

Norms-meanings that appear just and fair under one set of conditions may often become unjust and obsolete under another set of conditions. If they were enacted as official law and objectified into a set of the vehicles: statute books, court decisions, enforcement by the court and police, sanctioned by fine and punishment — such objectified norms are not easy to replace instantaneously by new norms corresponding to the new conditions and new ethical conscience.

For a change of even an unimportant law norm, the huge and complicated machinery of the legislature has to be set into motion. For a change of an important norm — say the norms of the constitution — the operation of this huge machinery becomes so difficult, complicated, and costly that no human power can effect such changes continually: no efforts of the legislature, no time, no sources are sufficient to keep all the enacted laws in an incessant flux corresponding to the incessant change of our "intuitive law" convictions. As a result, as soon as an official law is enacted — which means objectified into a series of its vehicles and agents — such an objectified law becomes fixed, static, ossified, and intractable, to a considerable degree: it begins to live its own life — the life of a petrified norm, inelastic and unchangeable. Only when the tension between the new norms of law ("intuitive law") in the minds of the population and the existing official objectified law becomes enormous, only then are the vehicles of the law from time to time changed: legislators get busy, their machinery is started, the old

[26] In the sense of L. Petrajitsky's "attributive-imperative" experience. Petrajitsky distinguishes "the official law" sanctioned by the State and enforced by it; and "intuitive" law as a system of the attributive-imperative norms that are not sanctioned by the State, that are sometimes supplementary to, sometimes different from, sometimes contradictory to the norms of the "official law." This "intuitive law" differs from the "official law" by the fact that "it freely changes in accordance with the changed sociocultural conditions. . . ." "The positive (or official) law just for the reason of its being definitely fixed . . . is liable to be inhibited in its change, and lags in the change, from the change of the mental, economic, and social life." Intuitive law changes *pari passu* with it. L. Petrajitsky, *A Theory of Law and State* (in Russian, St. Petersburg, 1909), Vol. II, pp. 479 ff.

norms are replaced by the new one; the system of the old vehicles gives place to that of the new vehicles; old statutes are eliminated, new ones are enacted and published, and so on. Sometimes, if this adjustment is not made peacefully, it is done with violence. The system of law norms as a system of meanings changes incessantly in the conscience of the people; the system of the objectified official law with its vehicles can be changed only from time to time. The fact that the law norms were objectified into a set of vehicles is the obstacle to its change contemporaneous with the change of the intuitive meanings (norms). Therefore, the component of the vehicles in the system changes later, often with a considerable lag in time, in comparison with the change of the law norms or meanings. The vehicles make the objectified norms inelastic and less tractable than the norms themselves. Hence the perennial discrepancy between the actual character of the law norms as they exist in the mind of the people and the official law objectified in the vehicles.[27]

Similar is the situation in *religious systems*. As a system of meanings, the religious ideas and beliefs also change incessantly. But the previous religious system of meanings incorporated into dogmas and a set of vehicles — ritual, ceremonies, hierarchy of the priesthood, religious relics, buildings, canon law, etc. — cannot change incessantly. Since the moment of the objectification of a given system of beliefs, it becomes intractable, to a degree, and, like an ossified body, remains rigid and inelastic. As a result, it changes only from time to time, when the tension between the new system of beliefs and the objectified religion becomes particularly great. Hence, the perennial uniformity: religious beliefs change earlier and more continuously than the objectified religion, which changes only spasmodically from time to time. The fact of objectification of the meanings into vehicles is the reason for such an inelasticity and lag in the change of the objectified religion.

The same is true of *scientific systems*. Sometimes there is a considerable lag between the emergence of a new theory in a given field and the change of the vehicles: obliteration of the old theory from all the texts, from all the teachings, and replacement of its instrumentalities, funds, and "vested interests" by new vehicles corresponding to the new theory.

So also in the field of *art systems*. A new art style already conceived has to wage a long war with the "institutionalized existing art

[27] See L. Petrajitsky, *op. cit.*, Vol II, pp. 479 ff ; J Cruet, *La vie du droit et l'impuissance des lois* (Paris, 1908), pp. 1–10, 336, *passim*.

style" before it finds an ample objectification and socialization in the new or modified vehicles and agents.

To sum up: systems of meanings in all the main fields of culture are conceived earlier than they are objectified and socialized. They change incessantly while their vehicles change only spasmodically from time to time. Hence, scientific theories change more incessantly and earlier than their institutionalized vehicles, such as texts, books, universities, schools, faculties, methods of teaching, methods of research, and so on. Beliefs change earlier and more continuously than rituals and objectified dogmas. Law norms change earlier and more continuously than the statutes of the official law and all the law machinery. The same goes for art meanings and patterns, compared with the institutionalized forms of art (its vehicles).

As a rule new-born meanings are inhibited from their objectification and socialization by the existing vehicles of the old meanings. Sometimes these vehicles suffocate the new-born meanings. Sometimes, as a Nemesis for such a suppression, they are broken with violence by the new systems of meanings impeded in their realization.[28]

All this means that in a change of the sociocultural systems their meanings-component tends to change, and changes, as a rule, earlier in the logical and temporal order than the components of the vehicles. This uniformity, set in this way, is, if anything, opposite to the alleged mechanical uniformity of the lead of the "material-technological culture" and the lag of the "nonmaterial, nontechnological" culture.

However, as mentioned, this rule is not without exception. In Chapter Two it was indicated that if the meanings rule the vehicles, the vehicles also exert a retroactive influence upon the meanings. Being certain physicochemical and biological objects or phenomena, the vehicles may sometimes change through sheer physicochemical and biological forces. An earthquake may destroy all the vehicles of a given religious, scientific, or artistic system of meanings, and kill many of its human agents. War may ruin the funds, buildings, museums, libraries, and other vehicles of a given system, and crush its agents. The same can be done by plague, fire, inundation, and other elemental forces. Through all this the vehicles may be ruined or changed without any preliminary change of the component of the meanings of the system. If the change of the vehicles and agents is enormous, it certainly exerts a retroactive influence upon the system of meanings. Sometimes, when all its vehicles and agents are destroyed, the sys-

[28] See a development of this in my *Sistema soziologie,* Vol. I, pp. 176–193.

tem terminates its empirical existence. In other cases, it is changed notably by this retroactive effect of the change of its vehicles and agents. Such a retroactive change of the system of meanings under a preliminary change of its vehicles or agents may occur in several other forms. Hence, the exceptions to the uniformity formulated. However, it is to be noted that such exceptions are due to the impact of external forces upon the system through its vehicles. They rarely arise internally, from the inner life of the system itself. From this internal standpoint, the rule is the logico-temporal precedence of the change of the component of the meanings over the lagging change of the component of vehicles. The "immaterial" part of the system leads in change its "material" part; meaning leads its conductor and vehicle.

H. Referring to what will be said further on the embracing and embraced rhythms and tempos (see Chapter Eight), *the rhythms in the subsystems of a larger system tend to be shorter in their time duration than the rhythms of the larger systems; and the tempos of the succession of the phases in the rhythms of subsystems faster than the tempos of those in the embracing systems.*

In other words the speed of change in subsystems (compared with a commensurable change in its system) tends to be faster than that in the embracing system; and in that faster than in its supersystem (providing we always deal with the respective embracing and embraced systems, and not with congeries of different systems).[29] This means that *the difference in "speed" of change should be looked for not in material or nonmaterial, technical or ideological, civilizational or cultural parts of the sociocultural systems, as the above theories do, but rather in the embracing supersystems and embraced systems and subsystems.* Fluctuation of the value of certain stock-market shares tends to be faster and more erratic than that of all the shares registered on the stock market. The changes in the prosperity and depression of a certain industrial firm tend to be more frequent and abrupt than in that of the whole economic system of the country. Change in a particular subsystem of chemistry or physics happens more often than the change in the whole character of chemistry or physics. Changes in methods, technique, principles and theories in one of the sciences are likely to be "speedier" than in those of the whole system of natural sciences. Finally, the change of the whole system of truth would require a still longer time; it can take place only after an accumulation of vast

[29] One cannot take a subsystem A of a system B and compare it with system X, to which it does not belong.

changes in all or the majority of the scientific, philosophic, and religious disciplines dealing with truth and knowledge. Many a change in secondary theories, technique, hypotheses of this or that part of physics or chemistry occurs sometimes without touching their other parts — still less the other sciences, and not at all the system of truth (which is comprehensible in the light of the principle of marginal immunity of each system). They are like the surface ripplings upon larger waves, and these upon the tidal waves, each of which moves more slowly than the preceding wave or ripple.

The same is true of any other compartment of culture. In a *paysage* or portrait painting, several changes — in the technique, in the style, in the subject — have been taking place without a serious disturbance of the essential style and content of painting as a whole; and with still less effect on other arts and other compartments of culture. Almost every seasonal exhibition of painting shows some changes in comparison with the preceding exhibitions. And yet, these ripplings go on without tangibly affecting the longer and deeper waves of the change of art generally. Quite a large number of these "molecular" changes must accumulate in various fields of art before painting, or especially art as a whole, would register a tangible change in the whole art system.

So also in philosophy and religion. Small religious denominations come and go. For instance,

> in the period between 1890 and 1906, in the United States, 68 new denominations, or 46.8 per cent of the existing ones, were added and 20 denominations, of 13.8 per cent of the existing denominations, ceased to exist . . . corresponding figures for the period 1906–1916 are 21.2 per cent of additions, 8.8 per cent of dissolutions; for the period 1916–1926 the corresponding figures are 6.9, and 8.4 per cent.[80]

Meanwhile the large Christian religious systems, like the Roman Catholic or the general Protestant, or Eastern Christianity, live centuries, even thousands of years, and in their dogmas, principles, and ritual change much more slowly; still more slowly has the whole system of Christianity changed.

The same is true of the main philosophical systems. While almost any work of any idealistic or materialistic, Kantian or positivistic philosopher gives some variation of either idealism or materialism, Kantianism or pragmatism, the whole idealistic or materialistic system

[80] P. Sorokin, "Life-Span, Age-Composition, and Mortality of Social Organizations," *Mensch en Maatschappij*, Vol. IX, No. 1–2, p. 81.

of philosophy moves and changes much more slowly and gradually, qualitatively and quantitatively. In Volume Two of *Dynamics* the figures and curves given in regard to these and other fundamental currents of philosophical thought show that their comparative rise or decline is a gradual process and has required decades and even centuries for their major fluctuations to take place.

And so also in regard to ethics, law, and forms of political and social organization.[31]

For these reasons changes of whole integrated sociocultural supersystems such as the Ideational-Idealistic-Sensate have a still slower tempo than each of their main compartments.

The validity of this proposition is supported by practically all the material given in the preceding volumes. The proposition is comprehensible logically and is well corroborated factually.

I. *Now whether among the subsystems of a system some subsystem always leads the change while the others always lag in a certain order remains uncertain.* Considering the principle of marginal autonomy, and that of "togetherness" of change of the parts of a system, it is hardly probable that any such uniformity exists. If it exists in some systems it is a purely "local" and "temporal" phenomenon, in no way applicable to all systems.

This means that it is likely — and we have seen this in all the preceding volumes — that the order of change of each of the subsystems of a larger system varies. Music led the other arts in the transition of Greek culture from Ideational to Sensate, in the seventh and six centuries B.C., and then in the opposite transition from Sensate to Ideational in the fifth and sixth centuries A.D.; and music lagged behind the other arts in the transformation of the culture from Ideational to Sensate after the thirteenth century A.D. Similar variations have been noted many times (see *Dynamics*, Volume One, *passim*, and especially Chapters Five and Six). Similar variations were mentioned as taking place even in much more concrete systems, like plant or animal organisms. In this respect, we should not impose upon the creative process

[31] See also the data given in the above "Life-Span" about the relative durations of various social organizations. Even the span of life, not to mention small changes within each organization, in little economic systems like grocery, drug, or hardware stores is only about 2 to 3 years; in vaster economic systems and firms it is about 28 to 30 years; likewise, small cultural organizations live some 2 to 3 years; vaster cultural institutions, like universities, live much longer. The same is true of the duration of life of small political units, like this or that local faction or political party, while more embracing political systems, like the State, live much longer.

of culture a too monotonous and too mechanical uniformity, which it hardly has in these fields.

J. Finally, *the empirical speed of change in the empirical Ideational supersystem — in its entirety and in its subsystems — should be expected to be, and in fact is, slower than in the empirical Sensate supersystem and its subsystems, the Idealistic supersystem occupying an intermediate position between these.* The Ideational system is oriented toward everlasting and supersensory Being, while the Sensate toward ever-changing sensory Becoming. One is Eternalistic; the other Temporalistic. The ethos and pathos of one is grounded in an unmoved Prime Mover; of the other in the incessantly changing empirical reality of sense-perception. For these reasons, one tends to be static empirically and tends to change as little as possible. The other cannot help being dynamic and having its ethos and pathos in incessant change, evolution, progress. The Idealistic cultural system occupies an intermediate position. This difference of the tempo of the change we have seen in preceding volumes and shall see further.

Such is the constructive theory that appears to be more valid, and, cognitively, when properly understood, more important than the above dichotomic pseudo uniformities. No doubt the theory offered is less spectacular for many, and depicts a more complex situation than many a simplicist or negative theory of uniformities. "The simplest explanation is not always the best, however." [82]

Rejecting the sterile scepticism of the negativists, and the naïvely mechanical theories of dichotomists and others, we offer the middle and sound way of the solution of the problem. So much for the present. In the following chapters, we shall attempt to unfold, clarify, and validate these statements. Since the temporal order of change, its speed or tempo, involve the problem of tempo of change, and this implies the problem of rhythm in change, and rhythm and tempo involve the problem of recurrence and periodicity in change, subsequent chapters deal with just these problems, often mentioned but rarely clarified.

[82] M. I. Rostovtzeff, "Parthian Art and the Motive of the Flying Gallop," *Independence, Convergence, and Borrowing in Institutions, Thought, and Art* (Harvard University Press, 1937), p. 53.

Chapter Eight

UNIFORMITIES OF RHYTHM AND PHASES IN SOCIOCULTURAL CHANGE

I. Concept of Sociocultural Rhythm and Its Phases

Since we have to look for temporal or mixed uniformities in the change of sociocultural systems, such temporal uniformities may be found in the existence of uniform rhythms in the life process of the system. The rhythm implies, as we shall see, the presence of certain, and possibly uniform, *phases,* a certain *tempo,* sometimes *periodicity* in the succession of rhythms. Therefore the search for the temporal uniformities in the life process of sociocultural systems inquires: First, whether such processes are rhythmical. Second, if so, what is the phase structure of the rhythms and the uniformity of the temporal succession of the phases? Third, what is the tempo of the rhythms? Are there certain rhythms with a uniformly faster tempo than that of other rhythms? Do some rhythms uniformly accelerate their tempo in the course of time while others uniformly slow it down? Fourth, are there periodical rhythms and, if so, what are they? In brief, rhythm, tempo, periodicity are closely connected with one another and have to be studied together. In this chapter we shall deal mainly with rhythm and its phases, in the following ones with tempo and periodicity.

What is the meaning of rhythm, tempo, periodicity in sociocultural processes? These and related terms, like cycle, oscillation, fluctuation, recurrence, are commonly used in the social sciences, though rarely with any precision and clarity; still more rarely with an understanding of the important implications they have.[1]

In elucidation of these concepts — taken from music — an attention to their meanings in music is likely to be helpful. First, as a step to the definition of rhythm, tempo, periodicity, we must realize

[1] Even in regard to the simpler concept of periodicity, E B. Wilson rightly remarks that "there is enough confusion of terminology." E B. Wilson, "The Periodogram of American Business Activity," *Quarterly Journal of Economics,* May, 1934, pp. 375-380.

they mean different things. *Rhythm is not identical with tempo, nor is either with periodicity.* In music, the same score, with the same rhythm and measure, can be played with different tempos: fast and slow (*presto, prestissimo, largo, accelerando,* and *ritardando*). The same record, with the same rhythms and measures, can be played on a phonograph rapidly, say, at 156 revolutions a minute, and also at 78 a minute. The tempo in the second case is twice as slow as in the first, while neither the rhythm nor the score itself is changed at all.[2]

Likewise rhythm is not periodicity, meaning by periodicity equal astronomical or clock time, in which a certain phenomenon repeats itself. "A phenomenon is strictly periodic only when, from a certain time on, it repeats itself."[3] The time durations of a sequence of phases A, B, C, of a certain process may be different, that of A being now twice as long as B and C, and now equal to those of B and C; now B or C being longer than A; and the whole sequence of A, B, C in one recurrence may last, say, 50 minutes, in another, say, 25 minutes, and be unequally long in all its recurrences. Periodicity as defined is lacking in such recurrent sequences of A, B, C. And yet there remains a recurrence of the whole sequence, with its three phases A, B, C (in these recurrences). With what term we cover this uniform recurrence of the sequence with its three phases is unimportant. What is important is that there is this uniform recurrence of it, in spite of the absence of periodicity. If we designate this uniform recurrence of the sequence with its phases A, B, C by the term rhythm, the difference between periodicity and rhythm is clear. For example: suppose a year consists of four seasons. Suppose further that the clock-time duration of each season is unequal, and changes from year to year. Thus the seasons within each year are not exactly periodical; likewise, their length shifting from year to year is also nonperiodical; nevertheless, there remains a uniformity of sequence of the seasons from year to year, or the seasonal rhythm of the year that recurs.

[2] Here the concepts, symbols, and definitions of a musical score are very useful for a sociologist. Music elaborated a much more perfect technique for the scoring of musical compositions than the social sciences did for description or scoring of the greatest symphony of the world: the sociocultural life and its movements. In music the terms tempo, measure, rhythm, and others are perfectly definite and are ingeniously defined through a set of musical symbols in a musical score. See for these, for instance, C. F. A. Williams, *The Rhythm of Modern Music* (London, 1909), R E M Harding, *Origins of Musical Time and Expression* (New York, 1938) or any competent text in the field of musical composition, musical grammar, and syntax.

[3] E B. Wilson, "The Periodogram," quoted, p. 376; see there the mathematical formulae of periodicity.

Again, the metamorphosis of certain insects passes through three distinct phases: larva-pupa-imago. The duration of each phase is not equal to that of the others; and it seems the length of each phase is not exactly the same from generation to generation. Therefore, the metamorphosis is not periodical; yet it has a three-phase rhythm, repeated in each generation of the insects.

Vice versa, within the same recurrent clock-time units there may recur most different rhythms. In music, within the same time interval, say sixty seconds, there are rhythms of very different kinds: double, triple, quadruple, quintuple, and so on, if we consider only accented and unaccented notes of its measures; and there may be half-rhythms, smaller rhythms within larger rhythms, overlapping of rhythms, etc. In other words, rhythms may be periodical and nonperiodical; and within the same time period, there may be very different rhythms. This makes clear the difference between rhythm and periodicity in music as well as in the natural and social processes. Then what is *rhythm?* In musical composition rhythm is one of its fundamental recurrent units that punctuates "the musical process" into a series of distinct "cuts" or moments. Punctuating it, rhythms through their successive linking bind these moments or cuts into larger units that determine and reflect, to a considerable degree, the character of the music itself. Punctuation, unification, and reflection of the whole musical process — such are the functions of rhythm. Its foundation in music is *measure.*

Measure is a still more elementary unit, like "foot" in verses, "formed by a single accented note together with its accompanying unaccented note or notes."[4] Measure is a unit — that is, something whole, of which accented and unaccented notes are parts. This unit of the accented and unaccented notes (say Abc or Ab) recurring, punctuates the music into parts Abc, Abc, Abc. . . . Rhythm contains in itself measure and sometimes coincides with it. But more often it is composed of more than one measure (like a verse made of several "*feet*"), and has additional elements which are absent in measure, such as caesura, the masculine and feminine harmonic closes, other qualitative accentuations, and the like. In other words, rhythm contains all the elements of measure, but not all the elements of rhythm are present in measure. With all its elements, rhythm is a real — and perhaps most important — unit into which musical composition divides itself. Recurring, it punctuates the whole "musical

[4] C. F. A. Williams, *op. cit.*, p. 22.

process" into its rhythmical units and makes it "graspable" and "comprehensible."

The rhythm unit does not hinder the existence of still larger units in music: two or more rhythms make a *period* (as two verses make a couplet); two or more *periods* make *a musical phrase* (as a larger combination of verses makes a strophe or stanza); several periods or phrases make a *movement;* several *movements* comprise the whole symphony or given piece of music. Thus we have a series of units, beginning with measure and rhythm, passing to the progressively larger: period, phrase, movement, and ending with symphony.

Somewhat similar is the situation in other fields of art. In architecture, for instance, rhythm is "a serial recurrence of a similar element-unit [say, of a Doric column] emphasizing the togetherness of these elements and common belonging of various parts to one united whole."[5] This "element-unit," for instance, a column, is not necessarily something simple, like a dot or point, but almost invariably is a complex unit made of qualitatively different but unified components.

In somewhat different, but essentially similar, terms are the definitions of rhythm in various processes given by different authors. F. Jodl defines musical and architectural rhythm as "such an ordering and division of manifoldedness which permits its total apprehension in one united picture." Psychologically it consists "in orderly repetition of optical or auditory impression."[6]

Translating the above definition into the field of the sociocultural processes, we can say that *sociocultural rhythm is a real recurrent unit of the process, consisting of two or more different moments or "phases." Recurring, it punctuates the process into a series of "cuts" separated from one another by the caesura between each recurrent rhythm. Recurring throughout the process, it unites the cuts into one whole; and being its perennial unit it conditions, to a degree, the essential character of the process.* Schematically, in a recurrent "double-phase" rhythm, AB, AB, AB, or in "triple-phase" rhythm, ABC, ABC, ABC, or in quadruple rhythm, ABCD, ABCD . . . , each moment in

[5] A. Riegl, *Spätromischen Kunstindustrie* (Berlin, 1901).

[6] F. Jodl. *Lehrbuch der Psychologie* (Berlin, 1896), pp 328 ff ; 409 ff. See also his *Aesthetik der bildenden Künste* (Stuttgart-Berlin, 1917), R Müller-Frienfels, *Psychologie der Kunst* (Leipzig, 1912), Vol. II, pp. 41 ff.; E. Meumann, "Untersuchungen zur Psychologie und Aesthetik des Rhythmus," in W. Wundt's *Philosophischen Studien*, Bd X, 1894; W. Drost, *Die Lehre von Rhythmus in der heutigen Aesthetik der bildenden Künste* (Leipzig, 1917), pp. 7–21, Puis Servien, *Les rhythmes comme introduction physique à l'esthetique* (Paris, 1930); K. Koffka, "Experimentellen Untersuchungen zur Lehre vom Rhythmus," *Zeitschrift fur Psychologie*, Bd. 52, 1909.

the rhythm, say A, has to be accented in such a way as to be different from B, C, D. And the same is true of B, C, D, in regard to each other. If they did not differ, they would compose one homogeneous process without any punctuation or rhythm. Such a process would be like a straight even line without any "cuts" and divisions.

Accentuation or individualization of each "moment" or "phase" of the rhythm may be either *qualitative:* one phase (A) differs from other (B) qualitatively, as in the rhythm: sleeping-being awake, or hungry-not hungry; or *quantitative,* like increase-decrease, increase-decrease of war, or crime, or industrial production; or *spatial,* like the recurrence of the same epidemics, say, influenza, in various societies; or *temporal,* manifesting in the recurrent but different time duration of each phase (A and B and C) of the rhythm. Instead of two-phase rhythms, as in these examples, in three- or four-phase rhythms, each phase equally has to be accentuated from the others through either *qualitative,* or *quantitative,* or *spatial,* or *temporal* difference, or through a combination of these differences. Such is the working definition of sociocultural rhythm that divides many sociocultural processes into punctuated units. A few qualifications are in order at this point.

We do not have any serious ground on which to assume that all sociocultural processes within a system or congeries, or between these, are necessarily rhythmical. It is quite conceivable that there are processes woven out of a multitude of single, unrepeated, and different units or links. It is also possible that the rhythms of a process are diverse, each repeated only a few times, and overlapping one another to such an extent that we cannot just grasp them and untangle the chaotic succession of such rhythms, as we often are incapable of grasping any rhythms in a confused noise continued for some time. Such processes, though theoretically made of diverse overlapping rhythms, would be equivalent for us to nonrhythmical processes. This means that, though we shall try to discover the rhythmic composition of each process studied, we are not entitled either to assume that it necessarily is there, nor to ascribe an artificial rhythm to the process in which factually it is unobservable. This last remark concerns a number of statistical "rhythms," sometimes real, sometimes quite artificial, obtained by a pure "paper-pen" manipulation with the means, medians, modes, and other purely conventional constructions of the artificial, statistical units. For instance, we are not entirely subjective in dividing the annual process of the life of the solar and human universe into

365 (with some points) daily rhythms, or even into four seasons (for certain parts of the earth). Such daily and seasonal rhythms are indeed given in the annual process and have a definite basis in the rotation of the earth around its axis and around the sun. If, instead, we try to divide the annual process into, say, 483 daily rhythms, and into seven seasonal rhythms (for the above regions) our rhythms will be artificially cut or unreal. For our culture an investigator is entitled to divide the annual process of sociocultural life into seven-day, or weekly rhythms, because such a rhythm of social life — with six weekdays and the seventh day, Sunday — really exists in our society and culture. But such a rhythm would be quite artificial for all societies and cultures which have not a seven-day week but an eight-, nine-, fourteen-, or eighteen-day week. The rhythms claimed to be given in a process must be real, that is, empirically observable (no matter whether directly or indirectly), and in fact punctuate the process.

The next remarks concern the *principle of compatibility or parallel running of two or more different rhythms in the same system during the same time.* Such a coexistence of two or more different rhythms in the same system is often neglected. Nevertheless, in a great many mechanical, biological and sociocultural systems, its existence is certain. In our organism several different rhythms of heart-beating, breathing, peristaltic motions, etc., are all running simultaneously in various subsystems. In human behavior, several different rhythms run together every twenty-four hours: sleeping-being awake; hungry-thirsty-satiated; tired-rested; cheerful-moody or downhearted; satisfied-dissatisfied; angry-kind; sitting-standing-walking; and many others.[7] All these rhythms (each with different durations) run parallel within the same twenty-four hours in the behavior of the same individual: Man is hungry at a given period; at the same period he may be irritated and tired and walking. All these "phases" of the respective rhythms run simultaneously.

This "running parallel" or time-compatibility of various rhythms in a system is generally due to the existence of several subsystems within it. In this plurality one kind of rhythm goes on in one subsystem, another in another, a third in a third, and so on. Pictorially, it can be represented by rhythms A, B, C — all different and all going on in the same system simultaneously: A and B and C all are rhythmical, all run in one system at the same time.

[7] See for actual daily rhythms in human behavior, P. Sorokin and Q. Berger, *Time-Budgets of Human Behavior* (Harvard University Press, 1939).

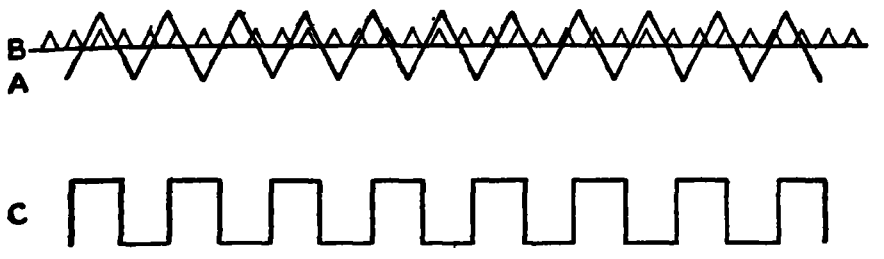

FIG. 1

II. CLASSIFICATION OF SOCIOCULTURAL RHYTHMS

Offhand, one can say there are many and diverse rhythms in the sociocultural processes of the same system. They may be classified in different ways, according to the objective of the classification. For the present, when the existing state of knowledge in that field is very meager, the following distinctions may be of some value.

A. *Gradation of Short and Long-Time Rhythms.* In the process of change of the *same system*[8] there often coexist several short and long and still longer rhythms. Just as in music two or more measures make rhythm; two or more rhythms, a period; two or more periods, a phrase; several phrases, a movement; several movements, a symphony, or the whole musical piece; similarly in many a sociocultural process, there are short and long-time rhythms, where the short-time rhythm becomes a mere "phase" of the longer-time rhythm, and this latter a "phase" of a still longer rhythm. If we take the whole life process of a man (with completed life), there are in it many daily rhythms like sleeping and being awake; hungry and satiated, and the like; there are (in our culture with its seven-day week) many weekly rhythms with a certain mode of life during the weekdays and during Sunday; there are several monthly rhythms; there are annual rhythms, like a birthday, Christmas, New Year; finally there is the long rhythm of passage from childhood to youth, to maturity, and to old age, or the rhythm of birth and death, the last rhythms occurring only once in the life of each individual, but recurring in that of all individuals. In each of the longer rhythms, the shorter one is only a moment or phase which implicitly or explicitly is contained in it.

We shall encounter a number of the short and long-time rhythms in the subsequent chapters; therefore there is no need to give examples.

[8] See the concept of process and its specifications, *Dynamics*, Vol. I, chap. iv.

B. *Embracing and Embraced Rhythms.* Though the longer-time rhythm sometimes coincides with the embracing, and the short-time rhythm with the embraced, nevertheless, they are different in nature. Short and long-time rhythms differ by the duration of time necessary for realization of the rhythms. Embracing and Embraced rhythms differ from one another from quite a different basis: through the relationships of the respective processes as a *part to the whole.* The point is that the processes in any complex integrated system are many: some are going on in a part of the part of the whole system; some in its part; finally, some in the system as a whole. In this respect, there may be the whole pyramid of the relationship of this "part of the part of the part of . . . the whole system." The process of breathing, with its rhythm, or of digestion, or of circulation of blood — each is only one of the part-processes of the whole life-process of the organism. This life-process embraces any of these processes as its part. The former is embracing, the latter embraced. The economic process with its business fluctuation is but a part of the embracing sociocultural process. Therefore, business rhythm is an embraced unit of the embracing sociocultural rhythm. The process of army training is but a part of the process of defense of the given society; this process of defense is again a part of the still larger process of its preservation and protection; and the whole process of the preservation is a part of the whole sociocultural life of a given society. In this pyramid, except its terminal processes, each process is embraced by the larger, and is itself embracing the narrower one. The embraced processes become thus an element of the embracing process. For this reason, the rhythms given in the embraced process become a "phase" or an element of the rhythm of the embracing process. Respectively they are "embraced-embracing" processes in their relationships. Such a relationship of the rhythms is, as we see now, different logically from the short and long-time rhythms.

Many a long-time rhythm may coincide — and often does so indeed — with the embracing, and the short-time rhythm with the embraced rhythms. But not always. What is important is that they have a different *fundamentum divisionis,* and therefore should be distinguished from one another.

Viewed from this standpoint, the total rhythms of all the processes of a complex system and the rhythmical structure of its life process appear diagrammatically something like the following scheme (all the numerous variations omitted):

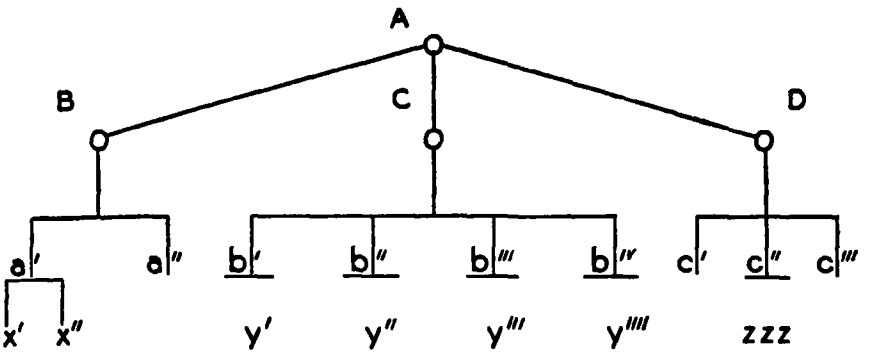

FIG. 2 ALL EMBRACING LIFE-PROCESS AND ITS RHYTHMS

A stands as an embracing rhythm in regard to B, C, D. Each of these is embracing, in regard to a's, b's, c's; each of these, in regard to their x's, y's, z's, and so on.

It is like an ocean movement, where the surface ripplings are embraced by the waves; these by still larger waves of which they are part; these larger waves are embraced by the still more fundamental and all-embracing flux and ebb of the tides.

Respectively, the relationship of the rhythms may be either that of the embraced part to the embracing whole; or only an indirect relationship, as a's to b's or c's, where they are only in "the second generation" (through A) indirectly connected with one another; or a still more remote relationship, as, for instance, x's to y's or to z's, and so on. Sooner or later in this remoteness, they become for an observer "neutral" or "unrelated" to one another, like a very distant relationship amounting to no more than "We all come from Adam" — which means being unrelated or strangers.[9]

Various processes of a complex system have different rhythmical structures: some are more storied than the others; again, the number of the embraced rhythms of an embracing rhythm may vary, now two, now more; and so on. But the above diagram gives a pictorial idea of what is meant by the rhythmical structure of the processes of a system, and suggests that from this standpoint it is possible in many cases to give indeed a fairly accurate "anatomy" of the rhythmical

[9] If such relationship is studied only with the usual causal approach, with an "inductive method" of discovery of the relationship, according to the procedures of identity, difference, concomitant variation; such procedure rarely would find any causal connection between such "strangers" as x's, y's and z's. Meanwhile, they are indirectly connected. The connection and the degree of it can in such cases be discovered only according to the meaningful plus causal method.

structure of the whole life of a given system — a task practically unattempted as yet. Among other things the above means that, if in a given process one investigator finds one kind of rhythm while others find different kinds, all running simultaneously, this heterogeneity of findings does not necessarily mean that one or all investigators are wrong. The discovered diversity of rhythms, if they are real, may mean only that investigators are studying different rhythms: some embracing, some embraced; some short-time, some long-time; some may be rhythms found in one subsystem of the sociocultural manifold, others in other subsystems. The more complete is our series of the long and short-time rhythms, embracing and embraced, of a given process, the better, the more adequate knowledge we have of the rhythmical structure of the processes of a given system.

III. Classification of Rhythms according to the Number of Their "Phases"

From the standpoint of the number of the "phases" of which the rhythm is composed, there are double-phase rhythms, triple-phase, quadruple-phase, and still more complex rhythms. Let us look a little more at each of these rhythms.[10]

A. *Two-phase Rhythms.* (Dyads.) Such double rhythms are found in many natural processes, like flux and ebb of ocean tides; day and night phases of twenty-four hours; rhythm of man's walking (alternation of the left and right legs); breathing rhythm (inhaling and exhaling); sleeping and being awake. In brief, in the field of inorganic, organic, and psychological phenomena, there are many rhythms of this double character. Naturally, they are not absent in the field of sociocultural processes.

First, all the sociocultural processes that *quantitatively* consist of the recurring two phases, (*a*) "increase-decrease," or (*b*) "increase-plateau," or (*c*) "decrease-plateau," *have this rhythm.* As the concept of rhythm is independent from periodicity, and the "curves of movement" of a great many sociocultural phenomena often follow one of these patterns, all such processes, for the length of time during which they run, are *eo-ipso* processes containing this double rhythm. When one takes the diagrams showing movements of specific crimes, suicides, export-import, production of various goods, business depression-pros-

[10] In this chapter, I give only a few examples of the nonperiodical rhythms of double, triple, and of more complex types. Many other examples are given in Chapters Nine and Thirteen.

perity, voting for a certain party; or, as is shown in the preceding volumes of *Dynamics,* the movement of idealism-materialism, realism-nominalism, eternalism-temporalism, internal disturbances in each of the countries studied; wars; and hundreds of other phenomena — in these and a great many other sociocultural processes such a double rhythm, periodical or not, short-time or long-time, embracing or embraced, is certainly indicated for *some* periods. These examples concern the double sociocultural rhythms where two phases differ from one another *quantitatively,* according to "increase-decrease," or "increase-plateau" or "decrease-plateau."

Side by side there are numerous double rhythms where the phases differ from one another either *qualitatively or spatially* (according to spatial direction). Most of the buses, trains, and other means of transportation move, and with them the stream of human beings, between two terminal points, to and from. The general phenomenon of "return tickets" still more clearly exemplifies the double spatial rhythm of such spatial social processes. Every morning a stream of persons who live in suburban places travel to the big city; and at the end of the working day they travel back from the city to their suburban places. Thousands of other processes have this *double spatial rhythm* of various kinds.

Qualitatively, not only the cosmic process, but the social life has a daily double rhythm, with an enormous activity during the daytime, and with a lull during the night. So also do many forms of sociocultural activity: they go on in the daytime, and cease in the night.

Again, since the concept of rhythm does not have to be necessarily periodical, or a short-time rhythm, double rhythm is found in such alternations as war-peace phases of social life, or as order-revolution alternations, because (see Volume Three of *Dynamics*) the social life of any nation represents a continuous stream made up of the rhythm war-peace, war-peace; or order-disorder, order-disorder. There are many other processes of this type. In the life of various — especially primitive and nomadic — societies, there is an annual double rhythm every year: in one season the tribe or group disperses and moves to certain parts of its territory; in the other it gathers together at another part; and so it goes, from year to year. Whether such groups are the Eskimo, the nomads of the steppes or deserts, or the Australian bushmen, such double rhythms recurrent from year to year are found in their life. In some other groups, living in different conditions, such annual rhythms may have triple or four "seasonal" phases.

If now we pass to *more embracing processes and rhythms,* social thinkers of the past as well as of the present have attempted to formulate a large number of more embracing double rhythms which are found, according to their opinion, in the life-process of the world, of society and culture. Such are: the Chinese double rhythm of Yin and Yang, in its application to the social and cultural processes. Such is the cosmic alternation of materialization of the spiritual reality (Brahma) and its dematerialization, which goes on endlessly, according to the ancient Hindu thought.[11]

To the same type belongs the rhythm of ancient Persian thought that in the world there goes on an incessant struggle between Ahura Mazda and Angra Mainyu, with an incessant double rhythm, now the one, now the other taking the upper hand (though finally "hell will be destroyed, men will rise from the dead, and everlasting happiness will reign over the world").[12]

Such also is Empedocles' rhythm of eternal struggle between Strife and Love, of dissolution and unification, quoted elsewhere (Chapter Thirteen). Likewise the Babylonian rhythm of eternal recurrence of the destruction and re-creation of the world.

Similar to these ancient cosmic double rhythms are more modern theories claiming a double, eternally recurring rhythm of integration and dissolution (Herbert Spencer); [13] the above Le Bon rhythm, somewhat darkly formulated; J. H. Jeans' rhythm of progression of all stars from low density to "high and from high luminosity to low," if it has an opposite phase somehow and somewhere (which he leaves in darkness) [14] and many others.

Passing to the purely *sociocultural field,* we find here a considerable number of wide and embracing double rhythms claimed by a number of social thinkers.[15] Such are, for instance, Machiavellian rhythm:

[11] See the sources and the outline of this theory in *Dynamics,* Vol II, pp. 353 ff; similar is G Le Bon's rhythm of the concentration of energy into material things and the dissolution of material things into pure energy; it also recalls H Bergson's theory of the material things as the moments of relaxation of the creative power See G Le Bon, *L'évolution des forces* (Paris, Flammarion, n.d) and *L'évolution de la matière* (Paris, Flammarion, n.d.) and H. Bergson, *Creative Evolution* (London, 1913) and *Matter and Memory* (London, 1919)

[12] See *The Zend-Avesta,* Vendidad I, Fargards 1–2, *et passim* In *The Sacred Books of the East,* ed. by M. Müller (Oxford, 1880) Vol IV

[13] H. Spencer, *The First Principles* (London, 1870), pp. 483–489, 498–501, 507–17

[14] J. H. Jeans, "Cosmogony," in *Evolution in the Light of Modern Knowledge* (London, 1925), pp. 8–17.

[15] See the detailed description of these rhythms in Chapters Nine and Thirteen

order-disorder, order-disorder, incessantly recurring in the life-process of society; Campanella's rhythm of ever-continuing alternation of religion-atheism, religion-atheism; D. Hume's rhythm of progress and decline of science repeated in the history of different nations.[16] (See these rhythms in Chapter Nine.) Or St.-Simon's rhythm of "the critical" and "organic" periods in sociocultural process. Here is its description.

> The law of development of mankind . . . shows to us two distinct and alternating phases (états) of society: one which we call the organic phase, where all the facts of human activity are classed, systematized and ordered by a general theory; where the end of social action is clearly defined; the other which we call the critical phase where any community of thought (unanimity, *communion de pensée*), any collective action (*toute action d'ensemble*) and any coordination ceases, and where society presents but a mere agglomeration of individuals isolated from one another and fighting with one another. . . .
>
> Each of these stages occupied two periods in history. The organic stage preceded in Greece the age which they call the philosophic era and which we call more precisely and quite justifiably the critical period Later on a new doctrine is produced. It ran its different phases of elaboration and perfection and then established its political power over the whole Occident. The constitution (establishment) of the Church is a new organic epoch which declines in the 15th century, at the moment when the reformers give the first signal of criticism which is continued up to the present time.[17]

Saint-Simon believed that his time was the ending of the critical period and the eve of the coming new organic period.[18]

> What is the destination of man in regard to other men and what is its destination in regard to the universe? Such are the general terms of the double problem which mankind has always confronted. All the organic epochs have given a solution, at least tentative, of these problems; but immediately the progress . . . began to render them insufficient and called forth for the new ones; the critical epochs, moments of debates, of protestations, of expectation, and transition came then to fill the intervals by doubt, by indifference in regard to these grand problems, by egotism — the necessary consequence of such an indifference. Each time when these grand problems have been settled (solved) has been the organic epoch; each time when they remained unsolved, was the critical epoch.

[16] David Hume, *Essays, Literary, Moral, and Political* (London, 1870), p. 78, also pp. 222–23.

[17] Bazard, "Exposition de la doctrine Saint-Simonienne" in *Œuvres de Saint-Simon et d'Enfantin* (Paris, 1877), Vol. XLI, pp. 86–7, 170–71, 177, 205.

[18] *Ibid.*, p. 179; Vol. XLII, pp. 49–50.

In all the epochs of the same kind, whether organic or critical, no matter whatever was the place and the time of these, human beings are always occupied in the organic periods by construction (*à édifier*), during the critical periods by destruction. . . . In the organic periods one sees that from all the points of social circumference all the minds and actions are directed sympathetically towards one center of affection; in the critical periods, on the contrary, the beliefs of the preceding organic period, rendered unsatisfactory in their vices by the sentiments, by the new needs which the old social bond could not understand, attacked by the present, not bound any more either to the traditions of the past or to the future, fall into ruins in all their parts.

Thus organic periods were: in Greece, the period of polytheism up to the time of Pericles and Augustus; the period of Catholicism and feudalism, up to Pope Leo X, or politically up to Louis XIV. Critical periods: from Pericles to the establishment of Christianity; from Luther up to now.[19]

A somewhat similar but much shorter rhythm — average duration some thirty-two years — of alternation of anarchy and unity, claimed by F. M. C. Fourier,[20] is another example of the double rhythm. H. Spencer's, Claude Bernard's, G. Tarde's claims of the existence of a two-phase rhythm of alternation of analytical (fact-finding) and synthesizing periods in the history of science and philosophical thought are again a claim of double rhythm.[21] So also H. Berr contends that such a two-phase rhythm recurs in humanitarian and social sciences about every thirty to forty years.[22]

A. H. Whitehead indicated a two-phase rhythm in the history of

[19] *Ibid.*, Vol. XLI, pp 170–71.

[20] F. M. C. Fourier, *Sommaire du traité de l'association domestique-agricole* (Paris, 1823), p. 59.

[21] "Each science has its eras of deductive reasoning, and its eras when attention is chiefly directed to collecting and collating facts." H. Spencer, *First Principles* (New York, 1886), p. 269. Claude Bernard states that "at the basis of all scientific systems one finds observations and experiences; but reasoning, going beyond the limits of the known facts, creates a system which (eventually) breaks down under the pressure of new experiences. Thus we observe experimentation and systematic theorizing alternately succeeding one another since Galienus up to the present time." Claude Bernard, quoted by F. Mentré, *Les générations sociales* (Paris, 1920), p. 37.

"It is safe to predict that a century of adjustment (of a multitude of incoherent discoveries and inventions of the nineteenth century) will follow upon the past century of discovery. [Does not the nineteenth century deserve this name?] Civilization requires that an afflux of discovery and an effort to harmonize discoveries shall coincide with or follow one another." G. Tarde, *The Laws of Imitation* (New York, 1903), p 151 ff.

[22] See F. Mentré, *op. cit.*, pp. 36–38. See also P. Sorokin, "Improvement of Scholarship in the Social Sciences," *Journal of Social Philosophy*, April, 1937, pp. 243–244.

thought — alternation of the periods of domination of intuition, or creative phase, and of that of scholarly elaboration and development of the new creations ushered in by intuitions. The creativeness of Greece of Athens is an example of the intuitional period; as is that of the Alexandrian Hellenic world of scholarship and elaboration. "New directions of thought arise from the flashes of intuition bringing new material within the scope of scholarly learning.". . . "One aspect of the adventures of ideas is this story of the interplay of speculation (intuition) and scholarship, a strike sustained through the ages of progress." In between, there are the periods of a "happy balance" between the two, the periods "of culminating greatness." [23]

G. Tarde indicated another ever-recurrent two-phase rhythm of alternation of the period of domination of custom and that of fashion. One is centered at a traditional model of the past cultural value; the other, at a modern, new value. "Man escapes . . . from the yoke of custom, only to fall under it again." Today's new, revolutionary value, in religion, language, art, science, politics, tomorrow, if it is victorious, turns into a custom, fixed and consolidated. Then again, sooner or later, there will be revolt against it on the part of a new model, new fashion, and it will be dislodged to give place to a fashion which again is destined to turn into a custom, and so on.[24] "These are the historic somersaults of the great peoples of civilization." "A classic writer is an ancient literary innovator. . . . Living, he owes his incomparable celebrity [to his innovation]; dead, he owes his lasting authority to the fixation of his language by custom." [25] This rhythm of convention-fashion in the form of the rhythm of convention-revolt is developed by J. L. Lowes in the field of poetry and literature. Art develops "through . . . two opposing characteristics of convention . . . by moulding the still ductible forms, and by shattering the empty shells — the way of constructive acceptance and the way of revolt." What some time ago was new and modern now calls forth protest and revolt, as antiquated and conventional. The present modern will also undergo the same fate, and so the rhythm goes on.[26]

A large number of the double rhythms has been claimed by various scholars, in the field of art particularly. Such, for instance, are H.

[23] A. H. Whitehead, *Adventures of Ideas* (New York, 1933), p. 138; see the whole of chap. vii.

[24] G. Tarde, *The Laws of Imitation*, p. 248 ff.

[25] *Ibid.*, p. 264. See there a development of this sociocultural rhythm.

[26] J. L. Lowes, *Convention and Revolt in Poetry* (Boston, 1926), pp. 50 ff.

Wölfflin's alternating rhythm of the linear and *malerisch* styles in painting, sculpture, and architecture;[27] W. Deonna's alternating rhythm of realism and idealism in the above arts;[28] F. P. Chambers' alternating rhythm of the nonaesthetic and aesthetic estimation of beauty and fine arts.[29]

Further claims for an eternal alternation of the following styles in art are: *Gothic and Greek*,[30] *Haptish-Optish* (A. Riegl), *Plastisch-Malerisch* (Schmarsow), *Seinstil and Werdenstil* (Frankl), *Fülle-Stil and Form-Stil* (Panofsky), *Cubistic-Organic* (Coellen), *Tektonisch-Kontratektonisch* (Cohn-Wiener), *Mechanical-Organic* (Scheltemas); the rhythm of *Abstraktion and Einfühlung Art* (W. Worringer); of *Idealismus and Naturalismus* (M. Dvořák); *Classicism-Romanticism;* and several others.[31]

A kind of double rhythm is noted also by many a thinker, consisting in a recurrence of the phase of climax of magnificent and costly splendor followed by a phase of sudden decline in the history of a nation. Stressing a rapid decline of the Egyptian Empire after Amenhotep III, the "Golden Emperor," a historian continues:

> Occasionally in the history of a kingdom . . . we meet with a figure which seems to sum up in itself all the glories and splendours of the land which it represents. . . . Not uncommonly, such figures often appear when the actual greatness . . . has really almost worked itself out and when the path . . . begins to slope downwards towards the setting sun.

Such were the cases of Amenhotep III, Solomon, Nebuchadnezzar, Louis XIV, and some others.[32] The name of Justinian of Byzantium

[27] H. Wölfflin, *Principles of Art History* (New York, 1932). See an outline of his and of several other theories mentioned here briefly in *Dynamics*, Vol. I, chaps. v, vi, vii, *et passim*.

[28] W. Deonna. *L'archéologie, sa valeur, ses méthodes* (Paris, 1912), particularly Vol. III. "Beginning with the period of formation, arts oscillate between two forms: idealism and realism which generate one another mutually." Vol. III, pp. 499, 505.

[29] F. P. Chambers, *Cycles of Taste* (Cambridge, 1928), pp 119–120, *et passim*

[30] K. Scheffler, *Der Geist der Gotik* (Leipzig, 1919), pp 26 ff

[31] See A. Riegl, *Die spätromische Kunstindustrie* (Wien, 1901); A. Schmarsow, *Grundbegriffe der Kunstwissenschaft* (Leipzig-Berlin, 1905); M Dvořák, *Kunstgeschichte als Geistesgeschichte* (München, 1924); W Worringer, *Abstraktion und Einfuhlung* (München, 1909); E. Cohn-Wiener, *Die Entwicklungsgeschichte der Stile in der bildenden Kunst* (Leipzig, 1921); L. Coellen, *Der Stil in der bildenden Kunst* (Traisa-Darmstadt, 1921); E. Panofsky, *Das Problem des Stils in der bildenden Kunst* (Leipzig, 1926). See a good summary of some of these theories in W Passarge, *Die Philosophie der Kunstgeschichte in der Gegenwart* (Berlin, 1930); R. M. Wernaer. *Romanticism* (New York, 1910).

[32] J. Baikie, *A History of Egypt* (New York, 1929), Vol: II, pp 172–173.

may be added to such a list. Charles J. Bullock expanded it to the level of a fairly general uniformity. In Egypt, Assyria, Babylonia, and in the Hebrew kingdom as well as in Athens, "the result of excessive spending was substantially the same," namely, after the phase of magnificence, a collapse and debacle. "Without exception, foolish political leadership resulting in excessive expenditures and oppressive taxes produced unpleasant final consequences." [33]

In many other fields of social processes, double rhythms — sometimes of a clearly cut character, sometimes of a somewhat vague structure — have been claimed by several investigators. Such, for instance, are the rhythms of *a rapid increase of population followed by the phase of slow increase, or a stationary condition* (Verhulst, G. Schmoller, R. Pearl, G. U. Yule); [34] alternation of the *phase of concentration of wealth and of its more equal distribution* (G. Schmoller, V. Pareto); rhythm of the *phases of prosperity and impoverishment in a nation* (D'Avenel, Pareto, and many economists); rhythm of *expansion and contraction of government regimentation and control* (H. Spencer, P. Sorokin); rhythm of the *phases of "liberation" and "constraint" in revolution* (C. Ellwood, P. Sorokin); rhythm of *rise and decline of aristocracy* (Aristotle, Plato, Ibn-Khaldun, Vico, G. Botero, P. Jacoby and others) *and society* (Adam Ferguson); rhythm of domination of the *speculatori* and *renticri* (G. Mosca, V. Pareto, and others); rhythms of *Challenge and Response, Withdrawal and Return, Rout and Rally, Apparentation and Affiliation* societies, *Schism and Palingenesis, Growth and Decline of Civilizations* (A. J. Toynbee,[35] O. Spengler).

Passing to larger and more embracing double rhythms, the following ones can serve as examples. According to Adam Ferguson (and many others), societies pass through the stage of progress (composed of three substages: "rude," "barbarian," and "polished") and then decline. And "the decline of successive generations is not less certain than the progress." [36] Another example is given by the two-phase

[33] C. J. Bullock, *Politics, Finance, and Consequences* (Harvard University Press, 1939), p. 48, *et passim.*

[34] See the references to the works where these rhythms are set forth in my *Contemporary Sociological Theories*, pp 736 ff.

[35] See *Contemporary Sociological Theories*, pp 736 ff ; A J Toynbee, *op cit.*, Vol. VI, p. 324, *et passim.*

[36] Adam Ferguson, *Principles of Moral and Political Science* (Edinburgh, 1792), Vol. I, p. 194; see also his *An Essay on the History of Civil Society* (Edinburgh, 1767), pp. 123 ff., 142 ff., part iii, *passim.*

rhythm, claimed by Brooks Adams, in his *The Law of Civilization and Decay*. According to this, a great civilization fluctuates between the process of centralization and decentralization. Society now tends to concentrate in big centers (with an increase of the density and size of its population) increasing its activity and kinetic energy. Sooner or later, this increase of activity and energy reaches its limit and leads further to an exhaustion. Exhaustion slows activity down and leads the society to the dispersion of its energy and integrated mass, and then to its disintegration and decentralization. Thus goes on an incessant social ebb and flow, from centralization to decentralization and back. Each part of the double rhythm is followed by an important concomitant phenomenon. In the phase of decentralization, the dominant motive of behavior is fear; the culture is imaginative, creative, artistic, religious; shrine, cathedral, castle are its creations; priest, artist and warrior are its leaders. In the centralized phase, the dominant motive is greed; the culture is acquisitive and commercial; the mentality is economic; practical, competitive, skeptical, somewhat materialistic; the leaders are money-makers, money-lenders, and their satellites — the economically minded politicians. Each of these stages immanently breeds its own decay and replacement by the second phase.[37]

The next example is given by L. Weber's embracing and long-time two-phase rhythm of domination of the technical (materialistic) phase and the spiritual-religious and ethical phase in the history of civilizations. The author offers to replace "A. Comte's law of the three states by that of the two states." According to him,

> human intelligence seems to have progressed by alternate phases of the technical and ideological activity — the activity of reflexion.[38]
>
> Between these two phases of intelligence — the geometrical-mechanical comprehension of the external world and the meditation and speculation about the world . . . there is neither harmony nor rational correspondence. On the contrary there is a discordance and almost an antinomy.[39]

In the process of time, each of these mentalities has had its turn of domination: now one, now the other. Such double rhythms have been following one another in the history of Greece and Western civilization.[40] The author develops this rhythm in several of its ramifications,

[37] See Brooks Adams, *The Law of Civilization and Decay* (New York, 1897).
[38] L. Weber, *Le rhythme du progrès* (Paris, 1913), p. x.
[39] *Ibid.*, p. xiii.
[40] *Ibid.*, *passim*.

and tries to show that in the history of mankind such a rhythm has indeed been occurring.[41]

Farther on, one of O. Spengler's rhythms, namely, that each great culture consists of two phases, the cultural and the civilizational phase, is a further sample of the large embracing double rhythm.

> Every Culture has its own Civilization. . . . The civilization is the inevitable destiny of the culture. . . . They are conclusion, the thing-become succeeding the thing-becoming; death following life, rigidity following the expansion, intellectual age and the stone-built, petrifying world-city following mother-earth, and the spiritual childhood of the Doric and Gothic. They are an end, irrevocable, yet by inward necessity reached again and again.[42]

K. Joël's conception of history, particularly that of philosophy and the human mind, gives a further example of this rhythm, or dyad. According to him, rhythm is present in all processes. The customary scheme of evolution depicts it as a process of one mind (*Geist*) with one unanimity and one direction. In fact, history can be understood neither as the pranks of Eulenspiegel nor as the endless work of Sisyphus. Circling and rising like Life itself, it carries in itself rhythm as well as dynamics. It is organic unity in plurality, the whole in the differentiated parts, and an incessant rhythm of binding and loosening (*Bindung und Losung*). This eternal rhythm of binding and loosening is the most embracing rhythm, that contains in itself all the other sociocultural rhythms, such as individualism and collectivism, centralization and decentralization, integration and differentiation and so on. Throughout the three volumes of his work, K. Joël develops his conception and with its help gives us the factual interpretation of the fluctuation of the *Weltanschauungen*, mainly the forms of the philosophical thought, together with their sociocultural background.[43]

These examples give an idea of the variety of the double rhythms — short-time and long-time, quantitative, qualitative, spatial, embraced and embracing — which either exist indeed in the social and cultural

[41] As one of the few, the author outlines the rhythmic character of most of the known processes and in a sketchy way indicates simple and complex rhythms. *Ibid.*, chap. iv. Generally, his book is one of the most interesting and suggestive in this field.

[42] Spengler, *The Decline of the West* (New York, 1929), Vol. I, pp. 31 ff.

[43] Karl Joël. *Wandlungen der Weltanschauung. Eine Philosophiegeschichte als Geschichtsphilosophie* (Tübingen, 1928–31), Vol. I, pp. 22–26. See the three volumes for a factual development and corroboration of this theory of rhythm.

processes or which have been formulated by the thinkers of the past and the present. Without coming here to a decision as to which of these rhythms are real and which are not, let us continue our survey of them.

B. *Three-phase Rhythms.* Still more certain is the existence of many rhythms of the triple-phase type: one-two-three; one-two-three; and so on. This type of rhythm is perhaps the most popular among the social and sociophilosophical thinkers. Its popularity is shown by the fact that some of the thinkers, like Hegel, seemingly regarded it as the only universal type of rhythm, if we take the Hegelian triad (see Chapters Twelve and Thirteen) not only as a purely logical law but also as historical law, applicable, and applied by Hegel himself, to the sociocultural or historical processes. Likewise, various "laws of the three states" like those of Confucius, of Joachim de Floris, E. Bovet, Turgot-Condorcet-St. Simon-A. Comte, to mention only a few, testify to the same point.

Let us glance briefly at the variety of the triple rhythms in the natural and especially the sociocultural processes. That there are such rhythms can hardly be doubted. The metamorphosis of some insects, with the three different qualitative phases of larva-pupa-imago, repeated once in the same organism, but indefinitely many times in various organisms of the same species, is an example of it. Such rhythms as three-meals-a-day; as classification of all things into good-better-best; bad-worse-worst; *cum laude, magna, summa,* and the like, are in their own way a variety of rhythms of this kind. Quantitatively, all the processes whose curve is "increase-plateau-decrease" or "increase-decrease-plateau," and so on, belong to that type of rhythm. It goes without saying that many inorganic, organic and sociocultural processes have, if not throughout their existence, then in some part of it, rhythms of this kind, no matter whether they are periodical or not, short-time or long-time, embraced or embracing. It is enough to take a number of curves of movement of business barometers, of criminality, of the expansion of epidemics; of the growth of many social institutions, or of many populations; of expansion of many a religious, political, philosophic, scientific doctrine in the sense of its popularity and acceptance; of many a mores; of patterns of art; literature; fashions; and a large number of other sociocultural phenomena; in all these processes such a triple quantitative rhythm, clearly or only tangibly cut, is quite noticeable. This explains why it has been set forth many times in many studies, and at one time was regarded as the universal

type of all social rhythms. A few examples of many such theories follow. The three-phase rhythm in an emergence of empirical cultural systems: *synthesis of meanings* (conception); *incarnation into vehicles* (objectification); *acquisition of human agents* (socialization), has been developed above (see Chapter Two). These phases may, in rare cases, be telescoped into one another in time, but usually they follow one another in time sequence. Such a rhythm is repeated only once in the life history of the system, but is repeated in space, in the process of emergence of any sociocultural system.

Three qualitative phases in the *life history of any social value* — invention-imitation-opposition — have been developed by G. Tarde. In the *life curve of various ideologies, beliefs, doctrines, dogmas, fashions,* etc., three phases have been stressed by many: incline-plateau-decline (C. Guignebert, V. Pareto, and others); in *social institutions:* appearance, growth, decline (W. Ogburn, F. S. Chapin and many others).[44]

According to R. Mayreder, the *typical life process of social movements consists of three phases:* (1) *ideological phase;* (2) *organizational phase,* in which the movement passes from ideological into a practical phase; (3) *power phase.* In the organizational phase there appear many inner splittings not present in the previously united ideological phase, many schisms and mutual inhibitions, from which one emerges as the victor. With this the movement enters the third phase — that of power. There, the movement turns into a conservative defender of the *status quo;* its "ought to be" becomes identical with "what it is." Its ideology dries up and degenerates into spiritless phraseology and begins to be attacked by new ideologies, with a new "ought to be" different from the existing one; and so the rhythm continues and goes on forever.[45] A. J. Toynbee developed a theory of the three-phase rhythm of decline of civilizations: the breakdown-disintegration-dissolution, each phase often separated from the others by centuries and even thousands of years.[46]

A further variety of this rhythm has been set forth by several thinkers in the form of the *three-generation* rhythm that punctuates the historical process of any society or nation. Of the theory of social

[44] See the references to the works mentioned here in my *Contemporary Sociological Theories,* pp 736 ff For the sake of brevity, I do not repeat them here.

[45] R Mayreder, *Der typische Verlauf sozialer Bewegungen* (Wien-Leipzig, 1925), pp 8, 49. See there a detailed analysis of this rhythm

[46] See his *Study of History,* 6 vols , *passim.*

generations much more will be said in the chapter on Periodicity. Here is the outline of the rhythm. Respective theories state that at any moment of history there coexist many generations, beginning with the babies and ending with the old people. Of these many coexisting generations, three generations are biologically and sociologically important: one, the old, dying generation; another, the dominating; third, the emerging generation. "They live not one after another but side by side and one in another" (*Nebeneinander und Ineinander*). The attitude of these generations in regard to their time and its realities is immanently different. The old generation is behind the times; it lives with what was — and is no more — the dominating actuality. The emerging generation partly is adapted but partly is opposed to the dominant reality of its fathers. "The youth feels the ideas of the older generation always in their declining twilight. . . . It sees only the remnants of them and these remnants are not always the best." Hence its opposition to them. Hence the eternal immanent cleavage between these three generations, that exists at any moment of history and represents one of the ever-recurrent rhythms of it.[47]

Three-phase rhythms have been indicated by many to be found in the life process of art and culture. P. Ligeti's theory that art and culture pass through *architectural, plastic, and pictorial phases* in the life history of the same art or culture system, as well as different art and culture systems, is one of the examples of such rhythms claimed.[48] V. Hugo's and E. Bovet's theory that the literature of all nations passes through the phases *lyrical, epical, dramatic*, is another example of such a rhythm.[49] C. Lalo's theory of the recurrent three-phase rhythm — *pre-classical, classical,* and *post-classical* — through which music passes in various societies and in the same society in the course of time, is a further example of such a rhythm.[50] O. Wulff's theory that art recurrently passes through the phases *Tektonisch-Plastisch-Dekorative* is another variation of such a rhythm.[51]

Finally this rhythm — on a large and embracing scale — has been set forth by many social thinkers; in some cases as a rhythm that recurs

[47] F. Kummer, *Deutsche Literaturgeschichte des 19 und 20 Jahrhunderts nach Generationen dargestellt* (Dresden, 1922), Vol. I, pp. 6–7. Other and more fundamental works will be given in the chapter on Periodicity. The literature is enormous.

[48] See a detailed analysis of this and similar rhythms (of V. Laprade, Hegel and others) in *Dynamics*, Vol. I, pp. 206 ff.

[49] *Ibid.*, pp. 231 ff. [50] *Ibid.*, pp. 233 ff.

[51] O Wulff, *Grundlinien und kritische Erörterungen zur Principienlehre der bildenden Kunst* (Stuttgart, 1917).

in the same society in time, as well as in different societies; in other cases as a rhythm that occurs only once in the life history of any given society but recurs in the existence of various societies or cultures. In this broad form, it appears in such commonly accepted divisions of the phases of the history of single nations or cultures or of the whole universal history of mankind as: *Ancient, Medieval, and Modern.* Some, like Herder, Hegel, Ranke, Comte, apply it to the history of mankind; others, like U. von Wilamowitz-Moellendorf, W. Dilthey, E. Meyer, H. Leo, to the history of several single cultures and nations, each of which passes through this three-phase rhythm.[52] So far as the rhythm is conceived to be recurrent in various cultures and societies, it is a recurrent three-phase rhythm. So far as it is thought to occur only once — in the history of mankind —[53] it is a unique three-phase process.

Finally, of the still more embracing rhythms of this triad-type, the theories of Ibn Abi Watil, of G. Vico; of Joachim de Flore; of Turgot-Condorcet-St. Simon-A. Comte, and the famous Hegel's triad give magnificent examples, each in its own way.

According to Vico, the sociocultural history of any nation or society passes through three phases: the age of gods, that of heroes, and that of men, and this three-phase rhythm eternally recurs in time as well as in space.

We adopt the division of the three ages established by Egyptians, namely: the *age of gods, the age of heroes, and the age of men* because we find in all nations these three kinds of *human natures.* These natures produce three kinds of *mores;* these, three kinds of *natural law of nations* which, in their turn, produce three kinds of *civil law or republics* [governments]. In order to communicate to themselves these three species of the major things, human beings unite into society, create three species of *language* and three species of *signs* [or written characters], after which they procure three types of

[52] See U. von Wilamowitz-Moellendorf, *Antigonos von Karystos* (Berlin, 1881); also his *Weltperioden* (Göttingen, 1887); W Dilthey, *Einleitung in die Geisteswissenschaften* (Leipzig, 1883). For general discussion, see E. Spranger, *Die Kulturzyklentheorie und das Problem des Kulturverfalls* (Sitzungsberichte der Preussischen Academie des Wissenschaft, 1926), 28 Januar. Sonderabdruck. Also H Spangenberg, "Die Perioden der Weltgeschichte," *Historische Zeitschrift* (127 Band, 1922), pp. 1–50; K. G. Schneider, *Die Periodisitat des Lebens und der Kultur* (Leipzig, 1926); J. Burckhardt, *Weltgeschichtliche Betrachtungen* (Stuttgart, 1918).

[53] Though, even Comte and others regarded their rhythm as recurring in the mental development of an individual, in various societies, even in various scientific disciplines: mathematics, physics, biology, sociology, and so on. They all pass through the three main phases of their law of the three states.

jurisprudence which must, in order to give to them a sanction, be assisted by three species of *authority* and three kinds of *reasons or rights* as means of formation of three kinds of *judgments* [or judicial decisions]. These three *special unities*, embracing many others, all are aimed at (or grounded in) *general utility*, which is unity of *religious belief* into a *providential divinity*, unity of the *spirit*, that gives the *form and life* to this world of nations.[54]

Such is the *ideal history of the eternal laws* that govern *all nations* in their *birth*, in their *progress*, in their *stages*, in their *decadence* and their *end* and this even if it were true (which we do not believe) that from the eternity an infinite number of worlds are born from time to time.[55]

He who meditates [upon this law] can with the help of this formula, of *what has been, what is, and what shall be*, recite to himself from now on, and without our help, this *ideal and eternal history*.[56]

According to one of the mystic Suffist thinkers — Ibn Abi Watil — historical process represents a recurrence of three phases: first, the age of prophet or saint marked by the appearance of such a prophet as a founder of religion; the second is an age of caliphate founded on the work of the previous phase; the third, the age or phase of Antichrist (Dajjal). Then there recurs once more the age of prophet, who delivers from the reign of Antichrist, and so on; the cycle continues.[57]

Confucius' theory of the three stages — the *Disorderly* stage, the *Small Tranquillity* stage, and the stage of the *Great Similarity* — is another example of the three-phase rhythm that runs throughout the history of mankind. The Disorderly stage is characterized by primitive anarchy, warfare, and a lack of social control among the primitive society; the stage of Small Tranquillity is marked by the institution of the family, private property, instability, and egotism, moderated by social control; the stage of Great Similarity is marked by a stable social order, by familistic and altruistic relationship, by a prevalence of the attitudes of benevolence and reverence of the members of society toward one another; and by common or familistic property. In the

[54] G. Vico, *Principj di una Scienza Nuova, secondo la terza impressione. Opere* (Milano, 1854), Vol. V, pp 462 ff., in French translation. Vico, *La science nouvelle* (Paris, 1844), b iv, pp. 322–323.

[55] *Principj* (quoted), p. 562. French translation, p 390.

[56] French translation, *Ibid*, p 89. See also pp 60, 112, and Bks iv and v, *passim* It is to be mentioned, however, that Vico himself admits several deviations from his law, for instance, for Carthage, Capua, and Numidia, and in his factual exposition, he often contradicts himself, and indicates many deviations. See, for instance, pp. 387 ff.

[57] See Ibn-Khaldun, *Les prolégomènes*, quoted, Vol. II, p. 192.

text of the Lî-Kî, three-phase rhythm is set forth as recurrent in the course of time.[58]

According to Joachim de Flore (b. 1133) the unique rhythm of three phases or stages of human history is as follows:

> The first of the three phases of the world was under the reign of faith when the selected people, being weak and in slavery, was incapable to arrive to liberty. . . . The second phase was inaugurated by the Gospel and exists up to the present time. It brought liberation in regard to the past but in no way in regard to the future. . . . Then the third phase will begin at the end of the century we live in. . . . The first of these states that shone under the sign of Law and circumcision was ushered in by Adam; the second shone under the sign of the Gospel; the third, whose approach the calculation of the generations permits to establish, was introduced by Saint Benedict. . . .

The first stage passed under the sign of Law; the second, of Grace; the third, of the Holy Spirit, "the hour of the spiritual comprehension and manifest vision of God."[59]

The learned abbot-mystic develops this "law of the three stages" extensively and tries to prove it by calculation of generations, by establishment of many periodicities[60] and identities between the respective stages of the Old and the New Testament, and in several other ways. As a result, we have perhaps one of the earliest, even quantitative, philosophies of history, not to mention the law of the three states itself. Viewed more fully, this law of the three states is the law of the five states:

> The first period existed before the Law; the second, under the Law (Old Testament); the third, under the New Gospel; the fourth will pass under the reign of the Holy Spirit; the fifth, final, will consist in the manifestation of God. . . . By this spiritual ascension, the elect elevate themselves from virtue to virtue, from clarity to clarity, until the hour when they shall see the Saint of the Saints in the eternal Jerusalem. From the Natural Law to the Law of Moses, from the Law of Moses to that of the New Gospel, from the Gospel of Christ to that of the Spirit, from the reign of the Spirit to the veritable vision of God — such is the road.[61]

[58] See Lî-Kî, Bk vii *The Sacred Books of the East* (Oxford, 1885), Vol 27, pp. 364 ff.

[59] Joachim de Flore, *L'évangile éternel*, translated by E. Aegerter (Paris, 1928), Vol. II, pp. 90–93.

[60] See about his periodicities in the chapter on Periodicity

[61] *Ibid.*, pp. 92–93 This three (or five) phase law of history of the world is followed by many — more detailed — concordances, such as the succession of the orders of lay-leaders, of clerics, and of monks in the Old Testament and in the New Testament periods.

Here, then, we have one of the earliest specimens of the three-phase rhythm of all human — and world — history, with a definite characterization of each phase and with their definite sequence. We see that the rhythm thus is not recurrent; it is unique in human history; but it is, nevertheless, a clearly cut three-phase rhythm — the predecessor of the similar rhythm of A. Comte and his forerunners.

Turgot, Condorcet, St. Simon, Burdin, set forth all the essentials of the "law of the three states" formulated by A. Comte.[62]

According to this law, all human history, as well as that of the mental development of an individual, passes through three phases: theological, metaphysical, and positive. In addition, Comte subdivided the theological phase itself also into three subphases: fetishistic, polytheistic and monotheistic. The "law" is too well known to make its more detailed outline necessary. We see that Comte and his predecessors viewed the whole of human history (as well as that of mental history of an individual)[63] as one three-phase rhythm. The first of these phases or stages is also a three-phase rhythm (while in other phases Comte had to drop this three-phase division). Here we have the content of each phase different from either Vico's or Joachim de Flore's, but the skeleton is the same, especially like that of Joachim's construction (Vico, as we have seen, regards his three stages as ever recurring).

Finally, Hegel's philosophy of history is also that of the big three-phase rhythm that embraces the whole history of the world, as the process of self-realization of the absolute spirit, as well as an endless

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(*Ibid.*, pp. 92; 155.) In the Old Testament the order of the spouses or lay-leaders began with Adam and Eve, appeared and shone in Abraham and Isaac, to whom God granted eternal posterity. The order of the clerics appeared and climaxed in Moses and Aaron The order of the monks appeared and blossomed in Elijah and Elisha Similar phases are passed by the New Testament period. Underlying all this is a mystical interpretation of the Bible and Gospel, as well as of the whole of human history.

[62] See *Œuvres de Turgot* (Paris, 1913), Vol. I, pp. 215, 298, 315–16, and in many other places; Condorcet, *Esquisse d'un tableau historique de progrès de l'esprit humain* (Paris, 1822), pp. 12, 21, 23, 28, *et passim;* Saint-Simon, *Œuvres choisies* (Bruxelles, 1859), Vol. I; articles "Lettre d'un habitant de Genève," "Introduction aux traveaux scientifiques de XIX^e siècle"; Vol. II, "Mémoire sur la science de l'homme." About Dr. Burdin's theory, see in Saint-Simon's volumes, quoted: Vol II, pp. 21 ff ; A. Comte, *Cours de philosophie positive* (Paris, 1877), Vol. I, pp. 8 ff.; *et passim*, through all the volumes of this as well as other works of Comte. See also a careful analysis of the law of the three stages in R. Mathis, *La loi des trois états* (Nancy, 1924).

[63] Many emphasize the law not so much in application to human history as to that of mental evolution of an individual. See, for instance, L. Lévy-Bruhl, *The Philosophy of Auguste Comte* (New York, 1903), pp. 36 ff.

number of small — embraced — three-phase dialectical rhythms out of which is woven the history of various periods or nations or separate compartments of culture and society. These rhythms are however not so much time-series as they are phases of logical process. The big three-phase rhythm is that of the absolute idea ("in itself" thesis), nature (antithesis, the absolute idea in its "otherness" or "for itself"), and, finally, the absolute spirit (the absolute idea "in and for itself," as a synthesis whose self-realization makes the history of world and of mankind).[64]

The phase of the absolute spirit also consists, in its turn, of the three-phase rhythm or triad: the phase of subjective spirit, that of objective spirit (in its otherness), and, finally, the phase of absolute spirit properly. Each of these subphases consists again of the sub-subtriads. For instance, the subjective spirit phase exhibits three stadia: anthropology-the soul; phenomenology-consciousness; and psychology-mind. The objective spirit phase has the triad of development: abstract right-morality-social ethics. The absolute spirit's subphases of realization are: art-religion-philosophy. Again, if we take, for instance, art itself, its development makes again a three-phase rhythm: symbolic-classic-romantic. Likewise, if we take the phase of Social Ethics in the division of the objective spirit, it also falls into a triad: the family-the civil society-the State. And so on. In a sense, the whole system of Hegel is a kind of stupendous symphony made of three-phase rhythms, in a long hierarchy of one rhythm embracing the other, this the next one, etc.

In this way, the whole process of the world and of mankind is depicted. The system, following its dialectical logic, tends to show that the three-phase rhythm is practically the only universal form of rhythm.[65]

[64] See Hegel, *Science of Logic*, translated by W. J. Johnston and L. G. Struthers (New York, 1929), 2 vols. Also Hegel, *The Phenomenology of Mind*, translated by J. B. Baillie (London, 1910). The reader who does not know the Hegelian system must be warned that all the above terms, as well as their deductions, have far deeper meaning — and different from what these terms convey — than the above outline conveys.

[65] It follows from the very dialectical logic of Hegel, and explains why he tried to "cut out" a triad not only where he had a ground but often where the ground was uncertain or prohibitive. Hence, an evident artificiality of his many triads, like: absolute idea-nature-absolute spirit; and especially, of a multitude of his small triads like: art-religion-philosophy; the family-civil society-the State; and so on. In spite of such a tendency of Hegel, he had to give it up several times, particularly in his *Philosophy of History*, tr. by J. Sibree (New York-London, 1900), and to introduce now a four-phase rhythm, now some other rhythm different from the three-phase rhythms. See, for instance, in the quoted translation of it, pp. 106 ff., where he set forth, instead of triad,

It is difficult to find any other system of "philosophy of becoming" that attempts to reduce almost all the world's history and almost all its processes to the three-phase rhythm.

The above examples give a sufficient idea of the manifold forms in which the three-phase rhythm has been set forth as existing in various cosmic, biological and sociocultural processes.

C. *Four-Phase Rhythms.* In many natural and sociocultural processes four-phase rhythms are discernible. Such are, for instance, the annual rhythm of the four seasons; the biological rhythm of childhood-adolescence-maturity-old age, of a completed human life; daily rhythm of morning-afternoon-evening-night, phases of social life quite discernible in many a social group; each phase having its own characteristics. The complete process of a college curriculum consists of the phases: freshman-sophomore-junior-senior years. So also does the curriculum of many schools with four grades. The process of acting a play has usually four phases (acts), with a clear caesura between the acts; so have most of the symphonies with their four movements. Note: in all such cases, the division is not merely formal but real: each of the four years of college, or acts of a drama or movements of a symphony quite definitely differs — and is separated by a real time caesura — from the others, and follows in a definite, ever recurrent sequence, to be repeated again and again in time or in space, or in both.

A four-phase rhythm likewise has been noticed not only in the life of an individual but also in that of several social groups or systems. Prince Vasiltschikoff, Tschaianoff, Makaroff, Sorokin, C. P. Loomis, and others have shown the existence of four different phases in the life process of *a peasant farmer family:* (1) The stage of the newly married couple; (2) of the couple with one or more young children; (3) of the couple with one or more self-supporting adult children; (4) of the

the four stages: the Oriental history, childhood, the Greek, boyhood; the Roman, maturity; the German, old age. See also pp. 113 ff., where he is forced to talk only about thesis and antithesis. Likewise, his phases of development of freedom, though three, are not dialectical by their nature. Orient, liberty only for one; the Graeco-Roman world, liberty *for* many; the Western world, that *for* all. This means that Hegel himself did not succeed in putting into the Procrustean triadic rhythms all the processes, and often failed either explicitly where he replaced its rhythm by different ones, or implicitly, where he did not succeed in deducing his triad at all. About this weakness of the Hegelian system see also B. Croce, *What Is Living and What Is Dead of the Philosophy of Hegel* (London, 1915), pp. 97 ff.; W. T. Stace, *The Philosophy of Hegel* (London, 1924), pp. 97 ff.; J. McTaggart, *Studies in the Hegelian Dialectics* (Cambridge, 1896), chap. vii.

couple becoming old, with the children married and separated from it. Each phase has its own social, economic, and other characteristics, profoundly different from those of the other phases.[66]

The four-phase rhythm in the existence of *a nation or a national culture:* the phases of childhood, youth, maturity, old age, have been pointed out many times, from the Roman historian Florus down to O. Spengler.

Florus' statement (flourished *c.* 200 A.D.) may serve as one of the earliest examples[67] of this kind of theory.

> If anyone were to contemplate the Roman people as he would a single individual and review its whole life, how it began, how it grew up, and how it arrived at maturity of its manhood, and how it subsequently, as it were, reached old age, he will find that it went through four stages of progress. The first period, when it was under the rule of kings, lasted for nearly four hundred years. . . . This period will be its infancy. Its next period extends from the consulship of Brutus and Collatinus to that of Appius Claudius and Quintus Fulvius, a space of one hundred and fifty years. . . . It was an age of extreme activity for its soldiers and their arms, and may therefore be called its youth. The next period is the hundred and fifty years down to the time of Augustus Caesar, during which it spread peace throughout the world. This was the manhood and, as it were, the robust maturity of the empire. From the time of Caesar Augustus down to our own age, there has been a period of not much less than two hundred years, during which, owing to the inactivity of the emperors, the Roman people, as it were, grew old and lost its potency, save that under the rule of Trajan it again stirred its arms and, contrary to general expectation, again renewed its vigour with youth, as it were, restored.[68]

Subsequently, a large number of thinkers of the later centuries down to the present time have repeated, with a variation, the existence of this four-phase rhythm in the life history of many, or even all, nations and cultures. Hence O. Spengler's dictum that "every culture passes through the age-phases of individual man. Each has its childhood,

[66] See, about this cycle, Sorokin-Zimmerman-Galpin, *A Systematic Source Book in Rural Sociology* (Minnesota, 1931), Vol. II, pp 30 ff. C. P. Loomis, "The Study of the Life Cycle of the Families." *Rural Sociology*, 1936.

[67] "It is probable that Florus imitated the division of the history of Rome into four ages — infancy, youth, manhood and old age — from the elder Seneca, who, according to Lactantius (*Inst. Div.*, VII, 15, 4) employed this division." Edw. S. Forster, in his Introduction to Florus' *Epitome*, quoted further.

[68] Lucius Annaeus Florus, *Epitome of Roman History*, translated by E. S. Forster (London-New York, 1929), Bk. I, chap. i, p. 9.

youth, manhood, and old age" [69] — is but a recent reiteration of this old theory.

A four-phase rhythm has been pointed out in many a social and cultural process. One example of it is Ibn-Khaldun's four-generation rhythm in the life history of the aristocracy, nobility, and empires. "Nobility of family remains in general in four generations, though some families decay and disappear before the fourth generation while others reach the fifth or sixth generation." In general, the four-generation rhythm is a rule, however, "because this number embraces the founder, the continuator (*conservateur*) (son of the founder), the imitator (the grandson), and the destroyer (great-grandson) of the family's nobility." [70] Another example of it is G. Ferrari's *four-generation rhythm*, into which falls the historical and social process of any nation, namely; the generation of predecessors, revolutionaries, reactionaries, and of accomplishers, after which generation the rhythm begins again with the generation of predecessors, then revolutionaries and so on.[71] Another example is given by Machiavelli's formula of eternal swing between order and disorder. Each swing in one direction consists of four main phases: valor produces peace; peace, repose; repose, disorder; disorder, ruin; such are the phases of the swing from order to disorder.[72]

According to K. Mewes, each 111-year period of comparative peace consists of four phases and similarly a period of comparative war, in the history of various nations.[73] According to several authors, even the whole process of human history and culture consists of four main stages or phases. Henry Adams' conjecture in this respect may serve as an example of such theories. Analogically, using Willard Gibbs' theory of phase ("On Existent Phases of Matter"), Henry Adams suggests the following phases through which human culture has passed and will pass: religious, from the beginning of human history up to

[69] O. Spengler, *The Decline of the West* (New York, 1929), Vol. I, p. 107. It is needless to add that even in recent times a great many authors repeated it. See, for instance, H. Schneider, *Philosophie der Geschichte* (Breslau, 1923), Vol II, pp. 68 ff., W. Vogel, "Ueber den Rhythmus im geschichtlichen Leben des abendlandischen Europa," *Historische Zeitschrift*, 129 (Band, 1923), pp 1–68, A J Toynbee, *op. cit., passim.*

[70] *Ibn-Khaldun, Prolégomènes historiques, notices et extraits des manuscrits de la Bibliothèque Imperial*, quoted (Paris, 1862), Vol *XIX*, p 287.

[71] See a more comprehensive outline of this theory in *Dynamics*, Vol. III, pp. 383 ff. See G. Ferrari, *Teoria dei periodi politici* (Milano-Napoli, 1874).

[72] See the formula quoted in chap. ix.

[73] K. Mewes, *Kriegs und Geistesperioden im Völkerleben* (Leipzig, 1922). See, about this theory, *Dynamics*, Vol. III, pp. 353 ff.

about 1600; mechanical, from 1600 to 1900; electromagnetic, from about 1900 up to about 1917; then comes the ethereal phase, lasting only up to 1921; or, in another computation, up to 2025; and after that the phase of pure thought is likely to come.[74] It is easy to see that this or a similar four-phase theory of mankind's evolution is but a variety of the above three-phase or three-stage theory discussed a few pages back. The main difference is that here, instead of the three main phases, four are assumed.

These are but a few examples of the diverse four-phase rhythms claimed by various investigators.

D. *Five-Phase and still more Complex Rhythms.* As the number of the phases of a rhythm increases, it becomes more and more difficult to grasp such a complex rhythm and cut it out of the whole process as a separate unit. This is true of musical as well as sociocultural rhythm. Nevertheless, in the social science, the theories that claim an existence of five- or six-phase rhythms are not lacking. For instance, Varro, according to Censorinus, seems to consider completed human life as consistent of five main phases, each fifteen years long, namely: childhood, adolescence, juniorship (*juvenes*), seniorship (*seniores*), and old age (*senes*).[75] According to F. Cornelius, each culture passes through five phases or styles: (1) *Einstimmigen style,* where the main *Grunderlebniss* of culture is naïvely religious; (2) *Grenzbewusstsein style,* when social differentiation begins, and leaders emerge from the mass of people but are not separated yet from the mass; (3) *Gesteigerten style,* when heroes separate from the mass, and first efforts of control of historical processes begin; (4) *Personlichen style,* when individualism, individual fancifulness and egotism become dominant; (5) *Kopierenden style,* when society begins to imitate others, and original creation dies out. This is the last declining stage of the culture. After it, out of the elements of the declining culture, is created a new one, which again passes through similar stages. Such is one of the examples of five-phase rhythm in the life of a culture.[76]

Polybius' famous cycle of the political régimes eternally repeated, namely: monarchy-tyranny-aristocracy-oligarchy-democracy-mob rule,

[74] See Henry Adams, "The Rule of Phase Applied to History" in his *The Degradation of the Democratic Dogma* (New York, 1919), pp. 267–311, and, especially, pp. 302–311.

[75] See Censorinus, *De die natali* (*Livre de Censorinus sur le jour natal*) (Paris, 1843). See further, in the chapter on Periodicity.

[76] See F. Cornelius, *Die Weltgeschichte und ihre Rhythmus* (München, 1925).

given in Chapter Thirteen, is an example of the six-phase rhythm.

However, it is unnecessary to go to these theories in order to be reasonably certain of the existence of such and much more complex rhythms, with seven, or nine, or twenty-eight or even a greater number of phases. It is enough to take the calendar divisions of various peoples — their weeks, or months, or other definitely outlined time units — in order to see that such complex rhythms in sociocultural life do indeed exist. The point is that our calendar week of seven days is not only a purely mechanical or arithmetical division of time, but it embodies a real rhythm in our life. Our activities, our work, our recreations, our salary or wages, our psychology, in brief, our behavior and mental life, with six weekdays and the seventh holy day, have indeed such a weekly rhythm, with Saturday and Sunday notably different from other weekdays, and each weekday different from the others, with all the main properties of each day repeated from week to week.[77] We know it so well that often we recollect what day today is by noting our own and our fellows' activities, but not in the opposite manner. When I remember that today I have to give such and such a lecture in such and such a course, I easily remember that it must be Thursday, but not Wednesday, because on Tuesdays and Thursdays I am scheduled for course A, and on Mondays and Wednesdays for Course B. The same is true of the flow of sociocultural processes. They also flow by seven-day weekly periods, each day having its own "passport" in this respect, or, what is the same, by many a process unfolding in a certain way each weekday, and stopping on Saturday until the next Monday. Some of the processes occur only on certain days of the week, some on others; for instance, religious processes pulsate much more intensely on Sundays than on weekdays. All this means that in our culture the seven-phase weekly rhythm is indeed a reality, a real unit not only of time but of human conduct and sociocultural processes. To that extent, the seven-phase rhythm unquestionably exists in our sociocultural life. The same, though not to the same degree, can be said of the monthly rhythm, consisting of thirty or thirty-one and twenty-eight-day phases; and of the annual rhythm, consisting of 365(with some fraction)-day phases. Such calendar divisions are not merely a division of time; they are caesuras that indicate real rhythms with even as many phases as 365 — that exist in our individual as well as in sociocultural life.

[77] See further, for the behavior of some one hundred persons, P. Sorokin and C. Q. Berger, *Time Budgets of Human Behavior*.

What is said of our weekly, monthly, annual rhythms, can be said of practically all the varieties of the calendar divisions that exist among different societies and cultures. In a part devoted to analysis of social time, many details of this will be given. For the present it is enough to say that among various peoples and periods there have been eight, nine, ten, fourteen-day, and still more complex weeks; there are also the time-units that in our language mean twenty-four, twenty-eight, thirty-two days and still longer periods. Likewise, the annual rhythms also fluctuated considerably. For the reason indicated above, each such time division, with its respective number of days-phases in each period, represents in fact the rhythms in the individual and sociocultural life of the respective societies. They are real "beats" of the social life of these societies. Such periods are real units or links out of which the chain of their existence and activity is woven.

So far as such periods exist, their existence is the evidence of much more complex rhythms with dozens, sometimes even hundreds, of phases.[78]

IV. Summary of Forms of Rhythm and of Caesura

The above gives an idea of rhythm and its varieties in the sociocultural life. After this survey, it is easier to analyze the problem more carefully than has been done before. Let us put concisely some of the conclusions warranted by the above.

(1) There is no doubt that many sociocultural processes (though not necessarily all) in systems are rhythmical, composed of the rhythm units.

(2) There is no doubt that theoretically and factually there are short and long-time rhythms; rhythms embraced and embracing; rhythms consisting of two, three, four, five, and more numerous phases.

(3) Rhythms may be periodical and nonperiodical. The periodical rhythms are to be considered in the next chapter.

(4) Being rhythmical, most of the sociocultural processes are similar to a chain made of a series of links (rhythms), each of which is separated from the others by some kind of caesura. If it were not so, the processes would appear as a continuous line without any rhythmical punctuations.

[78] This real character of such many-phased rhythms is one of the reasons why some numbers, like 3, 7, 9, 12, have been considered as magical among various peoples and periods. If not in all, then in many processes, such "magical" numbers denote in fact the number of the phases or subphases of several of the important rhythms of social life of the respective societies.

(5) This raises the difficult problem: What is a *caesura* in the sociocultural processes? What are its characteristics that permit it to separate one rhythm link from the others, or even one phase of a rhythm from its other phases? This problem is cardinal, especially for separation of the fictitious — say, purely statistical — rhythms from the real ones. I indicated that the cognitive and other value of the fictitious rhythms is in most cases doubtful and, at best, small. Fictitiously, we can cut a straight line into as many and as long — even equal — portions as we wish. But such an operation amounts just to a mere paper-pen exercise that does not give us any cognition of the real rhythms, if they exist. The caesura that separates one rhythm from the others must be real, not merely artificial. What, then, can it be?

A general answer to the question was given in the first volume of *Dynamics*.[79] *Any tangible change — either in the quality of the process, or in its quantitative aspect, or in its spatial and temporal aspects, is a caesura that punctuates the uniform continuity of the process, marks its "links," or beats, or turns or rhythms.* And the greater the modification in these aspects, the greater is the punctuating caesura. Still greater is it when the caesura is synchronous in two or more of these aspects or in the directions of the process — when, for instance, at a certain point the process exhibits simultaneously a change in its quality, as when, side by side with an existing idealistic philosophy a materialistic one appears; and in its quantitative aspect, as when idealism decreases and materialism increases; in its temporal direction, as when the tempo of growth of materialism and decline of idealism becomes much more accelerated than before; and in its spatial aspect, as when one or both of these streams of thought diffuse over much larger or much narrower "areas of the population." If such a more or less synchronous change in the process of philosophical mentality of a given population occurs, only the blind would not notice it, as a definite and decisive "turn" in the process — more definite than a curve on a highway — as a caesura that punctuates it, ends one link and begins another. *Mutatis mutandis*, the same can be said of any process or bunch of processes interdependent and integrated together.

The theoretical concept of the caesura thus being clear, practical application of it to the real processes is not always easy. First, the more complex, many-phased is the rhythm, the more difficult to discover it, as we have seen. Second, the rhythms of various processes running

[79] See Vol. I, pp. 174 ff.

side by side may intermix and mask one another, at least for the purpose of grasping these rhythms: each of several musical instruments playing together can have a definite rhythm in the score played, and yet, if the rhythms are different and not "synchronized," they may obliterate one another and the listener may get only a "noise." Third, especially difficult is it to grasp the complex and long-time rhythms of embracing character. By definition, their recurrence is limited, and being embracing rhythms containing in themselves a multitude of various and not quite synchronous rhythms, they are apt to appear as a mere "noise" to the observer of such rhythms.

All this means that an investigator of sociocultural rhythms has a most difficult task and should exercise all possible caution in order to avoid two opposite mistakes: finding a mere "noise," where in fact we have a coexistence of several but different rhythms; or finding fictitious rhythms where in fact none, or one quite different from the artificially cut, fictitious rhythm, exists. (See Chapter Nine on Periodicity.)

V. Cognitive Value of Tidal Embracing Rhythms and Particularly of Ideational-Idealistic-Sensate Rhythm

The short-time and simple sociocultural rhythms, like the daily rhythm of activity and its cessation in the night time; like various weekly and other calendar rhythms, are easier to grasp than more complex and more embracing rhythms. On the other hand, most of the latter, when accurately grasped, have a much greater cognitive value than the narrow, simple, short-time rhythms. The point is *that such a rhythm gives us an insight not only into the existence of it, but, at the same time, a cognition of many embraced rhythms, interrelations between them, and, consequently, cognition of the structure and dynamics of a much larger slice of the sociocultural life.* The simple and narrow rhythms open to us only the rhythmical structure of a very limited and narrow portion of the whole sociocultural life, and even this without a proper perspective of its place and role in this whole process, and without knowledge of the interrelations of such a narrow rhythmical process to the other processes. In contrast to that, the large embracing rhythm opens our eyes to the sociocultural life as a whole, to the main processes and rhythms of which it is composed, and to the meaningful-causal interrelations of these processes and rhythms.

It is like grasping the whole symphony, with all its four movements,

and with all the periods, phrases, rhythms, and measures of each movement. Such a knowledge of the symphony is certainly more adequate than a knowledge of a score of only one of the instruments of the symphony, and even of only some of the portions of that score.

This explains why, in spite of the criticism of the "strainers at the gnats" — the Lilliputian fact-finders — most of the great social thinkers have endeavored to discover these tidal, embracing sociocultural rhythms; and why their endeavors have been appreciated and preserved in the history of human thought when they succeeded, to some extent, in this task. While thousands and thousands of the persons and works that tried to describe some superfluous "facts," and even some narrow "rhythms," have mostly vanished in the obliterating march of time, quite a large number of the vast "generalizations" concerning the wide, embracing rhythms were preserved and are the main "food" that is chewed by various historians of ideas and meticulous scholars who write their dissertations and make their reputations mainly through commenting upon, annotating, and editing such works. In the light of the above statement, this is not strange.[80]

After these remarks it must be clear to a thoughtful reader why I have attempted to study in the preceding volumes the tidal and most embracing rhythm of sociocultural life, so far as my very limited capacity permitted. In the process of this study, the Graeco-Roman and Western cultures have disclosed one of the most tidal, embracing, long-time, three-phase rhythms, the Ideational-Idealistic-Sensate rhythm in its historical unfolding and flow. That the rhythm is one of the most all-embracing is unquestionable. That its recurrence has happened at least twice, during some twenty-five centuries studied, is also unquestionable: none of the critics has been able, as yet, to indicate either that the facts given for the proof were inadequate or that they were mishandled. An overwhelming majority of them rightly stressed that hardly any theory of any wide and embracing sociocultural rhythm

[80] One can take any work in the history of sociological, political, ethical, economic, juridical, philosophical, and even historical thought. Any such history consists of description and analysis of the works and ideas of exactly those thinkers who endeavored to "read and understand the score of the substantial movements of the symphony of sociocultural life" in their field, but not merely to read a few bars for a piccolo or drum in the orchestra of history. From Confucius, Lao-Tse, Plato, Aristotle . . . through St. Augustine, Erigena, St. Thomas Aquinas, Ibn-Khaldun, Vico, Machiavelli, Hobbes, Descartes, Montesquieux, Adam Smith, up to Kant, Hegel, Comte, Spencer, Marx — while names of thousands of little fact-finders of mostly superfluous and irrelevant facts are forgotten, the names and ideas of these thinkers are preserved — and deservedly so.

has been backed by even remotely as full and as meticulously studied factual evidences as the theory of this work.[81]

Likewise, a somewhat similar, though not so pronounced, rhythm has been pointed out as happening several times in other — the Egyptian, the Hindu, the Chinese — cultures. Though I do not claim anywhere in my work that I regard it as universal, applicable to all cultures and for all times,[82] nevertheless, its recurrence in the above cultures — regardless as to whether it recurs also in other cultures — makes it important *per se,* even if it is applicable only to the cultures investigated.

What, however, is still more important, is that the establishment of this most embracing rhythm led to an *establishment of a multitude of smaller rhythms and subrhythms in the main fields of culture, and of their interrelations with one another, and with the crowning main rhythm.* Indeed, it has been shown — and shown convincingly — that the general embracing rhythm of the transformation of the cultures studied from Ideational, through Idealistic, to Sensate, or vice versa, contains in itself a multitude of the smaller three-phrase rhythms, each of which again is composed of their subrhythms, and so on. Here is an abbreviated "blueprint" of the main embracing and embraced rhythms.

The tidal main rhythm of passage of Graeco-Roman and Western culture from the dominant Ideational phase to Idealistic and Sensate phases (and then from Sensate phase to Ideational phase) embraces, or is made up of, a series of embraced rhythms such as:

1. Ideational-Idealistic-Visual (Sensate) rhythm in painting, sculpture, architecture.
2. Ideational-Idealistic-Sensate rhythm in music, drama, literature, and art criticism.

[81] Even the most vitriolic critics, like Prof. Crane Brinton, had to admit that "in general, Mr. Sorokin appears to have been most conscientious about his facts." C. Brinton, "Socio-Astrology," *The Southern Review,* Autumn, 1937, p 252. Other less vitriolic and more thoughtful critics say, that "whatever may be the detailed criticism . . . it is beyond question that the evidence assembled goes far to bear out the main points" H. Becker, in his review in *Rural Sociology,* September, 1938, p 356. Stating that *Dynamics* is a unique work in the vastness and richness of the factual data given in it, L. von Wiese continues that *"Die Verbesserung von Mangeln in den Einzelheiten könnte ein ganzes Heer von Spezialgelehrten beschaftigen; doch ist mir sehr zweifelhaft, ob solche Korrecturen der Tabellen und Kurven in erheblichem Masse die Grundzüge des Tatsachenbuildes verändern wurden"* L. v. Wiese, "Ideenkultur und Sinnenkultur," *Archiv fur Rechts- und Sozialphilosophie,* Band XXXI, Heft 3 (1938), p. 373.

[82] In this respect, the critics who ascribed to me such a contention were wrong.

3. Ideational-Idealistic-Sensate rhythm in the systems of truth and knowledge: in religion, philosophy, science.
4. Rhythm of stationary, increasing, and rapidly growing discoveries in the natural sciences and technological inventions.
5. Ideational-Idealistic-Sensate rhythm in the systems of ethics and law.
6. Familistic-Contractual-Compulsory rhythm in the field of social relationship.
7. Theocratic-Idealistic-Secular rhythm in the field of political régimes.
8. Rhythm of rise and decline of Sensate economic well-being tied up with the main rhythm in the way described in the third volume.
9. Rhythm of rise of war and internal disturbances in the transitional periods from one phase (Ideational to Idealistic and to Sensate) to another; and decline of these phenomena in the periods of crystallization and domination of Ideational and Sensate phases.
10. Rhythm of leadership and domination of religion in Ideational, and of business and other Sensate activities in the Sensate phase.
11. Rhythm of rise of Ideational type of historical persons in the Ideational, and of Sensate type of these in the Sensate phase.
12. Rhythm of Ideational-Idealistic-Sensate forms of liberty.
13. Tidal rhythm in increase and decrease of totalitarianism and the *laissez-faire*.
14. Rhythms of Idealism-Materialism; Eternalism-Temporalism; Nominalism-Conceptualism-Realism; of Ideational-Idealistic-Sensate conception of Time, Space, Causality, and other "first principles and fundamental categories of human thought."

and several other rhythms directly or indirectly connected, and in part, or in their entirety, embraced by our main rhythm.

Already this enumeration of the main rhythms embraced by, or in a specified way connected with, the main super-rhythm makes clear the cognitive value of such a super-rhythm and respective theory. The main super-rhythm appears to contain a series of other rhythms, which in their totality embrace a greater part of the sociocultural life of the societies studied; penetrate deep into each of its main compartments; and give us the comprehension of the interrelation of the main rhythms and of the degree and way of their interconnection.

This becomes still more unquestionable when we consider that each of the above fourteen subrhythms is embracing, in its turn, a number of sub-subrhythms in the respective field. For instance, in the movement of painting and sculpture from Ideational to Visual or vice versa, we have seen a series of subphases through which, in this transition, painting and sculpture passed; how they lost a number of essential

characteristics and acquired a number of others in the passage from phase to phase; how these subphases have shown themselves in the kind and frequency of the religious and secular topics of the pictures and sculpture; in the ascetic or sensual character of rendering their topics; in quantity and quality of nudity; in the Symbolic or Visual technique; in the divine, noble, common, or pathological character of the heroes of art; in the rise and decline of portraiture (and of what social classes), of *paysage,* of genre, and so on: why and at what subphase there appeared, say, "quantitative Colossalism," Impressionism, or Cubism, and what their appearance meant. In brief, hundreds of detailed subphases are embraced by the subordinated rhythm of art, which phases in their totality give account of almost anything important that has happened to art during the period studied, put all these happenings in their proper place, and make them comprehensible in the whole dynamics of art phenomena.

The same has been done with systems of truth, up to such details as the movement of scientific discoveries and inventions, rise and decline of idealism-materialism, realism-nominalism, eternalism-temporalism, absolute and relative ethics, changes in the criminal codes, oscillation of various scientific theories, concepts of space, time, causality and other first principles. In regard to these and many other still more detailed phenomena, it has been shown how and in which way their change and fluctuations are connected with the main rhythm of the cultures studied, to what extent they change together, or synchronously with it and with one another, how closely each of them is integrated with the main rhythm and with one another; which of them lag and which lead, when, why, and so on.

When all these detailed rhythms with their phases are considered, the theory of the main, embracing rhythm turns out to be not only the theory that attempts to prove the very fact of existence of such a rhythm, but even more — the theory that penetrates to almost every relevant detailed process in the main compartments of culture, and accounts for its changes and its subrhythms, phases and subphases. As grasping the main stem of a plant permits us to grasp all the branches and leaves of it, so a grasp of the main rhythm gives us an insight into a multitude of important processes and rhythms that compose the life process of society and culture.[88]

[88] The very fact that I wanted to investigate the interconnection of all the important processes and rhythms with one another and with the integral and main rhythm, and wanted to test each proposition on vast and adequate factual material, has made the

Using the term of the most competent statistical methodologists, like A. A. Tschuprow, the method used in my work is exactly the method which permits one to grasp "the stochastic" or many-sided relationships of the processes and variables which otherwise, through mere mechanical manipulation in the way of the usual "inductive" or "statistical" technique, are ungraspable. They are ungraspable because treating each of these variables mechanically, as congeries, as physicochemical and biological variables — and the usual inductive or correlational technique always treats them mechanically, as congeries — we never can grasp the relationship of each of the components of the manifold (system): treated so, they cannot exhibit any relationship, because as congeries and purely "material phenomena" they do not have it; the recurrences of the relationship are few, and therefore ungraspable in the way of such a technique. As the number of recurrences is few, each time one of the "variables" is given in an ever new and complex situation, that does not permit us to isolate it, and therefore cuts out any possibility of discovering the real relationship of the variable to other variables.[84]

The significance of our procedure and of the tidal rhythm lies, first, in the *establishment of a definite order of the succession of the phases: Ideational, Idealistic, Sensate; Ideational, Idealistic, Sensate* (with transitional interludes between the phases). This order of succession concerns not only the main tidal rhythm, but all the numerous rhythms and subrhythms embraced by the tidal rhythm in the main fields of culture. Though hardly universal and eternal, this order of succession is, nevertheless, fairly general, found in numerous forms not only in the Graeco-Roman and Western, but in other cultures also. For this reason, its cognitive value is considerable; anyhow more im-

work extensive and led some of the superficial critics (who hardly had read the work and, if they did, hardly understood anything in it) to accuse me of prolixity. As a matter of fact, the volumes suffer rather from a terrific compression of the material and the propositions.

When on some twenty pages they give, so far, the most completely documented analysis of scientific discoveries and inventions; when on some hundred pages they give a well-documented movement of the systems of truth; or when, on some twenty pages (many times richer and more accurate than in Bury's or any other monographs on the "Idea of Progress") they give the analysis of the main transformations, rise, and decline, of the Linear, Cyclical, and Erratic processes, with even footnotes and literature more accurate, more detailed, and many times richer, than they are given in substantial monographs — such a compression can hardly be styled prolixity. If the same material were watered ten times more, the critics would probably be able to digest such "baby food" more successfully.

[84] See the conception of the stochastic relationship in A. A. Tschuprow, *Grundbegriffe und Grundprobleme der Korrelationstheorie* (Leipzig-Berlin, 1925), chap. iii.

portant than the cognitive value of the various dichotomic and other theories of mechanical lead and lag criticized above: our order of phases is more valid while their order of lead-lag is fictitious; our order of the phases concerns a much vaster part of the total culture than their order of the leading and lagging sectors of that culture. This clarifies the statement made in the preceding chapter that the *current dichotomic and other theories look for the temporal order of change in the wrong place — in mechanically taking two or more congeries (variables, compartments) of cultural phenomena where it is not indicated and in failing to look for it where it is indicated: in the order of succession of the phases of various sociocultural rhythms in the life-process of the systems.* The above means that the whole problem of lead and lag has to be set differently and in quite a different field: instead of a mechanical setting as to which of the mechanically selected two or more variables leads and which lags, it has to be set organically as to how many phases a given rhythm in a living system has and what is the order of succession of these phases. Set in this form, it promises a much richer harvest than in its mechanical setting.

A further — and more important — significance of our tidal rhythm in the supersystem lies in the discovery of a *static and dynamic meaningful-causal relationship between an enormous number of sociocultural phenomena and the sociocultural processes, with their rhythms and phases.* By static meaningful-causal relationship is meant the relationship: where A is given, B, C, D, are given, if these A, B, C, D, are meaningfully-causally connected. That is exactly what our theory of supersystem does in regard to an enormous number of systems and subsystems with their components: meanings, vehicles, and human agents. Knowing the essential character of our A, say, of the Sensate supersystem (or the Sensate phase in dynamic aspect), we can say: if the Sensate phase of the system (A) is given, then such and such B, C, D, E, . . . N will be given, because this A and these B, C, D, E, . . . N are meaningfully and causally connected. Concretely, if the Sensate system (A) is given, then, with a reasonable degree of certainty, we can predict that its art will be predominantly Visual (B), with all the essential characteristics of such an art (b, c, d, e, f) depicted in Volume One of this work; that its system of truth (C) will be predominantly empirical, with concentration on the natural sciences and technological inventions, and other characteristics of such a system analyzed in Volume Two of this work; that supersensory religion will play a very modest part, while business and empirical science will

have an enormous role in such a culture (D); that its ethics and law (E) will be predominantly utilitarian, hedonistic, expedient; that its government (F) will be secular, led either by military, or rich, or professional groups; that its literature (G) will be predominantly "realistic," sensual, in part erotic, with a common type of people as its main personages mixed liberally with the "glamour girl," criminal, prostitute and other subsocial types; etc., etc., up to many most minute details, like the presence of Quantitative Colossalism, "Progressivism," a "Linear conception of historical process," and so on. The same is true of the Ideational or Idealistic systems. When either one of these is given, we can predict a large number of what forms would be assumed by its art, philosophy, religion, ethics, social organization, and so on, since this A and its B, C, D, E, . . . N are connected causally and meaningfully.

Thus we find ourselves in *the possession of a meaningful-causal relationship between an enormous number of most important sociocultural phenomena or variables,* which otherwise, being in "stochastic" relationship with one another (as physicochemical or biological phenomena), cannot be grasped, if mechanically treated as mere "variables" or congeries. These meaningful-causal relationships concern not only the relationship of A (supersystem) with its B, C, D, . . . N, but also the relationship of B with C, D, E, . . . N, and C with B, D, E, . . . N, and N with B, C, D, E, and so on, if and when they are part of the supersystem. This means that these B, C, D, E, . . . N are also connected causally in the strictest sense of the static causal relationship: when B is given, C, D, E, . . . N are given; when N is given, B, C, D, E are given.

So far as a discovery of causal relationship is possibly the supreme aim of any study, we find ourselves in possession of a large number of such relationships discovered through our "organic" approach, through the method of system and supersystem, rhythm and superrhythm. From this standpoint, our method has all the predictable value which any genuine causal connection has: if A is given, B, C, D, . . . N will be there; if A is absent, B, C, D, . . . N will be absent. In addition, the meaningful-causal relationship here concerns not merely two variables, but a bunch of many variables from all the main compartments of culture, and a large number of the variables within the same system (or compartment) of culture.

Such a result is certainly one of the richest crops that any study can give.

By *dynamic meaningful-causal relationship* is meant dynamic causal relationship between A and B, according to the formula: if A varies, B varies. In our case, it means not only that if A varies B varies, but also C, D, E, . . . N vary respectively and concomitantly (in togetherness). Viewed in this dynamic aspect, our super-rhythm means: if the supersystem passes from, say, the Ideational phase to the Idealistic (A), then all the embraced rhythms, beginning with the above fourteen rhythms (B, C, D, E, . . . N), and all their subrhythms also pass from the Ideational to the Idealistic phase. If someone states that in such and such a culture its Ideational supersystem (or phase) begins to pass into the Idealistic supersystem or phase, with this datum we can predict, with a reasonable degree of certainty, what kind of transformation will be undergone by the fine arts of the culture, by its system of truth-religion, philosophy, science; what trend will prevail in the movement of scientific discoveries and inventions; in law and ethics; in the economic well-being of the population; in the movement of war and revolutions, and in all the subsystems of the supersystem studied.

Further than that: knowing the kind of fundamental transformation experienced by B or C or N (when they are part of the supersystem), one can foresee, with a considerable probability, the kind of transformations which D, E, and other embraced systems and their processes, with their rhythms and phases, will be undergoing. In other words, our formula discovers a complex net of dynamic relationships of interdependence not only between the main process with its super-rhythm (passage of the supersystem from phase A to B) but between all the embraced processes and their rhythms.

If we assume, for instance, that at the present time our culture entered the transition from its dominant Sensate phase to the Ideational phase, this datum is quite sufficient to predict hundreds of trends in our culture, such as: an increase of war and revolutions in the transitory period, because in such a period they uniformly increase; a decrease of economic well-being for the same reason; a progressively increasing depreciation of most of the Sensate values, beginning with money and prestige of the rich classes as such; a slowing tempo of increase of scientific discoveries and inventions; a decline of contractual relationships; an increasing evaluation and role of supersensory religion; a decreasing empiricism, in all its varieties and increasing mysticism, religious rationalism, fideism, and so on; a decline of utilitarian and hedonistic ethics; a transformation of law in the same

direction; a decline of Visual, Sensate, Sensual, and Erotic forms and contents of arts, and so on and so forth.

If the major premise is accurately diagnosed all these trends will be indicated.[85]

Such is then the cognitive, the heuristic, and even the predictive value of the method of systems and supersystems, of rhythms and super-rhythms used here. As we see now, it gives all that the so-called "mechanistic-causal" method can give, and in addition, a great deal more.[86]

[85] As the reader of these volumes knows, this is my diagnosis and this is the main basis for my predictions, made in the preceding volumes (and a number of years before their publication), that war was not disappearing but increasing; so also were revolutions; that economic well-being was on the decline; that democracy and contractual relations were fading; that the Cloud-Cuckoo dreams of the Victorian era were going to pieces; and so on (See the preceding volumes of *Dynamics*, and especially the "Postscript" to the third volume.) When I was stating these things, especially before 1929, when everybody believed in bigger and better prosperity, peace, League of Nations, etc., they sounded crazy to many. At the present time, I have nothing to change in these predictions, because history has been proceeding according to my schedule, while my critics have had to throw into the waste-basket their supposedly scientific theories and forecasts. History has washed them out.

[86] In the light of these results, the harmlessness of a criticism (made by Professors Ginsberg, Carle C. Taylor and a few others) that the sequence of Ideational-Idealistic-Sensate recurred — in my study — only twice and that such a small number of recurrences was insufficient ground to take it for a uniformity and, on its basis, to expect a new phase of Ideational culture in the future. The argument would have been quite strong if the observed sequence of the phases were based on merely statistical counting of the number of such recurrences and a number of deviations from them. But in my study the statistical number of recurrences of the sequence plays no role or a perfectly insignificant one, as insignificant a role as it plays in any inductive establishment of causal relationship. *One* experiment executed with all the severity of requirement of real induction is sufficient to establish the presence or absence of static or dynamic causal relationship between A and B. And vice versa, millions of statistical cases or occurrences are insufficient to do it, if the conditions of induction are absent. My sequence of the phases is based not upon a mere counting of the number of such sequences that occurred, but on logico-meaningful, plus causal, analysis of the static and dynamic relationship between the main three supersystems and between the phases of their rhythm. Actual verification in the history of Greece, Rome, and Europe is only an additional test, much less important than the logico-causal connections between the supersystems and the order of their phases.

However, I myself did not and do not claim that the sequence is universal and eternal. For logico-causal reasons, it admits of variation and deviation, though it still remains fairly typical and general. As such, it has its own value. The main value of my theory lies, however, not in this matter of sequence but exactly in a bunch of meaningful-causal relationships the theory discovers between an enormous number of sociocultural variables in their "stochastic" coexistence and variation. This value is entirely overlooked by the critics and is not touched by their argument at all. Meanwhile, it is the central point of the whole theory of my *Dynamics*.

VI. Critical Remarks on Mechanical and Atomistic Procedure in the Study of Sociocultural Causal Connections

The fruitfulness of our procedure and the comparative sterility of those who attempt to study sociocultural phenomena mechanically, by mere application of poorly understood methods of physicochemical sciences, is comprehensible. When one approaches mechanically the study of the relationships between most of the sociocultural phenomena, and takes, for example, the relationship between the movement of quantitative nudity in pictures and of nominalism, treating them just as two variables, one can hardly find any relationship; one can hardly even guess that in some way they may be interdependent. Still less possible is it to find, through such a mechanical procedure, any relationship of interdependence between thousands of phenomena-meanings, vehicles, human agents, that make our supersystems, and thousands of processes of which the life of the supersystem is made up. No inductive method in its mechanical application, no statistical correlation technique can even be applied to such a task. If applied, they cannot produce anything except blunders, for the same reason that they cannot find any relationship of interdependence between a piece of heart, a piece of lung, and a piece of gland, all cut from the same organism. These dead variables, taken out of the system in which they were interdependent and treated as just variables, cannot indicate any relationship which they had as parts of the same system and when within the system. Similarly, when this or that style of art and this or that philosophical current, plus the amount of pig iron produced, are taken mechanically, as mere variables, they can disclose as little interdependence as the above pieces of heart, lung, and gland. What is interdependent in a system is not so outside of it, when it is not a part of the system and is a mere congeries toward another similar variable.

Another reason for the inevitable failure of a mechanical study (statistical, or other) of the interrelationship of sociocultural phenomena is the fact (demonstrated in Chapters One, Two, Three, and Four) of the mixed-meaningful plus causal nature of the interdependence between the parts of a sociocultural system. We have seen that the vehicles and human agents of a system of meanings are interdependent, not by virtue of their physicochemical or biological properties, but by virtue of being vehicles and agents (components) of the same system of meanings. Without that, they are mostly causal congeries to one

another. As such, they do not have causal interdependence. Not having it, they cannot exhibit it to the mechanical investigators who, being "objectivists," take them at the face value of their chemical, physical, and biological properties. The result is that they either do not find — and justifiably — any causal connections between such vehicle-variables, or find something atrocious, in the sense of a blunder. Yes, when such a variable as the high frequency of prostitute, gangster, hypocrite or glamour girl as the personages in fiction, and such a variable as the predominantly utilitarian character of the code of ethics and law, or the high number of technological inventions, are taken, and their relationship is studied mechanically through statistical or other technique — no real relationship of interdependence can be found indeed. Taken not as articulation of the same system but as isolated variables, they do not have and do not exhibit either positive or negative correlation; nor do they give any other inductive basis that suggests and supports the existence of the relationship which, in fact, they have as articulation of the same Sensate system and which, being grasped in that setting, is supported by the *a posteriori* inductive test. In a mechanical setting they are in the same relationship of congeries in which are the dead parts of heart, lung, and gland in the above example.

This explains why the mechanical method of study of the relationship of sociocultural phenomena fails; is unfit to catch and cannot catch in its net, an enormous and most important relationship of interdependence between sociocultural phenomena. This explains also the failure and mistakes of the above mechanical theories of lead and lag, and other errors of mechanistic operations abundantly committed in their study. In their mechanical aping and application of the simulacrum of the methods of physicochemical sciences, they cannot help committing the blunders of finding relationships where they are not given and not seeing them where they do exist. It is high time to understand this fatal mistake and to stop this most unscientific, most unempirical, and most thoughtless fashion. If nothing else, then its fruitlessness must be a sufficient evidence of its invalidity.[87]

[87] See further, on these methodological problems, *Sociocultural Causality, Space, Time.* This answers the criticism of all those who accused me of neglecting the causal aspect and relationship of sociocultural phenomena; of antiempiricism, and of a dangerous drift towards mysticism. To the utter surprise of such critics, the real result of my alleged neglect of causal relationship is a discovery of an enormous number of such relationships which they and their like could never discover, for the above reasons of unfitness of the purely mechanical methods they use and apply. Another result is a demonstration

The above explains, then, why I devoted so much time and energy to an establishment of the main and all the subordinated rhythms and changes; why I regard such a theory as more important — in its cognitive value — than all the petty mechanical correlations and associations between this and that variable which usually turn out to be wrong, or happen to be purely local and temporary "correlations," incapable of demonstrating anything of causal relationship between the variables; or all the descriptive accounts of this or that tribe; or this or that historical event.[88] At best, such studies satisfy this or that specific curiosity; may be useful for a given project of a given political faction; may even serve as one of the bricks for the construction of a larger theory. But, to repeat Spencer, they cannot help in the least to understand "the ways in which social phenomena hang together," and still less can they give us knowledge how they change, whether or not hanging together, whether displaying some uniformities or not, whether rhythmically or not, whether they go unilinearly, or

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on my part of the pseudo-causal nature of the relationship, which my critics and their like claim to be causal

As to my antiempiricism, it is enough to say that in *Dynamics* and my other works, I possibly handled more relevant empirical facts, and handled them more carefully, than all the group of the noisy and self-appointed guardians of empiricism in sociology taken together.

[88] Here I can but subscribe to H. Spencer's ironical statement concerning the relative cognitive value of such pursuits as mine and these pettifogging correlations and antigeneralizing pursuits of little historical studies (great historical studies usually are filled with similar generalizations). In a spirit of mock humility, Spencer says:

"Of course, it is not to be put on the same level with their historical [correlational and descriptive] studies. The supreme value of knowledge respecting the genealogies of kings, and the quarrels of courts [or "pettifogging fact-findings"] is beyond question. Whether or not the plot for the murder of Amy Robsart was contrived by Leicester himself, with Queen Elizabeth as an accomplice, and whether or not the account of the Gowrie Conspiracy, as given by King James, was true; are obviously doubts to be decided before there can be formed any rational conclusions respecting the development of our political institutions . . . These, and facts like these about all royal families in all ages, are facts without which civilization would evidently be incomprehensible. . . . For how, in the absence of such information, is it possible to judge what institutions should be advocated?

"Still, after due attention has been paid to these indispensable matters, a little time might, perhaps with advantage, be devoted to the natural history of society. . . ." H. Spencer, *The Study of Sociology* (London, 1880), pp 69–70. In his *Autobiography* (Vol. II, pp. 264–65) he still more clearly says that such "facts" as "whether the story of Alfred and the cakes is a fact or myth, whether Queen Elizabeth intrigued with Essex or not, where Prince Charles hid himself, and what were the details of this battle or the other siege — [such] pieces of historical gossip cannot in the least affect men's conceptions of the ways in which social phenomena hang together, or aid them in shaping their public conduct."

cyclically, or in some other way. At best, they are infinitesimal fragments of an unknown picture. One needs no apology for wanting to know something of the whole picture. This is what I am interested in. Hence *Dynamics*.

The above answers, partly at least, the second question concerning *Dynamics:* why it is so busy with rhythms, and especially with the main rhythm — Ideational-Idealistic-Sensate — and how such a theory gives us an important cognition of the essential part of the dynamics of sociocultural life. The above shows also the place of the *Dynamics'* rhythm among other — past and present — theories of sociocultural rhythms.

VII. Critical Remarks about Various Theories of the Sociocultural Rhythms

Of the above surveyed double, triple, and more complex sociocultural rhythms, claimed by various scholars, most of those that are roughly valid enter either as an embraced rhythm or as a rhythm formulated more accurately into the main triple rhythm and its many subrhythms of *Dynamics*. Indeed, of the double sociocultural rhythms, those of Machiavelli (alternation of order-disorder); of Campanella (alternation of religion and secularism or atheism); rhythm of challenge-response, withdrawal-return, decline-palingenesis, of A. J. Toynbee; of the organic and critical periods of Saint-Simon and of Fourier; rhythm of empirical and theoretical, analytical and synthetic phases in science and philosophy (H. Berr, Claude Bernard, G. Tarde); of urban centralization and disurbanized decentralization of B. Adams (only in this valid part of his theory); rhythm of domination of technological (materialistic) and spiritual-religious forms of culture of L. Weber; rhythm of prosperity and depression of economists; of expansion and contraction of government regimentation; of rise and decline of various aristocracies; almost all the rhythms in arts formulated by a series of scholars — all these rhythms, without exception whatsoever, enter into the main rhythm of Ideational-Idealistic-Sensate forms of culture as its subrhythms. The careful reader of the preceding three volumes can see that for himself. The same is true of the quantitative rhythms: increase-plateau-decline and others. The tables and charts of *Dynamics* give a multitude of such quantitative rhythms in all the compartments of culture studied, with a rich variety of the patterns of such quantitative rhythms. More than that,

practically all of these rhythms are factually investigated, in a great many details, and on the basis of factual material far more extensive and systematic than that given by the authors of these rhythms. For example, while Saint-Simon merely suggests an idea of his rhythm of the organic and critical periods, and does not go to any serious trouble to substantiate it by the relevant facts, the main rhythm of *Dynamics* which embraces his rhythm in a more accurate formula, introduces the necessary corrections, and places it as a subrhythm in its proper place within the main rhythm, and in its relationship to many other subrhythms involved. *Dynamics* goes to great pains to test and to check it in my formulation by the relevant and systematically selected body of facts.

Most of the above double rhythms are given by their authors in the form of a mere sketch. In *Dynamics* they are reformulated, unfolded, detailed, and connected with a multitude of other subrhythms with which they are meaningfully and causally integrated. Only those of these double rhythms which are either invalid, or formulated in such a way that their exact meaning is lacking (as, for instance, the Spenglerian rhythm of culture and civilization) — only such pseudo rhythms do not enter into the main rhythm and its subrhythms of *Dynamics*. Finally, there are a few valid double rhythms of mainly routine type that are not incorporated into the rhythms of the above volumes of *Dynamics*. Such an omission is due mainly to two reasons: to the fact that these rhythms are not connected with our supersystems and their rhythms, and to a lack of space. Being mainly of the routine type, they are passed by, without specific analysis or even mention. However, all of the rhythms that are related to the Ideational-Idealistic-Sensate rhythms can easily be incorporated. Those which are not integrated with these can also be mentioned and specified, as the rhythms that go on independently from these tidal waves in the life history of culture and society.[89]

What is said of the double rhythms can be repeated in regard to the valid rhythms of the triple, quadruple, and more complex types given above. For any competent man, for instance, it must be clear at once that of the triple rhythms, such as G. Vico's, Hegel's, and others, those that contain something valid are incorporated, in a new formu-

[89] *Dynamics* paid much greater attention to the cultural aspect of the sociocultural phenomena than to their social aspect. Hence an omission of several purely social rhythms. I hope, however, to give in my future *System of Sociology*, a compressed but more or less complete classification of many of the purely social rhythms not mentioned in this work.

lation, and with many corrections, into the main and embraced rhythms of *Dynamics*.[80]

Likewise, even such "linearly progressive" triple rhythms as that of Comte's law of the three states and other similar "laws" are also embraced by the main and secondary rhythms of *Dynamics*, but, again, with many a correction and in a radically different perspective. Comte's Theological stage is an imperfect and much less accurate counterpart of the Ideational forms of culture; his Metaphysical stage is a disfigured image of the Idealistic, and his Positive mentality is but an unduly glorified Sensate culture. As to the perspective, Comte gives a uniformly linear succession of these stages, while in my conception they are "trendlessly fluctuating." The very fact that such a rhythm has happened several times in the past, not to mention many other reasons given later, makes the "trendlessly fluctuating" perspective more valid than the "progressively linear" perspective of Comte and other "linearists."

Other triple rhythms, like that of Joachim de Flore, are too "theological" to be taken seriously, so far as their empirical facts are concerned.

Most of the four-phase and more complex rhythms are mainly figurative expressions, like various organic analogies with childhood, maturity, old age and the like; therefore they can hardly be taken very seriously. A few more or less real rhythms of these types are either a mere component rhythm of the rhythms of *Dynamics*, or they are not mentioned there because of lack of space and for other reasons, mentioned above.

These remarks indicate in general which of the above rhythms are roughly valid, and which are not; which of the valid enter into the

[80] As a curiosity, a few critics, like C. Brinton and A. Goldenweiser, having ascribed to me "a militant insistence on [my] originality," proceed to say that my theory is similar to that of Vico or somebody else. "Mr. Sorokin, it is true, offers a very sophisticated variant [of Vico's theory], with complicated internal rhythms and intermediate stages, and with no fancifully exact periodic recurrences" (C Brinton, "Socio-Astrology," *The Southern Review*, Autumn, 1937, p. 245.) The last statement is fairly accurate, while the first is invented by the critics. Nowhere in the work is there "a militant (or any other) insistence on my originality"; as a matter of fact, the similarity with Vico and references to him were quoted in many places of the preceding three volumes (*e.g.*, Vol. I, p. x; Vol. II, pp. 10, 33, 217, 375, 471; Vol. III, p. 154). The same is true of other thinkers. Perhaps, after this note and all the above and subsequent quotations of various rhythms, such critics will not proffer a similar unfounded criticism but will read and understand what is clearly and expressly said in my work, before writing their criticisms.

"symphony of rhythms" of *Dynamics*, and which do not enter, either because of their invalidity or for purely technical reasons mentioned. They clarify and substantiate the above statement concerning the place and importance of the main and subsidiary rhythms of *Dynamics* among the multitude of rhythms claimed by many thinkers of the past and of the present. Some further clarifications will follow in the subsequent chapters.

Chapter Nine

PROBLEM OF PERIODICITY OF SOCIOCULTURAL RHYTHMS

I. Main Types of Theories

As mentioned in the preceding chapter, sociocultural rhythms are either nonperiodical or periodical. The periodical rhythms have interested many a social thinker much more than the nonperiodical. The number of the theories on the periodicity of sociocultural phenomena is enormous. The subsequent survey does not pretend to give an exhaustive history of such theories but it is complete enough to convey to us a sufficient knowledge of what kind of generalizations have been made in that field, and what uniformities have been formulated. In the next chapter we shall examine which of these uniformities are valid and which are not.

Perhaps the most convenient way to carry on such a survey is to divide all the theories of periodicity into a few classes, according to the source of periodicity the theories stress. From this standpoint, we can distinguish, first, the *Metaempirical* theories, which take Brahma, Deity, or some other superempirical agent as the source of periodicity of sociocultural processes; second, the *Cosmic* theories, that see the source of the periodicity in the periodic revolutions of the heavenly bodies, the periodic rhythm of climatic and other physicochemical processes; third, the *Biological* theories, that see it in the periodic rhythms of various biological phenomena; fourth, the *Sociologistic* theories, that look for the source of the periodicity in the sociocultural life itself; fifth, the *Mixed* theories, that find the source in mixed cosmo-biosocial phenomena or do not specify it clearly.

II. Metaempirical Theories of Periodicity

As mentioned, they see the source of periodicity of sociocultural rhythms and of the empirical processes of nature in the periodicity of transformations of God, or other supersensory agent, or ultimate reality, including the hypostatized metaphysical essences. Omitting the nonperiodical theories of that kind (they have been outlined in

Chapter Eight), and taking only those that give the numerical length of the periodic rhythms, the following theories can serve as examples of this type of construct.

Ancient Hindu theories regard periodicity in the life of the universe as well as in human affairs as a manifestation of the periodicities in the life of the supersensory true reality, like Brahma or other personification of it. The essentials of the theory were given in *Dynamics*, Vol. II, p. 353.[1]

According to these theories, the "occasional" destruction of the world at the end of Brahma's day (Kalpa) periodically recurs every 4,320,000 mortal years. The "elemental" dematerialization of the world into a state of pure immateriality and then the materialization of "the Pure Supreme Spirit" into the sensory material forms occurs at the end of Brahma's life every 311,040,000,000,000 mortal years.[2]

[1] Besides the quotations and sources given there, see also "The Vedânta-Sûtras," *The Sacred Books of the East*, Vol. 34 (Oxford, 1890), pp xxvi–xxix, 211 ff ; 382–386; *ibid.*, Vol. 38, pp 47, 371, 392; P Duhem, *Le système du monde* (Paris, 1913), Vol I, pp. 67 ff ; J. T Reinaud, "Mémoire géographique, historique, et scientifique sur l'Inde" in *Mémoires de l'Academie des Inscriptions et Belles Lettres* (Paris, 1849), Vol. xviii, 2e partie, pp. 1–399.

[2] See *The Vishnu Purâna*, translated by H H Wilson, 5 vols. (London, 1864–1877), Vol. V, pp 162–163, 186, Bk. vi, chaps. iii, iv. The figures, however, vary in different sources, and even in this source. In passing, it is proper to note that these Hindu theories are not so fundamentally different from the modern theories expounded by Sir James Jeans and Sir Arthur Eddington in their well-known works and summed up by them as follows (*New York Times*, January 11, 1931):

"The material universe appears to be passing away like a tale that is told, dissolving into nothingness like a vision fading before the light of day.

"The human race, whose intelligence dates back only a single tick of the astronomical clock, could hardly hope to understand so soon what it all means. Some day perhaps we shall know; at present we can only guess." (Sir James Jeans)

"The phenomenon of evolution must be swallowed up in the advancing tide of change and chaos, the whole universe reaching a state of complete disorganization, a uniform featureless mass in thermodynamic equilibrium.

"This is the end of the world. Time will extend on and on, presumably to infinity, but there will be no definite sense in which it can be said to go on. . . .

"It is widely thought that matter slowly changes into radiation If so, it would seem that the universe ultimately would become a ball of radiation, growing ever larger, the radiation passing into longer and longer wave lengths. About every 1,500,000,000 years it will double its radius and its size and go on expanding this way in geometrical progression forever." (Sir Arthur Eddington, *The End of the World*)

Still more similar to these Hindu theories are such as the theory of F. Nietzsche of the "eternal return of the things"; as G. Le Bon's theory of an eternal rhythm of concentration of energy into material forms and dissolution of matter into pure energy; as H. Bergson's conjecture of matter as the moment of the relaxation of the immaterial creative power; and several others. The ancient Hindu theory is, however, consistent

Side by side with these longest periodicities, the Hindu theory claims the existence of shorter ones. Thus, in the history of mankind, the periodical rhythm of 4,320,000 mortal years is, in its turn, composed of the four periodical phases: the Krita Yuga (1,728,000 mortal years); the Treta Yuga (1,296,000 mortal years); the Dwapara Yuga (864,000 mortal years); and the Kali Yuga (432,000 mortal years). Each of these four periodically recurrent phases has its own characteristics in the process of human history: for instance, the Krita Yuga phase is always the age of creation and generation of society and culture, while the Kali Yuga period is always the age of decline marked by several sociocultural characteristics.[3] According to these sources, mankind entered the phase of the Kali Yuga with the beginning of the fourteenth century B.C. "There are infinite successions of these four ages."[4] Finally, the Hindu thought marks several still shorter periodical rhythms in the procession of sociocultural life, as well as that of an individual viewed in the series of his transmigrations.

These allusions are embodied in the theory that "owing to the effects of their former actions, the individual souls are implicated in . . . the endless cycle of birth, action, and death, final escape from which is to be obtained only through the study of the gñânakânda of the Veda."[5] We are told that in this process of transmigration "the soul passes through the stages of its descent in not a very long time."[6] The fact that either in this process of transmigration, or in the empirical climbing and descending the social ladder of the castes, the passing to any new stage takes place through birth and death — the beginning and the end of the span of one or seven generations — may be interpreted as a slight allusion to the periodic rhythm of duration of one or seven generations.[7]

These last allusions are, however, much more clearly — and more empirically — developed in many later theories; therefore we shall

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and answers (rightly or wrongly) comprehensively the main questions, while these modern theories leave a great deal in the dark as to the meaning of the "end of the universe," "its beginning," and "nothingness," and many other problems involved.

[3] See their description in *Dynamics*, Vol. II, pp. 355–56.

[4] *Vishnu Purâna*, quoted, Vol V, pp. 170 ff.

[5] *The Sacred Books of the East*, Vol. 34, p xxix.

[6] *Ibid.*, Vol. 38, pp. 128 ff.

[7] "In successive births men of the higher castes are born in the next lower one, if they neglect their duties . . . Men of lower castes are born in the next higher one, if they fulfil their duties." *Apastabma*, Pr. II, Pat. 5, 10–11; *Sacred Books of the East*, Vol. II (Oxford, 1879); *Gautama*, chap. iv, 21–22; *Ibid.*, Vol. II.

not be delayed here with their detailed analysis.[8] It is to be noted that a similar theory of the periodical renovation of the world every 4,320,000 mortal years — a recurrence of the so-called "Day of the World" — existed among the Arabs also, according to the testimony of Massoudi (b. in Bagdad in the second part of the ninth century) and of Al Byroun (flourished *c.* 1031).[9]

It also was known to the Mayan and Mexican cultures. According to the Aztec mythology, the world is periodically undergoing the four-phase recurrent destruction: by jaguars, by hurricane, by volcanic rain or fire, and by inundation.[10]

To the metaempirical type seems to belong, besides the eternal rhythms of the Yin and Yang, nonspecified as periodical, and the three-phase Confucianist rhythms of the *Disorderly, the Small Tranquillity, and the Great Similarity* phases, several periodical rhythms of 3, 9, 18, 27 and 30 years, that recur in various social processes.[11]

In Greece and Rome the metaempirical theories of periodicity were upheld by many thinkers, beginning with Hesiod and later on centering around the Pythagorean, Platonic and Neo-Platonic movements. Some admixture of the cosmic elements is present in these theories, even in that of Plato himself, but the main source of periodical rhythms in the world and in human affairs is posited in the periodicity of the movements in the Soul of the World or its equivalents. The calendar of Hesiod mentions a number of days in each month, which, in some mysterious way, are either "lucky" or "unlucky" for several specified actions, and as such, are associated with these actions and processes. So far as each of such days is the same in each month, such a calendar of lucky and unlucky days is at the same time a calendar of periodicities. For instance, the sixth day in each month is unpropitious for the birth of females; the thirteenth day is bad for sowing; the sixteenth day, for planting; the fifth, fifteenth and twenty-

[8] Of course, there are also some periodicities ascribed to cosmic factors by some of the theories of the Hindu; there is also the teaching about three or four stages in the life history of a man, but these theories, especially the first, are much more developed in the thought of other peoples; therefore we can pass them by without any discussion.

[9] See their works and their analysis in Reinaud's *Mémoire géographique* and P. Duhem's *Le système du monde*, quoted above.

[10] See H. J. Spinden, *Ancient Civilizations of Mexico and Central America* (New York, 1922), pp. 191, 205.

[11] Li-Ki, Bk. vii, *The Sacred Books of the East*, Vol 27 (Oxford, 1885); Chen Huan Chang, *The Economic Principles of Confucius and His School* (New York, 1911), pp 132–34; H. Hackmann, *Chinesische Philosophie* (Münich, 1927), pp. 337 ff. See other works in *Dynamics*, Vol. II, pp. 357 ff.

fifth days are generally unpropitious. On the other hand, the fourth is good for marriage; the ninth, for birth; the fourteenth, for the birth of females, and so on.[12] By the testimony of pseudo Plutarch and other ancient writers, Hesiod seems to have believed also in the long-time periodicity, the *annus magnus,* whose duration is either 9920 or 9720 years.[13]

As was mentioned before, an overwhelming majority of the Greek thinkers believed in "the eternal return of things." The main difference between them was that some believed in the identity of the things in each recurrence (the same earth, the same Socrates, etc.); or in the "numerical" recurrence; while others claimed that not the same originals — not the same Socrates or Athens — but identical copies are ever recurrent.

Some of those who claim that the Universe was born teach that it is also perishable; but they are, in this respect, of two different opinions. One group contends that it is perishable in the same sense as any other assemblage of atoms; in the same way as Socrates, who is dead once and forever and will never return again. The others pretend that, turn by turn, the Universe is born and destroyed, but the same Universe is reborn in order to be destroyed again, and this succession repeats itself eternally.[14]

For instance,

The Pythagoreans (Pythagoras, Xenophanes, Ion of Chios, Philolaos, and others) teach that again and again the beings are reborn identical — even numerically — to those born before.[15]

[12] See Hesiod, *Works and Days, passim.* See A. W Maire's commentary on Hesiod's calendar of lucky and unlucky days in Hesiod, *The Poems and Fragments,* done into English by A W. Maire (Oxford, 1908), pp 162–166

Here we have a further example of attaching to certain numbers specific effects and importance — a belief widely spread among various societies and cultures. So far as such "lucky" and "unlucky" numbers mark time (days, weeks, months, years) they turn into a theory of periodicity of certain "lucky" and "unlucky" phenomena in human affairs. See following pages about that

[13] "Why the Oracles Cease," in Plutarch's *Morals,* edited by W. W. Goodwin (Boston, 1870), Vol IV, pp. 15–16.

[14] *Simplicii In Aristotelis de Coelo commentaria,* ed by Karsten, Bk. i, chap. x (Amsterdam, 1865), pp 132–133

[15] *Simplicii In Aristotelis physicorum libros quatuor priores commentaria,* ed. by H Diels (Berlin, 1882), pp. 732–733 Johannis Stobaei, *Eclogarum physicarum et ethicarum libri duo,* ed by A Meineke (Lipsiae, 1860), Vol I, pp. 66–67. See also *Simplicii In Aristotelis physicorum libros quatuor posteriores commentaria,* ed. by H. Diels (Berlin, 1895), Bk. viii, chap. ii. Also Aristotle, *De Coelo,* Bk. i, chap. x; Aristotle, *Physics,* Bk. viii, chap. ix.

While some of these thinkers saw in the movement of the heavenly bodies the source of periodicity, others, like Pythagoras and the Pythagoreans, Architas of Tarent,[16] Plato, the Platonists and Neo-Platonists, looked for it in the circular movement of the Soul of the World. So far as any motion is due to the Prime Mover, Aristotle's theory of the circular periodicities may also be considered as belonging to the metaphysical type.

Plato. For Plato, influenced by Architas and probably by the Oriental theories, the soul is immortal, for she is the source of all motion, both in herself and in others.[17]

> The lord of all moving things is alone able to move of himself. . . . The world is guided by an accompanying divine power and receives life and immortality by the appointment of the Creator.[18]

Starting with this premise, Plato develops in this dialogue a fantastic theory of the recurrent long-time two-phase rhythm in the life of the universe and mankind, which reminds us in many respects of the above theories of the Oriental cultures.

> There is a time when God goes round with the world, which he himself guides and helps to roll; and there is a time, on the completion of a certain cycle, when he lets go, and the world . . . turns around and revolves in the opposite direction. . . .

This revolving in the opposite direction means not only spatial reversal of the movement but also its reversal in time. Animals and human beings begin to move from the older to the younger age.

> The mortal nature ceased to be or look older and was then reversed and grew young and delicate; the white locks of the aged darkened again, and the cheeks of the bearded man became smooth, and he was restored to his original youth . . .
>
> until he became a newly born baby and finally
>
> wasted away and wholly disappeared.

The moment of the reversal of the course of the world is accompanied by a great shock, destruction, and catastrophe of the whole material world and mankind's life. Under each of these fundamental courses the social life and interrelationship of human beings have a

[16] On Architas of Tarent, see *Simplicii In Aristotelis categorias commentarium*, ed. by C Kalbfleisch (Berlin, 1907), pp. 350–353

[17] Phaedrus, in *The Works of Plato* (Dial Press, New York, n.d.) Vol. III, pp. 403 ff.

[18] "Statesman," in *The Works of Plato*, quoted, Vol. IV, pp. 352 ff.

very different character in the whole as well as in details. When God lets the world go, "the condition of man becomes more and more miserable." When he is guided by God (in the corresponding period) he is happy, virtuous, healthy, wise, innocent. In those days, "there were no governments or separate possessions of women and children. . . . Men had no property or families. . . . And they dwelt naked and mostly in open air."

Such is the essence of Plato's mythological theory of great rhythms or cycles.[19] In the same work he hints at many other rhythms, and the cyclical notions pervade the whole work. He hints at the periodic rhythm measured by a span of a generation and indicates that each rhythm has a corresponding generation, and king, and government.[20] God as the source of all movement in the universe, including that of heavenly bodies, and cosmic and biological phenomena, makes clear the metaempirical character of Plato's theory of the periodicities. Starting with this premise, he mentions in various works several periodical rhythms, beginning with the long *annus magnus* and ending with the shorter ones. The immediate course of sociocultural rhythms he sees sometimes in cosmic and biological factors (for instance, in his *Laws*, Bk. iii), but as mere agencies of the superempirical reality of ideas or forms. The most important of those allusions are given in his *Timaeus*, *Phaedrus*, the *Republic*, and *Statesman*, *Laws*, and *Critias*. Discussing the rotations of the planets and their short-time cycles, he says that:

> there is no difficulty seeing that the perfect number of time completes the perfect year, when all the eight revolutions (of the seven planets and the sphere) are accomplished together and again meet at their original point of departure, measured by the circle of the same moving equally.[21]

What is "the perfect number," and correspondingly, what is the length of this great cycle, is unknown exactly. The numerous commentators have tried to decipher Plato's "perfect number" and have offered va-

[19] *Statesman*, 269 ff. *The Dialogues of Plato*, translated by B. Jowett (Oxford, mdccclxxi), Vol. III, pp. 563 ff., 587 ff. It is to be mentioned that in this theory of Plato, there are several dark points which may be interpreted in different ways. For instance, it is not clear whether these two periods are eternally repeated, or repeated only once, and then there comes the third stage, in which God does not guide the world but gives to it an indestructible order, which is to preserve it (and mankind) from utter anarchy and destruction. This and many other points are not clear.

[20] *Ibid.*, 274–275.

[21] *Timaeus*, 39, in *The Dialogues of Plato*, translated by B. Jowett (Oxford, mdccclxxi), Vol. II, p. 533. See further Plato's dialogue, *Statesman*, 269 ff.

rious hypotheses — some giving to it the value of 10,000 years, some, other values — but here as well as in the subsequent passages from Plato, the exact meaning and value of his enigmatic expressions remain still open. In his *Phaedrus,* talking of the wandering and destinies of the soul he says:

> Ten thousand years must elapse before the soul can return to the place from whence she came . . . only the soul of a philosopher, guileless and true, or the soul of a lover, who is not without philosophy, [can do it] at the end of three thousand years.[22]

In his *Laws* (Book iii) he definitely states that there have been

> thousands and thousands of cities which have come into being and perished during this period . . . and every place had endless forms of government, and had been sometimes rising and at other times falling, and again improving and waning.[23]

Such an incessant rhythm he ascribes in this work mainly to cosmic and biological factors (deluges, diseases, etc.), but as the whole empirical world is but a manifestation of the superempirical reality of the ideas of God, this does not make Plato's theory a cosmic theory of periodicity.

In the *Republic* the famous mysterious place in translation runs as follows. Explaining that even his ideal Republic is not eternal and will perish as will also other forms of government: aristocracy, timocracy, oligarchy, democracy, and tyranny, he says:

> Seeing that everything which has a beginning has also an end, even this constitution will in time perish and come to dissolution. And this is the dissolution: In plants that grow on the earth, as well as in animals that move on earth's surface, fertility and sterility of soul and body occur when the circles are completed, in short-lived existences passing over a short space, in long-lived ones over a long space. But, to the knowledge of human fecundity and sterility all the wisdom and education of your rulers will not attain; the laws which regulate them . . . will escape them, and they will bring children into the world when they have no business. . . . *Now that which is of divine birth has a period which is contained in a perfect number* . . .

and further goes some detailization of the perfect number but very unclear . . .

[22] *Phaedrus,* 249. *The Dialogues,* translated by B. Jowett (Oxford, mdcccbxxi), Vol. I, p. 583.

[23] *The Works of Plato* (Dial Press), Vol. IV, pp. 408 ff.

Now this number represents a geometrical figure which has control over the good and evil birth. [As a result of such births at a wrong season, due to the ignorance of the right seasons for births, the children of the guardians shall be devoid of the qualities of their fathers, shall become poor rulers], and hence will arise inequality and irregularity, which always and in all places are causes of enmity and war.[24]

Here Plato definitely asserts the existence of a periodic rhythm in the life history of every society; a similar cycle in the movement of the births and the quality of the new-born children, the alternation of prosperity and decay, conditioned by the circumstances of all human things, independent of human control and subjected to the Perfect Number, which also measures the revolution of the stars. What is the numerical value of this "perfect number" and "a geometrical figure" by which the length of the cycle is measured? Hundreds of commentators have tried to decipher it, but the problem still does not have a unanimous solution. Some, like J. Dupuis, first give to it the meaning of 21,000 and later, 760,000 years; others, like P. Tannery, 2,700 days, and later on, gave it up; still others, like E. Zeller and J. Hunziker, 10,000 years; and there are still different values given to these terms, such as 7500; 4800; 3600; 6400; even 20,250,000 years.[25] It seems the real meaning of these dark points, the meaning which was apparently quite intelligible to Aristotle (as we shall see), is now lost and can hardly be found.

In the *Republic,* Plato develops a kind of *sequence theory in the change of various political régimes.* As is known, he divides all governments into the five fundamental categories: monarchy or aristocracy, timocracy, oligarchy, democracy, and finally, tyranny. Each of these forms is closely correlated with the corresponding predominant type of personality or soul or passion in the members of the society: a royal or aristocratic régime has the passion for virtue and wisdom; the timocracy, the soul of ambition and honor; the oligarchy, the thirst for wealth; the democracy, the passion for freedom; the tyranny, the passion of anarchy and bloodthirstiness. Plato shows how each of

[24] The Republic, Bk. viii 546–547. *The Dialogues* (Oxford edition), translated by B Jowett, Vol. II. 380–82.

[25] See a detailed analysis of the problem in a long note in the French translation of the *Republic* by V. Cousin, Vol. X of Plato's *Œuvres,* p. 322; E. Zeller, *Philosophie der Griechen,* 4th ed., Vol. III, pp. 857–860 (Berlin, 1889); P. Tannery, *Mémoires scientifique* (Paris, 1912), Vol. II, pp. 345–366; Vol. I, pp. 12–38; Vol III, pp. 188–198; P. Duhem, *op. cit.,* Vol. I, p. 84; G. C. Young, "Plato's Mystical Number," *Proceedings of the London Mathematical Society,* 1923

these régimes and types of personality generates the next one. He stresses that this succession goes on through the medium of the new generations and hints again at the span of time measured by the life of a generation.[26] Whether the cycle, having run from monarchy to tyranny, and from the generation animated by virtue and wisdom to that animated by bloodthirstiness, returns again to monarchy and the generation of virtue, Plato does not say clearly in the *Republic*.[27] But in his *Laws* he makes such a return probable.[28] A cyclical interpretation of his theory was made by Polybius when he formulated his own theory of the cycles in the change of the political régimes.

The above sums up the main ideas of Plato in the field. Being probably influenced by the Oriental theories with which he came in touch during his travels and long life, he put them in a modified form, and whatever are the obscure points in his speculations, one thing seems to be certain: that the linear concept of the history of the world and particularly of mankind, and its satellite — a linear theory of progress — remained strange to Plato.

Aristotle. So far as every motion and change in the world originates, according to Aristotle, in the Prime Mover, or God, who himself is unmoved; and so far as the continuous and eternal rhythmical motion of the heavenly spheres is due to the same ultimate cause; and so far as changes in the sublunary world are conditioned by the motion of the heavenly bodies; so far Aristotelian theory belongs to the considered metaempirical type, and in spite of all the great differences from Plato's conception, remains here, as in other points of Aristotelian philosophy, Platonic, though empiricized greatly.[29]

Coming from the unmoved Prime Mover, the most elementary, pri-

[26] F. Mentré states that "each of Plato's political régimes lasts one generation, no more and no less." On the basis of the statements of Pythagoras and Herodotus, taking 30 to 35 years as the span of active life of a generation, Mentré takes the period of 30–35 years as an average duration of each of Plato's political régimes, and a period of 150 to 175 years (30–35 × 5) as the length of the whole cycle of these five forms of government, after which it begins again. This interpretation of Plato's theories is very interesting but, like many others, remains purely hypothetical. See F. Mentré, *Les générations sociales* (Paris, 1920), pp. 57–58.

[27] *The Republic*, Bk. viii, 545 ff.; *The Dialogues of Plato*, translated by B. Jowett, Vol. II, pp. 379 ff.

[28] See *Laws*, Bk. iv, 711 ff. *The Dialogues*, translated by B. Jowett (Oxford, mdccclxxv), Vol. V, pp. 283–4. His theory of the recurrent changes and perditions of societies, especially through plagues, deluges, etc., is given in Bk. iii, pp. 55 ff., 676 ff.

[29] See Aristotle's *Physics*, *Metaphysics*, *De Coelo*, *De generatione et corruptione*, and *Meteorologica*. A general outline of his theory of motion and change is given in Chapter Thirteen.

mary, and fundamental form of motion or change directly caused by the Prime Mover is rotation, or circular local motion. All other motions or changes are derivative from it. Any change — quantitative or qualitative — cannot occur without a local movement in space. It is prior to any kind of movement or change; it can exist without the others, while the others cannot exist without it; it is prior in time, as the only motion possible to eternal things; it is prior also in the order of nature. Of these local movements in space, the prior, continuous, and eternal is the rotary motion.[30]

Such eternal and continuous motion have the eternal and imperishable heavenly bodies. Since all movements and change are derivative from the primary movement, and the heavenly bodies have this movement, they influence and control the changes in the sublunar phenomena. Since they move perpetually, they cause a perpetual change (corruption and generation) in the material and phenomenal world. Since their motion is circular and rotatory, and since, after a certain time, they return to their previous position, everything in the phenomenal change is also circular and rotatory, recurs, and returns to itself.

Since the primary motion of the heavenly bodies is periodical, periodical also are the changes in the sublunar world, including those in human affairs: all the phenomena recur periodically, were, and will be repeated. The recurrence is either numerical, that is, the same individual, like a heavenly body or event, repeats its cycle; or generic, in which not the same individual, but similar individuals of the species recur.[31] Here is Aristotle's formulation of this point:

> Wherever there is continuity in any process (coming-to-be or "alteration" or any kind of change whatever) we observe "consecutiveness," *i.e., this* coming-to-be after *that* without any interval. . . . The coming-to-be of anything, if it is absolutely necessary, must be cyclical, *i.e.,* must return upon itself.
>
> Such is exactly
>
> the eternity of the revolution of the heavens. . . . The sun revolves in this determinate manner; and since the sun revolves *thus,* the seasons in conse-

[30] Aristotle, *The Physics,* translated by P. H. Wicksteed and F. M Cornford (London-New York, 1929). Bk. viii, chaps. vi, vii, viii, ix; Vol. II, of the quoted edition, pp. 338 ff. "De Mundo," chaps. iv, v, vi; *The Works of Aristotle,* translated under editorship of W. D. Ross (Oxford, 1931), Vol III.

[31] See Aristotle's *Physics,* Bk. viii; *Meteorologica,* Bk. i, chaps. xvi and iii. *The Works of Aristotle,* translated under editorship of W. D. Ross (Oxford, 1931), Vol. III, 339b, 352a. Also *De Coelo.*

quence come-to-be in a cycle, *i.e.*, return upon themselves; and since they come-to-be cyclically, so in their turn do the things whose coming-to-be the seasons initiate. . . .

Then why do some things come-to-be in this cyclical fashion (as, *e.g.*, showers and air . . .) while men and animals do not "return upon themselves" so that the same individual comes-to-be a second time? . . . In discussing this new problem, we must begin by inquiring whether all things "return upon themselves" in a uniform manner; or whether, on the contrary, though in some sequences, what recurs is *numerically* the same, in other sequences it is the same *only in species*.[32] In consequence of this distinction, it is evident that those things, whose "substance" — that which is undergoing the process — is imperishable, will be numerically, as well as specifically, the same in their recurrence. . . . Those things, whose "substance" is perishable must "return upon themselves" in the sense that what recurs, though specifically the same, is not the same numerically.[33]

Thus, Aristotle posits an eternal return of things either "numerically" (of the same individual) or in its *species*. Of all individual things, only the heavenly bodies return numerically, all others only generically. Generically, however, all the world, including the human race, is eternal, and has always existed, exists, and will continue to exist forever.

Thus all things recur forever, human affairs included. Nations and empires come and go; so do cultures, floods, famines, wars, revolutions, mores, political and social régimes; [34] even so do theories and opinions, "For the same opinions appear in cycles among men not once nor twice, but infinitely often." [35] This shows that Aristotle was sharing the dominant — among Greeks and Romans — cyclical or periodically rhythmical conception of natural and sociocultural processes.

Now did he indicate certain definite periodicities and their duration in some of the social processes? The answer seemingly has to be negative, so far as definite numerical indices of the periodical rhythms are concerned.

Aristotle shared the belief in the *annus magnus*, with the world's great

[32] Translator's note: "*i.e.* in some cycles the same individual eternally recurs· in others the same *species* or *specific form* is eternally represented in the succession of its perishing individual embodiments."

[33] "De Generatione et corruptione," 337–338. *The Works of Aristotle*, translated under the editorship of W. D. Ross (Oxford, 1930), Vol. II. Compare Aristotle's *Metaphysics*, Bk. XII, *et passim*; "De Mundo," 397b, 398a.

[34] Aristotle, *Meteorologica* (ed quoted), Bk i, chap. 14, 351a, 351b, 352a.

[35] *Ibid.*, Bk. i, chap. 3, 339b.

winter and summer; [36] but he does not indicate any specific number of years of such a great cycle.[37]

The next work where Aristotle comes close to the problem of the long-time rhythms in the field of social phenomena is his *Politics*. In Book Five of this work, which deals with the changes of political régimes and revolutions, Aristotle shows extensively that each form of government is liable to commotions, seditions, revolutions, and changes. "All governments are liable to be destroyed either from within or without." [38] Each of them is not eternal; and in these changes there is neither a definite trend leading in the course of time toward a certain form of government nor a uniform sequence of the succession of the forms of government. On the other hand, differing from Polybius, who gave to the change of Aristotelian types of government a definite and clear-cut uniform sequence (see further), Aristotle himself does not insist that in the change of the political régimes there is a certain uniform order. He shows only that a certain régime is more liable to change into a certain other; that "in general, when governments alter, they alter into the contrary species to what they before were, and not into one like the former"; [39] that different régimes on the average have different durations of existence; *e.g.*, "an oligarchy and a tyranny are of all governments of the shortest duration." [40] But here again he does not give any specific number of years for any of such recurrences.

He further criticizes Plato's outlined theory of the existence of a certain cycle of a certain duration in the life history of a society, and in the movement of the birth-rate and the quality of the babies. This criticism runs as follows:

> In Plato's *Republic*, Socrates is introduced treating upon the changes which different governments are liable to: but his discourse is faulty; for he does not particularly mention what changes the best and first governments are liable to; for he only assigns the general cause, of nothing being immutable, but that in (a certain) time everything will alter.

[36] *Ibid.*, Bk. i, chap. xiv, 352a, 352b; *Problemata*, xviii, 3.

[37] See further about the position of the early Peripatetics and the controversy between Theophrastus and Zeno (the founder of the Stoic school) in Philo Judaeus, *De Aeternitate Mundi*, chaps. 23–24, in *Philonis Alexandrini Opera*, edited by L. Cohn (Berlin, 1896–1930), vol. VI; Diodorus of Sicily, *Library of History*, translated by C. H. Oldfather (London-New York, 1933), Vol. I, pp 24–25

[38] Aristotle's *Politics*, Bk. v, 1307b, Everyman's Library, p. 160.

[39] *Ibid.*, Bk. v, 1316a, p. 181. A very interesting idea.

[40] *Ibid.*, Bk. v, 1315b, p. 180.

Here comes a place which is recognized as unintelligible by many translators and left without translation, as in the edition quoted. Other translators render it and try to give to it a somewhat different meaning. In these translations its rendering consists in quotation by Aristotle of the "unintelligible" lines of Plato's *Republic* mentioned earlier.[41]

> . . . He conceives that nature will then [at the end of the cyclical period measured by Plato's mysterious number] produce bad men, who will not submit to education, and in this, probably he is not wrong: for it is certain that there are some persons whom it is impossible by any education to make good men; but why should this change be more peculiar to what he calls the best-formed government, than to all other forms, and indeed to all other things that exist? And *in respect to his assigned time,* as the cause of alteration of all things, we find that those which did not begin to exist at the same time cease to be at the same time; so that, if anything came into beginning the day before the solstice, it must alter at the same time.[42]

Thus in this fragment Aristotle criticizes and rejects "the Platonic perfect number" and his predestined time cycle, saying: "What has time alone to do with the changes of states?" and "Why should things which do not begin together change together?" [43]

The above outlines the essentials of the metaempirical theory of rhythms and periodicities of Aristotle. Being quite clear in his adherence to the cyclical conception of all changes, including sociocultural ones, and to the periodical character of many, if not all, rhythms Aristotle, at the same time, did not indulge in specification of the duration of these periodic rhythms in terms of years or other similar units of time.

After Plato and Aristotle, the belief in the numerical or generic periodic recurrence of everything became a fairly general belief for almost all the important currents of Graeco-Roman scientific and philosophical thought. In Neo-Platonism it had what I call the metaempirical character. The final source of any periodicity was seen in the circular movement of the Soul of the World. The circular movement of the heavenly bodies was but a derivative of the rhythm of the Soul of the World. Respectively, the Neo-Platonists believed in the

[41] See the renderings of this "dark" place in *Politique d'Aristote* by J. Barthélemy-Saint-Hilaire (Paris, mdccclxxiv), p. 473. See also *The Politics of Aristotle,* translated by B. Jowett (Oxford, 1885), Vol. I, Bk. v, chap. xii, 7 ff.; Vol. II, p. 231.

[42] *Politics,* Bk. v, 1316a. Everyman's Library edition, p. 181.

[43] Interpretation by B. Jowett in his translation quoted, Vol. II, p. 231.

annus magnus, as well as in many other, and shorter, periodicities. Plotinus, Porphyry, Jamblichus, Apuleius, Julius Firmicus Maternus, Aurelius Macrobius, Plutarch, Nemesius, Proclus, John Philopon, Olympiodorus, Chalcidius, and others, all, with some variations, subscribed to these principles.[44]

Partly metaempirical, but partly cosmic (astrological) is the theory of periodic recurrences accepted by the Stoics. Some of them set it forth as a numerical recurrence of the same man, the same event, and so on (Zeno, Chrysippus, Cleanthes),[45] while other Stoics subscribed to the generical recurrence only.[46]

In brief, as the above shows, the metaempirical conception of the periodic return of things was widely diffused in the Graeco-Roman world.

Though the majority of the Church Fathers repudiated and criticized such a conception of the absolute return of things, and regarded the empirical world as finite in its existence, as having a beginning and end, after the consummation of the City of Man in the eternal City of God, nevertheless, the history of the world and man between these terminal processes was regarded by them as consist-

[44] See Plotini *Enneades*, ed. by Didot (Paris, 1855), pp 112, 346–347; Porphyrii philosophi, *Sententiae ad intelligibilia ducentes*, ed. by Didot (Paris, 1855), pp. xliv–xlviii; L. Apulei Madaurensis, *De dogmate Platonis*, Bk. i, Procli Diadochi, *In Platonis Timoeum commentaria*, ed. by E Diel (Lipsiae, 1906), Vol. III, pp. 91–94; see also the testimony of St. Augustine in his *De Civitate Dei*, Bk. x, chap. xxx, Bk. xii, chap. xx. A good analysis of the problem is given in P. Duhem's work quoted, Vol. I, pp. 251 ff.; and 284 ff

[45] See the testimony in Tatianus, *Adversos Graecos*, chap. v; English translation in the *Ante-Nicene Fathers* (Buffalo, 1887), Vol. II, pp. 67 ff.; Alexandri Aphrodisiensis, *Commentaria in Aristotelis Analitica priora*, ed by M. Wallies (Berlin, 1883), p 180. Tatianus says that "Zeno declares that after the great conflagration the same men would give themselves to the same needs; . . . that Anitus and Melitus [the accusers of Socrates] will again make accusation, Hercules will render again athletic feats," and so on.

[46] Origen says that according to the Stoics, "After the conflagration of the world which has taken place countless times in the past, and will happen countless times in the future, there has been and will be the same arrangement of all things from the beginning to the end." However, the majority of the Stoics "allege that as cycle after cycle returns, all men will be altogether unchanged from those who lived in former cycles; so that Socrates will not live again, but one altogether like to Socrates, who will marry a wife exactly like Xanthippe, and will be accused by men exactly like Anytus and Melitus." Origen, "Against Celsus," Bk. iv, chap. lxviii; *The Ante-Nicene Fathers* (Buffalo, 1887), Vol. IV, p. 527. Also Origen, *De Principiis*, Bk. ii, chap. iii, 4; *Ibid.*, p. 273. See also the characterizations of the Stoic and other theories of the cycles in Hyppolitus, "The Refutations of all Heresies," Bk. iv; *The Ante-Nicene Fathers* (Buffalo, 1888), Vol. V, pp. 25 ff.; Methodius, "The Banquet of the Ten Virgins," *The Ante-Nicene Fathers*, Vol. VI, pp. 341 ff.; Minucius Felix, "The Octavius," chap. xxxiv; *ibid.*, Vol. IV, pp. 194 ff.; St Augustine, *The City of God*, Bk. xi, chaps. xi–xiii.

ing of many recurrent processes, like calamities, epidemics, plagues, wars, rise and fall of societies, and so on. Some of them give even some of the durations of these periodically recurrent processes.[47]

Of the later Christian thinkers, Johannes Scotus Erigena (ninth century) depicted the whole existence of the empirical world as one great cycle, emanating from God in a certain sequence of phases: God; — the primary causes emanating from God; — the created empirical universe emanating from primary causes; and returning back to God in the reversed sequence of the phases — empirical world dissolving in the primary causes; primary causes in God — God becoming again all in all.[48]

In the Middle Ages the theory developed supposedly by Joachim de Flore can serve as a sample of the medieval metaempirical theories of periodicities. Essentials of his theory of the three stages were out-

[47] See Irenaeus, *Against Heresies*, Bk. v, chap. xxviii. *The Ante-Nicene Fathers* (Buffalo, 1887), Vol I, p. 557. "For in so many days as this world was made, in so many thousands of years it shall be concluded . . . For the day of the Lord is as a thousand years; and in six days created things were completed. it is evident, therefore, that they will come to an end in the sixth thousand year" On recurrence of public calamities, see Tertullian, *Ad Nationes*, chap ix, *The Ante-Nicene Fathers*, Vol. III, pp. 117 ff. Assuming the "law of change, or mutation, universal," Tertullian stresses the recurrence of many processes. "Day and night revolve in turn. The sun varies in annual stations, the moon by monthly phases . . . So, too, sea" So also catastrophes repeat themselves. "The beasts similarly subject to the law of mutation" Tertullian, "On the Pallium," *ibid.*, Vol. IV, pp. 6–12. Minucius Felix, "The Octavius," chap. xxxiv; *ibid.*, Vol. IV, p. 194 Origen remarks also that "on the occurrence of great events . . . stars (as at the birth of Christ) and comets are wont to appear, indicating either the removal of dynasties or the breaking out of wars, or the happening of such circumstances that may cause commotions upon the earth" Origen, *Against Celsus*, Bk. I, chap. lix; *ibid.*, Vol. IV, p. 422 Cyprian similarly stresses recurrence of wars, epidemics, bad harvests, and other calamities. Cyprian, "Treatise V. to Demetrianus," *ibid*, Vol. V, pp. 458 ff. Gregory Thaumaturgus and Dionysius, by their unreserved commentary on the *Ecclesiastes*, with its ever-recurrent theory of everything, manifest their inclination to accept the recurrent nature of at least several processes. See Gregory Thaumaturgus, "A Metaphrase of the Book of Ecclesiastes," *ibid.*, Vol. VI; Dionysius, "Commentary on the Beginning of Ecclesiastes," *ibid.*, Vol. VI Arnobius says that "at stated intervals, changes take place in the universe and, as in the tides of the sea, prosperity at one time flows, at another time ebbs, evils alternating with it." So war and peace, calamities and happier times, order and disorder alternate at some stated periods. Arnobius, "The Seven Books Against the Heathen," *ibid.*, Vol. VI, pp 413 ff. Similarly Lactantius, "The Divine Institutes," *ibid.*, Vol. VII, pp. 253 ff. So also St. Augustine, *The City of God* (translated by John Healy), Bk. ii, chaps. ii, iii; Bk. iv, chaps. i, ii; Bk. xi, chaps. x–xiii.

Practically they all rejected the theory of identical and eternal repetition of the world and everything in it, but admitted and stressed the nonidentical recurrent nature of many processes, some of them periodical, between the beginning and the end of this world.

[48] See Joannis Scoti Erigenæ, *De divisione naturæ*, Migne's *Patrologiæ latinæ*, Vol. CXXII.

lined above in Chaptér Eight. The ultimate source of his periodicities is the Scripture, "les signes décrits dans Evangile," "Dieu immuable dans sa volonté." [49] His general position is that important social processes, and catastrophes, like the Biblical Deluge or the Condemnation and Destruction of Sodom, recur, and are about to come in his time (twelfth century, A.D.); and that there is a concordance — "a similitude of equal proportions" — between the events of the Old and the New Testament.[50]

I say equal proportions but only in what concerns the number, not the dignity. Thus that two parts, a person and person, an order and order, a war and war, respond in similar replicas (in the two Testaments). For example, Abraham corresponds to Zachariah, Sara to Elizabeth, Isaak to John Baptist; Jesus considered in his humanity to Jacob; twelve Patriarchs to Twelve Apostles. . . . The concordance exists, to take an example, between Abraham and Zachariah, because each of these two persons, being already old and having a wife hitherto sterile, conceived one son.[51]

Thus viewed in the mode of this concordance, the respective persons of the two Testaments appear to be similar; and the city corresponds to the city, people to people, order to order, war to war.[52]

In a word, both Testaments show a concordance in all their persons and events, and

. . . when thou will discover what signifies the Old Testament, thou do not need to look for what signifies the New Testament because no doubt can rise in this matter. Their two senses have the same meaning and the two Testaments have the same spiritual explanation.[53]

Following this principle Joachim de Flore unfolds an enormous number of concordances between the two Testaments, and shows that the history of the New Testament is but a repetition of the history of the Old Testament, and that the persons and events of the Old recur in the New Testament.

He does not stop at this demonstration of the concordances. He goes farther, and raises the problem of the quantitative periodicities, in the duration of the concordant events and processes. Answering it, he formulates a large number of the periodical processes that recur in both periods with the same duration. His unit of duration is a generation, the period of from twenty-seven to thirty years. Analyzing

[49] Joachim de Flore, *L'évangile éternel*, translated by E. Aegerter (Paris, 1928), Vol. II, pp. 28, 47.

[50] *Ibid.*, pp. 33–41.

[51] *Ibid.*, pp. 41–43.

[52] *Ibid.*, p. 43.

[53] *Ibid.*, p. 45.

(symbolically) from this standpoint the events of the two periods (of the two Testaments), he finds that both consist first of seven main periods (seven "seals" as he says, following the terminology of the Apocalypse). In the Old Testament period, "the time placed under the first seal goes from Jacob to Moses and Joshua; and the time of the second seal from Moses and Joshua to Samuel and David." And so on, the seventh seal period being the time from Esther to Zachary, the father of John the Baptist.

In the New Testament, "the time of the first seal is from Zachary to the death of St. John, the Evangelist; the time of the second seal goes from that to Constantine"; of the third, to Justinian; of the fourth, to Charlemagne; of the fifth, to the time of Joachim de Flore; then, concordantly, the sixth and the seventh seals periods of the New Testament will follow, each seal period of one being a recurrent replica of the other.[54]

Not only the number and the character of the periods are repeated in both epochs, but the number of generations in each "seal period" is the same in both; and in each generation, the representative persons and events are again concordant. For instance, in the Old Testament, from Jacob to Solomon was a period of thirteen generations. Likewise, in the New Testament period, there were thirteen generations from the birth of Jesus to that of Pope Liberius and Emperor Constance, son of Constantin. Both these generation periods are marked by similar events: in the Old Testament, in the thirteenth generation "God granted peace to the king of Israel," etc. Likewise, in the New Testament period of the thirteenth generation, Julian the Apostate died, peace was established, persecution of Christians ceased everywhere. Similar also — in both Testament periods — were the twelfth and other generation periods.[55] As mentioned, his generation period is between 27 and 30 years.

The above gives an idea of the theory of periodicities of Joachim de Flore — possibly the most detailed theory in this field brought forth during the early Middle Ages. We see that the source of the periodicities here is transcendental and mystical; that the periodicities themselves are of various types, but mainly of "the seal" and the

[54] *Ibid.*, pp. 98 ff.; see also pp. 47 ff Throughout his work the author draws a detailed picture of why and how each period in one is similar to the corresponding period in the other — similar in persons, events, processes.

[55] *Ibid.*, pp. 53 ff. Joachim de Flore gives detailed and exact chronological data for each generation in both epochs and also depicts in some detail the similarities of each corresponding generation periods.

generation periodicities, the latter being about 27 to 30 years. We shall see further that these generation and 27 to 30-year periodicities were pointed out, in different settings, by many before and after Joachim de Flore.

Metaempirical also, in a sense, are the theories of periodicities of many other medieval thinkers and scholastics, like Albertus Magnus, St. Thomas Aquinas, Nicolaus Cusanus, and others. Ascribing an important role to the heavenly bodies they also see the ultimate source of the periodical rhythms in God.

An example of such theories is given by Nicolaus Cusanus's theory of the existence of a 1700-year periodicity in human history. According to his calculations, there were thirty-four jubilees, or 1700 years between Adam and the Deluge; a similar span of time of 1700 years elapsed between the Deluge and Moses; between Moses and Christ; finally, 1700 years will elapse between either birth or death of Christ and the end of the world. In this way, Nicolaus expected the end of the world at the beginning of the eighteenth century.

The theory is based upon the metaphysical assumptions taken mainly from J. S. Erigena and St. Augustine. The theory is at the same time a sample of the four-phase periodical rhythm in the whole history of the world.[56]

Sir Isaac Newton, who was mystic to a considerable degree, in spite of being the greatest scientist, alludes to a metaphysical periodicity of 360 years in his interpretation of the Prophecies of Daniel.[57]

This type of theory of periodicity continued to be set forth, though not so frequently as before, during the post-medieval centuries and in recent times. The most famous among the recent theories of "the eternal return" is that of Friedrich Nietzsche.[58] But even such theories of eternal cycles, with two phases of integration and disintegration in each cycle, as that of Herbert Spencer; [59] or the theory of S. Ar-

[56] Nicolaus Cusanus, *De novissimis diebus*. See J Uebinger, "Die philosophische Schriften des Nikolaus Cusanus," in the *Zeitschrift fur Philosophie*, Vol. 103; also his *Philosophie des Nicolaus Cusanus* (Würzburg, 1880); Henri Bett, *Nicolas of Cusa* (London, 1932), pp. 91 ff.

[57] After the acquisition of secular power, by the Roman Catholic See, its temporal power will last, according to Newton, "three times and an half; this is, for 1260 solar years, reckoning a time for a calendar year of 360 days, and a day for a solar year." Sir Isaac Newton, *Observations upon the Prophecies of Daniel and the Apocalypse of St. John* (London, 1733), pp. 113–114.

[58] See O. Ewald, *Nietzsche's Lehre in ihren Grundbegriffen, die ewige Wiederkunft des Gleichen und der Sinn des Uebermenschen* (Berlin, 1903).

[59] See H. Spencer, *First Principles* (New York, 1886), Part II, chaps. 10–12, 22–23.

rhenius about the eternal recurrence of planetary systems, or that of M. Rankine on reconcentration of energy, are but modified varieties of the earlier metaphysical theories of the eternal cycles of the universe. Only, as C. Renouvier rightly remarks, their theories are less consistent and less logical than the ancient Stoic and other theories of eternal returns.[60]

For our purposes they may be passed by, without specific outline of these conjectures. The above examples give a sufficiently representative idea of the metaempirical type of periodicity theory.

Critical Remarks. As to their validity, a few words are sufficient to dismiss them. The long-time periodicities they claim are so long that there is no means of checking their validity or invalidity, just as there are no means of checking various figures given by contemporary astrophysicists. As a matter of belief, they are curious, often ingenious, but that is all that one can say for them. For the purposes of a study of the periodical sociocultural rhythms, they are rather fruitless. The whole of human history that is known comprises only a small fraction of the durations of these cycles, and as such it can be neither analyzed nor even touched by them.

Shorter periodicities claimed by various metaempirical theories are too little developed and specified; therefore, they do not give us any serious and tested knowledge of what these periodical rhythms are, in which sociocultural processes they are given, and in what empirical forms they manifest themselves, and for what — logical or empirical — reasons.

As ingenious creations of speculative thought, many such theories deserve admiration; as scientific theories of the periodical sociocultural rhythms, they can be dismissed.

III. Cosmic Theories of Periodical Sociocultural Rhythms

Since the remotest past, various cosmic theories have been most popular among others in the field. The main stream of cosmic theories looks for the source of the periodicity of sociocultural phenomena in the periodicity of the revolutions and motion and constellations of the heavenly bodies — the stars, the sun, the planets, the moon, and

[60] See S. Arrhenius, *L'évolution des mondes* (Paris, 1910); M Rankine, "On the Reconcentration of the Mechanical Energy of the Universe," *Philosophical Magazine*, Vol. IV, No. 4, 1852, pp. 358 ff.; C. Renouvier, *Esquisse d'une classification systèmatique des doctrines philosophiques* (Paris, 1885), pp. 129 ff; G. Batault, "L'hypothèse de l'éternel retour," *Revue philosophique*, Vol. LVII, pp. 158 ff.

the like — and in the effects they exert, directly and indirectly, upon human affairs. For this reason, the main bulk of these theories has been astronomical, astrological, and meteorological, presented in a great variety. Subsequent survey of the respective theories will give an adequate idea of the character as well as of the variety of such theories.

One of the oldest varieties of the cosmic theories of periodicity was developed in ancient Babylonia and is an offshoot of the Babylonian development of astronomy and astrology. It is known to us through Berosos, the Babylonian priest of Bel (b. circa 350 B.C.) who settled in the Greek island state of Cos and became famous among the Greeks and later on among the Romans.[61] The source of periodicities in these theories is seen in the revolution of the heavenly bodies. When all the stars reassume the same position which they had before, the great cycle, the *annus magnus* or "the world's year," repeats itself, with the repetition of all the consequences of such a position. Each of these "world's years" consists of two main phases, the summer and the winter. The summer comes when all the planets are in the same point of Cancer and ends with a universal conflagration; then, when the planets are reunited in Capricornus, the winter arrives and ends in a universal flood. And so one great cycle follows the others endlessly, repeating its predecessor in all its details. The length of each such *annus magnus* is 432,000 years (though according to other sources, it is 480,000; 490,000; 473,000; and 720,000 years).[62] Besides such a long periodicity, the Babylonian sources mention several shorter periodicities, due again to the revolution and repeated constellation of the heavenly bodies: the periodic rhythms of 2484 (or 2434) years, 600 years, 59, 54, 19, and 8 years.[63]

Since these theories assumed that the course of human affairs is very strongly conditioned by the stars and their constellations, it follows that each of these cycles marks also a cycle in the processes of social life and human destiny.[64]

[61] See an outline of his theories with the comments of the Graeco-Roman thinkers in *Dynamics*, Vol II, p 360 ff See there also the sources and the literature.

[62] See other figures for Berosos' great year in *Dynamics*, Vol. II, p. 362.

[63] See further, P. Tannery, *Mémoires scientifique* (Paris, 1912), Vol. II, pp. 344–366; P. Schnabel, *Berossos* (Leipzig-Berlin, 1923), pp 94–5, 107, 117–118, 175–176, 183, 266; F. Cumont, *Astrology and Religion among the Greeks and Romans* (New York, 1912), p. 44.

[64] In the cuneiform tablets of the library of the King Asshurbanipal (668–626 B.C.) there are many such correlations Here is an example: "When on 14 Sivan (May/June) an eclipse of the Moon takes place and the east wind blows, there will be an enmity and

Of other periodical rhythms of a definite duration, particular attention was given in the Babylonian, as well as in many other astrological conceptions, to those measured by the numbers seven, nine, twelve, thirty, fifty, and three hundred and sixty (days, months, years, hundred years).

In the old Babylonian epic of creation there are seven winds, seven spirits of storms, seven evil diseases, seven divisions of the underworld, closed by seven doors, seven zones of the upper world and sky.[65]

"The ancients saw a sort of mystery in the number seven: seven planets in the heaven; seven tones in music; seven days in a week; seven climacteric and fatal years;[66] seven jubilant years"[67] (and seven stars in the Great and Small Bears). To twelve was ascribed the same mystical and important significance, probably because "it was the number of the animal signs of the Zodiac and that of the years which are necessary for Jupiter to go around the animal circle of the Zodiac." Thirty, because it was "the number of days in a month and the number of years of Saturn's revolution." "The product of twelve and thirty because of the number of days in a year, and also the number of degrees in the Zodiac."[68]

Periodicities of these durations have been running in many other ancient conceptions[69] and, since that time throughout the subse-

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many dead persons. . . . When the new Moon bears a white crown, the king will extend its power over other countries." F Boll, *Sternglaube und Sterndeutung* (Leipzig, 1926), pp. 2 ff

[65] L. Thorndike, *History of Magic and Experimental Science* (New York, 1929), Vol. I, p. 16.

[66] For instance, the Biblical seven fat and seven lean years.

[67] L'abbé N. B. Halma, *Hypothèses et époques des planetes de C. Ptolemée, et hypotyphoses de Proclus Diadochus* (Paris, 1820), p 13.

[68] F. Boll, *op. cit.*, pp. 94–95

[69] The number seven plays a very important role in the conceptions of many preliterary peoples, as well as in the Old Testament, in Hesiod, in the Odyssey, in Mohammedan thought, and so on. In the Bible the seventh year is the Year of Release (of the servants bought; of the debts by the creditors; of the servers; etc.), *Exod*, xxi, 2; xxiii, 10 ff.; *Deut.*, xv, 1 ff. Every seventh year the land is to be allowed to lie fallow, *Levit.*, xxv, 3 ff. The Great Sabbath or Jubilee comes also at the end of seven times seven years, *i.e.*, every fiftieth year. Levit., xxv, 8, when "ye shall . . . proclaim liberty throughout all the land unto all the inhabitants thereof; it shall be a jubilee unto you; and ye shall return every man unto his family; ye shall not sow, neither reap that which groweth of itself in it; nor gather the grapes in it of thy vine undressed."

In the Apocalypse, there are seven angels, seven seals, seven plagues, seven vials, seven trumpets, and so on (*Revelation*, chaps. 6, 8, 15). In the Moslem thought there are seven processional rounds about the Kaba in Mecca. In the vision of Mohammed

quent history of mankind up to the present day when, as we shall see, cycles of the duration of seven, twelve, and thirty years are the most common ones in many contemporary theories of business-political-cultural and other cycles claimed by modern scholars.

Subsequently, with or without the influence of the Babylonian and other Oriental theories, the astrological and astronomical theories of various periodicities, long and short, have been again and again set forth, in Greece, in Rome, in the Middle Ages, even to the present time. On the basis of such theories, the thinkers of the past did not hesitate to make forecasts of the future course of human phenomena, and such forecasting has been practiced down to the present time.

Before giving a survey of such theories, it is appropriate at this place to outline substantially the reasons, the bases, and the methods of the astronomical and astrological theories of periodicities, and of the forecasting of future phenomena as they appeared to the ancient thinkers.

As the astrological theories have persisted for a very long time, and have been shared by hundreds of prominent thinkers, such a persistence and popularity must have had some serious reasons; otherwise it would be incomprehensible how such a thing could be possible. If we take one of the old and serious treatises in astrology belonging to a great astronomer, geographer, and mathematician of his time, Claudius Ptolemy (second century, A.D.), it will serve the purpose and give the scientific — or what appeared to be such to them — bases

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he saw the angel of death, huge as a distance of 70,000 marching days; seven heavens; the angel had 70,000 mouths; each mouth 70,000 tongues; each tongue spoke 70,000 different idioms, and so on Even in the Justinian *Digest* of the *Corpus Juris Civilis*, we find fifty books and their division by seven.

These are but a few examples out of a great many. See F. von Adrian, "Die Siebenzahl im Geistesleben der Volker," *Mitteilungen d. anthropol. Gesellschaft in Wien*, 1901, Vol. XXI, pp 225–74; Sir J G Frazer, *Folklore in the Old Testament* (London, 1918), Vol. I, p 140; H. Webster, *Rest Days* (New York, 1916), pp 211–12; L. Thorndike, *op. cit.*, Vol. I, pp. 16–17; E. Dermenghen, *The Life of Mahomet* (London, 1930), pp. 132–133, 149; D. B. Macdonald, *Muslim Theology, Jurisprudence and Constitutional Theory* (London, 1903). Other sources and an analysis of the meaning of that will be given further. In passing, it is amusing to note that several of the recent writers claim the originality of discovery of the significance of the number seven and others, in spite of the fact that such discoveries were made several hundreds and even thousands of years ago. For instance, Jos. Rodes Buchanan says: "All vital operations proceed in a varying course measured by number seven" and that this law "discovered by myself has not been suspected by any author" *Periodicity* (London, 1912), pp 7, 14. Another example of a similar claim is given in R. Mewes, *Kriegs und Geistesperioden im Völkerleben* (Leipzig, 1912). Such "discoveries of America" after it was discovered long ago, are fairly common in the modern literature of the social sciences.

of the astrological theories of various periodic rhythms and forecastings.

Viewed scientifically, these theories attempted to establish the existence of a series of causal, or functional, or associational relationships between the cosmic world — the sun, the moon, the stars, planets, comets, and other components of the cosmic environment, including climate, winds, moisture, temperature, sunshine, darkness — and the events that happen in the human world, whether to a given society, institution, or individual man. In contemporary terminology, this aspect of the astrological theories has been but a variety of the so-called "geographical interpretations of social phenomena." This is illustrated by the following quotation from Ptolemy's *Tetrabiblos* or *Quadripartite*.

> That a certain power, derived from the aetherial nature, is diffused over and pervades the whole atmosphere of the earth, is clearly evident to all men. . . . The Sun, always acting in connection with the Ambient, contributes to the regulation of all earthly things: not only by the revolution of the seasons does he bring to perfection the embryo of animals, the buds of plants, the spring of waters, and the alteration of bodies, but by his daily progress also he operates other changes in light, heat, moisture, dryness and cold; dependent upon his situation with regard to the zenith. The Moon, being of all the heavenly bodies the nearest to the Earth, also dispenses much influence. . . . By the changes of her illumination, rivers swell and are reduced; the tides of the sea are ruled by her risings and settings; and plants and animals are expanded or collapsed, if not entirely, at least partially, as she waxes or wanes. . . . The stars likewise . . . cause heats, winds, and storms, to the influence of which earthly things are conformably subjected. And, further, the mutual configurations of all these heavenly bodies, by commingling the influence with which each is separately invested, produce a multiplicity of changes. . . .
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> From these premises it follows not only that all bodies, which may be already compounded, are subjected to the motion of the stars, but also that the impregnation and growth of the seeds from which all bodies proceed, are framed and moulded by the quality existing in the Ambient at the time of such impregnation and growth.[70]

Such are the basic assumptions of the astrological theories in their assertion of the existence of a quite tangible relationship between the heavenly environment and the social environment, between certain

[70] Ptolemy's *Tetrabiblos* or *Quadripartite*, translated by J. M. Ashmand (London, 1822); reprinted in 1896; pp. 2–5. Compare Censorinus, *De Die Natali*, viii; Marcus Manilius, *Astronomicon*, lib. I, 55 ff., lib. II, 85 ff. On these see below.

constellations of the stars, especially the sun, the moon, and the planets, and certain happenings in the history of mankind, or a given society or individual. · Observing and studying — rightly or wrongly, this does not concern us at the present moment — certain qualities of the above important heavenly bodies, and the particular effects produced by certain constellations of planets and stars on earthly phenomena, including man, the astrologers have attempted to forecast these effects in regard to human and social phenomena generally, and man particularly. Again, in regard to the accuracy of the forecasting, the great theorizers of astrology did not pretend to be always right. They admitted explicitly that the destiny of man or society depends not only upon the cosmic factors, but upon many others, such as heredity, education, social environment, etc. All this makes the situation very complex, and the chances of making a false forecasting, basing it only on the "cosmic constellation," very considerable. Let Ptolemy speak for himself and astrology on this point (note, by the way, how careful is his methodological discussion; it sounds quite modern to the ears of the twentieth century).

Prognostication made by persons [ignorant] must be frequently fallacious, owing to their deficiency in science and their consequent inability to give necessary consideration to the time and place, or to the revolution of the planets; all which circumstances, when exactly defined and understood, certainly tend towards accurate foreknowledge. . . .

When, therefore, a thorough knowledge of the motions of the stars, and of the Sun and Moon, shall have been acquired, and when the situation of the place, the time, and all the configurations . . . shall also be duly known; and such knowledge be yet further improved by an acquaintance with the natures of the heavenly bodies . . . and the effective influences they possess, [it is possible to make predictions not only] concerning the proper quality of the seasons, [but] there also seems no impediment to the formation of similar prognostication concerning the destiny and disposition of every human being.

But even when all the knowledge requisite for such a prediction is given, he admits that the predictions "must still be liable to frequent error, arising out of the very nature of his [such a competent man's] undertaking, and from weakness of his limited capacity in comparison with the magnitude of his object." First of all, for the following reason:

Although the former configurations of the planets have been observed to produce certain consequences, and are, after long periods, and in a greater

or less degree, resembled by subsequent configurations, yet, these subsequent configurations never become exactly similar to those which have preceded them. For an entire return of all the heavenly bodies to the exact situation in which they have once stood with regard to the earth will never take place, or at least not in any period determinable by human calculation, whatever vain attempts may be made to acquire such unattainable knowledge.

(Here, Ptolemy disagrees with all who believed in an identical recurrence of the stars' constellation.)

For this reason "predictions are sometimes not borne out by the events." In the second place, he states, the errors must follow also from the fact that man's destiny is dependent not only upon the heavenly bodies but upon many

other concomitant causes which are neither trifling nor unimportant, but essentially potent in affecting the individual properties of the creatures born. Thus the variety in *seed* [factor of heredity] has the chief influence in supplying the peculiar quality of each species. . . . It is also to be remembered that considerable variations are caused in all creatures by the *respective places where they may be brought forth*. . . . And in addition to this, it must be considered that different *modes of nurture, and the variety of ranks, manners, and customs*, contribute to render the course of life of one individual greatly different from that of another; consequently, unless every one of these varieties be duly blended with the causes arising in the Ambient, the pre-judgment of any event will doubtless be very incomplete. . . .

Under these circumstances, it would seem judicious neither to deny altogether the practicability of prescience [astrology], because prognostications thus imperfectly derived are sometimes liable to be fallacious; nor, on the other hand, to admit that all events, whatever, are open to previous enquiry. . . . And, since no weakness is imputed to a physician, because he enquires into the individual habit of his patient, as well as into the nature of the disease, no imputation can justly attach to the professor of prognostication, because he combines the consideration of species, nurture, education and country, with that of the motion of the heavens.[71]

It follows that the science of astrology, in its forecasting, according to Ptolemy, is based on the principle of probability,[72] and, as such, does not imply either fatalism or freedom.

[71] *Ibid.*, pp. 5–11.

[72] See about that in writings of a modern theorizer of "scientific" astrology. P. Choisnard, *L'influence astrale et les probabilités* (Paris, 1924); *Les précurseurs de l'astrologie scientifique et la tradition* (Paris, 1929). The authors, like Choisnard, claim that "astrology is a science of the real — direct and indirect — correspondencies which may exist between the stars and ourselves and our surrounding." It is based entirely on probabilities and frequencies of the observed correlations. *Les précurseurs*, pp. 5–7.

It must not be imagined that all things happen to mankind as though every individual circumstance were ordained by divine decree and some indissoluble supernal cause; nor is it to be thought that all events are shown to proceed from one single inevitable fate, without being influenced by the interposition of any other agency. [When there is no opposing force, a certain course takes place. When such forces — including among them human effort and knowledge — are present, then the course may be changed.] If antidotes be found and applied against their [stars'] influence, then the course may be changed.[73]

Such are the general methodological principles of astrology, as a science, and the accuracy or inaccuracy of its forecasting. Having given them, Ptolemy, like many other theorizers of astrology, proceeds to describe the fundamental correlations or causal relationships existing between the stars and the following categories of human phenomena on which they exert a tangible influence:

1. Racial traits; [74] 2. Psychical and mental properties of the nations; [75] 3. Fertility; [76] 4. Longevity; 5. Sex of a baby; 6. Babies born monstrous and defective; 7. Twins; 8. Poor rearing of children; 9. The form and the temperature of the bodies; 10. The hurts and diseases of the body; 11. The quality of mind; 12. Diseases of mind; 13. Number of children; 14. Marriage; [77] and many other phenomena like war, upheavals, revolutions, etc.

[73] *Ibid.*, pp. 14–15. Compare Manilius' fatalistic conclusions, *Astronomicon*, lib. iv, *et seq. Fata regunt orbem, certa stant omnia lege, Cunctaque per certos signantur tempora casus. Nascentes morimur, finisque ab origine pendet. Solvite, mortales, animos, curasque levate, Totque supervacuis vitam deplete querelis.*

[74] The races inhabiting the regions "between the equinoctial line and the summer tropics" are "black in complexion, and have thick and curled hair, ugly in person," etc., while the inhabitants of the northern parallels in "their constitutions abound in cold, are fair in complexion, with straight hair, full stature," etc. *Ibid*, pp. 63–65.

[75] For instance: "Concilated with Mars, and posited in Glory, Saturn renders men [conceived and born under such a constellation] reckless, over-diligent, free in speech, turbulent, boastful, austere in their dealings, pitiless, contemptuous, fierce, warlike, bold, fond of tumults, insidious, deceitful, and implacable; promoters of factions, tyrannical, rapacious." While a certain, specified constellation of Mercury and Venus "will render the mind [of the persons conceived and born under it] ingenious and sagacious, but not capable of great recollection, nor very industrious; yet inquisitive into occult matters, studious of mechanics," etc. *Ibid.*, pp. 166–169.

[76] Example, "The Moon, Jupiter and Venus are esteemed as givers of offspring; but the Sun, Mars, and Saturn are considered as denying children." Under a certain constellation, the former "will grant double offspring," even twins. *Ibid.*, pp. 199 ff.

[77] The Moon's certain position "will cause men either to marry early in life, or, after having overpassed their prime, to marry young women," while a certain other position of the Moon, "entirely denies marriage." A certain constellation of Venus, Mars, and Saturn favors adultery, sorcery, or some similar offense. *Ibid*, pp. 190–193. Compare Manilius' similar correlations, *Astronomicon, passim.*

I have outlined the Ptolemy system of astrological theories because of its being typical of many astrological opinions running throughout the intellectual history of mankind, and because it shows the basis used by these theories for their interpretation of the social phenomena, for their forecasting, and for their theory of the periodic cycles in the history of the world as well as in the human history of societies and individuals. Its essential point is the assertion of the existence of a close relationship between the stars or cosmic environment, and the events of the human universe, in which the cosmic factor is regarded as the cause (or the variable) and the human events as the effect or the function of this (and other) variable. The second contention is that the relationship is observable, and, being so, permits one to forecast future events with a considerable degree of probability, each time a given constellation is repeated by a similar one.

This being grasped, it is easy now to comprehend why these theories have formulated several hypotheses concerning various rhythms and periodicities in the life history of the world, the earth, and mankind. The point is that the heavenly bodies (the astrological "variable") have certain periodicities in their revolutions or movements, and the constellations of these bodies are also periodical in their returns to positions either identical with, or similar to, what they had in the past.[78]

Since such periodicities are given in the life of the heavenly bodies, and their constellations; and since these bodies are one of the most important factors of the events on the earth and in human life-history, the logical conclusion is that *corresponding periodical rhythms must also exist in human history and social processes.* The premises accepted, the conclusion follows logically.[79] This explains why the astrological theories have paid such attention to the periodic rhythms; why they have formulated several long-time and short-time — periodic and nonperiodic — cycles; and finally, why a survey of the history of the theories cannot afford to ignore the astrological theories: being the earliest offerings in the field, they formulated a long time ago

[78] As we shall see, the numerous partisans of astrology from the remotest past to the present time have been divided into two principal schools on this point. Some claimed that after a long period all the heavenly bodies return exactly to the position which they had, and consequently the history of the world is repeated again; others, like Ptolemy, in his quoted passage, did not admit the identical return but only a somewhat similar repetition of the constellations of the past.

[79] It goes without saying that an incessant revolution of the heavenly bodies calls forth an incessant change of mundane phenomena, according to the astrological theories.

practically all the varieties of the length of the periodic rhythms which are spoken of at the present moment by the investigators of the business-political-literary-religious and other rhythms or cycles in social processes.

This introduction to the astronomo-astrological theories made, we can now turn to a semihistorical survey of such theories.

Whether with or — what is less probable — without the influence of the Babylonian, Egyptian and other Oriental countries' knowledge and experience, many of the Greek and Roman writers, and the bulk of the people, believed in and formulated several theories of various periodicities. In the first place, many of the Greek thinkers shared the theory of the long-time rhythm and of *annus magnus*, with or without the catastrophic element involved in the corresponding Babylonian theory. The Pythagoreans, Alcmeon of Crotona, Philolaos, Anaximander (611–547 B.C.), Anaximenes, Heraclitus, Aristarchus of Samos, Empedocles, Diogenes of Babylon, Architas of Tarente, Plato, and many others subscribed to a variety of this theory in its metaempirical or cosmic interpretation. *Democritus* (460?–362? B.C.) claimed existence of an *annus magnus* of eighty-two years, with twenty-eight intercalary months.[80] He also said that "a change of fortune is common for all things."[81] Heraclitus (fl. 500 B.C.), with his fundamental philosophy of an incessant change (ceaseless becoming) and eternal flow of everything; with his principle that "man cannot twice enter the same stream, neither can he touch twice the same substance with the same properties," at the same time seems to have admitted a kind of periodicity in the process of this eternal becoming in the form of a long-time "world's year" equal to 10,800 years (according to Censorinus) or 18,000 years (according to pseudo Plutarch), in a general statement that "the Sun, as a caretaker of the years' flow, brings forward the changes and the hours which bring everything," by giving an important significance to the number seven: "according to the law of times, the number seven is registered by the Moon, but especially conspicuously it appears in the Bears, both of which are imperishable reminders of it."[82] He indicated also a kind of periodicity in the world's life and in human life.

[80] Demockritos, Fragmente; in H. Diels, *Die Fragmente der Vorsokratiker* (Berlin, 1912), Vol. II, p. 62.

[81] *Ibid.*, p. 121.

[82] Herakleitos, Fragmente, Nos. 30, 52, 91, 92, 100, 126, in H. Diels, *op. cit.*, Vol. II, pp. 84–102.

A mystical significance given to numbers generally,[82] and to such numbers as ten (frag. 11), seven (frag. 20), five and four (frag. 12-13), particularly alludes also to some periodicities in various processes in the teaching of Philolaos.

Aristarchus of Samos, the predecessor of Copernicus, considered 2484 (or 2434) years as the duration of the *annus magnus*.[84] In the form of various theories of the climacteric periods in the life of man or his group, and of various periodicities in the history of the world or of man; in the form of a belief in the particular importance of a certain number; in an explicit statement of the existence of certain periodic rhythms in various fields of social phenomena, and in several other forms, the various theories in the field discussed were quite common among the Greek and Roman writers.

The following excerpts from the work of Censorinus [85] give an idea of various periodicities claimed by various thinkers without a sharp distinction as to whether the theory of the authors mentioned is meta-empirical, cosmic, or biological.

A. *Climacteric periods in man's life.*

During the Gestatory Stage. Hippon Metapontinus thought that the birth can take place from the seventh to the tenth month after conception; according to him, indeed, in the seventh month the foetus is already ripe; because the septennial number has generally a great influence. . . . Thus we are formed at the end of the seventh month; seven more months and we begin to stand on our feet; in the seventh month also our teeth begin to come out; the same teeth begin to fall out at the age of seven years; and at the age of fourteen years we are entering the age of puberty. . . . This maturity, which begins at the end of the seventh month, is continued up to

[82] Here is quite a modern eulogy of the quantitative science by Philolaos. "The nature of number is imbued with knowledge, and is guiding and teaching everybody in everything which is doubtful and unknown. For nothing in everything would have been clear, nor would be comprehensible in the relationship of one thing to another if there were no numbers and their nature. You can see the effectiveness of numbers and their power . . . everywhere, in all human actions and words, in all technical performances and no less in music. Nothing from falsehood is in the nature of numbers. Because a falsehood does not belong to it . . . while the truth is born in the family-house of numbers." Philolaos, "Fragmente," 11 to 20, H. Diels, *op. cit.*, Vol. II, pp. 314 ff.

[84] P. Tannery, *op. cit.*, Vol. II, pp. 345–46.

[85] Censorinus was a grammarian and philosopher of the third century A.D. Of his works survived his *De die natali*, a very curious and informed book, possibly more informative in the field studied than any other book of antiquity. Quotations are taken from the edition of his original text (followed by a French translation by J. Mangeart) entitled: *Livre de Censorinus sur le jour natal* (Paris, 1843), published in the *Seconde série de la bibliothèque latin-française*, publiée par C. L. F. Panckoucke.

the tenth month, because in all matters to the seven months or seven years of formation, it is necessary to add three additional ones for development. Thus our teeth, which begin to push in the seventh month, do show themselves only in the tenth month. . . . This opinion has its adversaries, as well as its partisans. That woman can give a birth in the seventh month (after the conception) is recognized by the majority of the authors like Theano Pythagorica, Aristotle, Diocles, Evenor, Straton, Empedocles, Epigenes and many others. . . . As to the birth in the ninth or tenth month, it is admitted by the majority of the Chaldeans, by Aristotle, Epigenes of Byzantium and Hippocrates of Cos.[86] (According to the Chaldeans, who on the basis of their astrological calculations think that man can be born only either in the seventh, or ninth or tenth month, in the seventh month they are born under the influence of one specific aspect of the stars; in the ninth, under another; and in the tenth, under the influence of the third aspect.)[87]

Pythagoras admits two sorts of gestation, one of seven and another of ten months, with a different number of days necessary for conformation. . . . These days in their correlation present the same relationship which in music is called harmonious.[88]

In the seven-months' gestation period of these days, particular importance have the days numbered 6, 8, 9, 12; their sum, 35, which composes a definite period; this period, repeated six times, gives 210 days for the whole period of gestation up to the moment of the birth. In the ten-months' period of gestation, particular importance has the number seven, and consequently the periodicity expressed by this number.

This septennial number marks all the important periods of human life; Solon wrote about it; the Hebrews follow it in all calculations of their days; it is also indicated in the ritual of the ancient Etruscans. Hippocrates him-

[86] Censorinus, *De die natali*, vii.

[87] *Ibid.*, viii

[88] *Ibid.*, ix. As is known, for the Pythagoreans "the numbers are *the principles* (or causes) of the things." Applying to the order of nature and its regularity their minds nourished by mathematical ideas, they assumed that the system of numbers was identical with the system of nature and of real relationships existing between various phenomena; this led them to a further assumption that by studying the forms and relationships of the numbers, they could grasp the forms and relationships of the objects of the reality. Hence a particular importance given by them to certain numbers, their division into harmonious and nonharmonious and other Pythagorean mysteries of numbers. In this respect they were, however, not so far from a modern statistician who, after having obtained a high coefficient of correlation from his figures, concludes from this relationship of the figures the existence of real causal relationships between the real objects studied; or by keeping "constant" his other numerical variables on paper, thinks he keeps "constant" all the other conditions in reality! What is this but a slightly remodeled Pythagorean mysticism of numbers and identification of numbers with real things!

See on this Aristotle, *Metaphysics*, Bk. i, chaps. 3, 5, 6; Bk. xii, chaps. 6, 8.

self, as well as other physicians, do not seek any other opinion in the maladies of the body; because they style as critical every seventh day and they observe it attentively. (In this ten-months' gestation period, a larger period corresponding to that of thirty-five days in the seven-months' gestation will be the period of forty days which represents seven multiplied by six, minus two, during which the seed changes into the blood and the conformation of the foetus takes place.)

This is the reason why the number 40 is remarkable among the Greeks. Woman after a child-birth does not appear publicly before 40 days elapse after the deliverance; during that period most of them continue to suffer from the consequence of their pregnancy and the new-born babies are sick. . . . These 40 days multiplied by the primary number seven give the total of 280 or forty weeks. But as the baby is born the first day of the fortieth week, it is necessary to subtract six days from 280 and then we shall have 274, the number which marvelously coincides with that aspect which in the Chaldean system is styled τετράγωνον [where the Sun is in "the point of conception"]. . . . But how could the human mind notice these days of the successive metamorphoses and penetrate these mysteries of nature? No wonder, if one considers that these discoveries are due to most numerous observations of the physicians.[89]

B. *In man's life after his birth.* Side by side with the climacteric or critical or certain other periods in the life of the foetus, outlined above, the ancient authors assumed the existence of several periods in man's and society's life history. Censorinus gives again one of the fullest accounts of the most important theories in the field among the ancient authors. The most important passages from his work follow:

Now, having talked of what passes before the birth, I am going to say how they have graded the diverse ages of man in order that it may be known what is meant by the climacteric years. Varro thinks that man's life divides itself into five equal periods of *fifteen* years each, except the last one. The first, which ends at the age of fifteen years, embraces the children — *pueri*, because they are pure, that is, not adolescent. The second, which extends up to the age of thirty years, designates the adolescents (from *adolescere*); the third, up to the age of forty-five, is composed of the young men styled juniors (*juvenes*) on account of their being the defenders (*juvant*), like soldiers of the republic; the fourth, up to the age of sixty years, contains the seniors (*seniores*), so named because at that age the body is be-

[89] Censorinus, *op. cit.*, ix, xi. Compare pseudo Plutarch's discussion of the same problems in *Plutarch's Morals*, ed. by W. W. Goodwin (Boston, 1878), Vol. III, pp. 184–86. *The Sentiments of Nature*, chap. xviii. "Eight months are enemies to every birth, seven are friends and kind to it."

ginning to become old (*senescere*); the fifth embraces the remaining time from sixty onward to the moment of death: and this class contains the old people (*senes*), whose bodies are heavily burdened by senility (*senio*). Hippocrates, the physician, divides human life into seven periods: up to the age of seven years; from seven to fourteen; from fourteen to twenty-eight; to thirty-five; forty-two; fifty-six; and to the moment of death. Solon divides it into the ten periods, each of seven years. Staseas Peripatetic adds to these ten periods of Solon two and even four more in order to designate the longest span of life. . . . According to Varro, in their sacred books styled *Fatales*, the Etruscans also divided man's life into twelve periods, meaning that it is possible by prayers to obtain from the gods the postponement of the fatal moment by addition of two periods to the ten original ones; but having reached the age of eighty-five years, man should not ask such an addition and the gods would not grant it: the books say also that after eighty-five years man is but a corpse without soul . . .[90]

Of all the authors those which divide human life into the periods of seven years appear to me most accurate. After each period of seven years nature makes to appear in us some new characteristic, as we can see in Solon's elegy, where it is said that at the end of the first period man loses his milk-teeth; in the second, his chin is decorated by the first tender hair; in the third, his beard comes out; in the fourth, his forces develop; in the fifth, he is ripe for procreation; in the sixth, he begins to bridle his passion; in the seventh, his prudence and language are at their climax; in the eighth, his perfection is still maintained, though, according to some authors, his eyes begin to lose their brilliancy; in the ninth, there is a weakening of all his faculties; in the tenth, a maturity bordering upon death. . . . From all this it follows that as in sicknesses every seventh day is perilous and for this reason is styled critical, so in the whole course of human life each seventh year has its crises and dangers and for this is named climacteric. More than that, among these climacteric years there are some which are particularly dangerous, according to the astrologists; such are especially the years which close each three seven-year period, that is twenty-first year; forty-second; sixty-third; and finally, eighty-fourth. Some authors admit only one climacteric year: this most critical of all years is the forty-ninth, as a resultant of seven by seven; . . . Plato . . . thought that the span of human life is the square of a number and the number being nine its square is eighty-one; still others admit both forty-nine and eighty-one, the first being valid for the children born during the night-time, the second for those born in the day-time. . . .

[90] Compare this with Virgil's: "Nec fata vetabant stare"; with Servius' statement: *"Sciendum, secundum aruspicinae libros et sacra Acherontia, quae Tages composuisse dicitur, fata decem annis quadam ratione differi."* Also with Moses' statement: *Anni nostri sicut aranea meditabantur: dies annorum nostrorum in ipsis, septuaginta anni. Si autem in potentatibus, octoginta anni; et amplius eorum, labor et dolor."*

Many philosophers hold . . . that the septennial number (49) has in view the body, while the number with nine[91] in its foundation (81) has in view the soul!

The number 63 (7 x 9) is regarded by many as the most critical but Censorinus himself views it as less important than 49 or 81.

It (7 x 9) has been fatal only for a very few eminent men of antiquity. I find among them Aristotle; but, as we are told, the natural frailty of his temperament was so great and so numerous were the infirmities which assailed his weak body and against which he had but the power of his soul that one shall wonder more at the fact he lived up to the age of sixty-three years than at the fact that his life did not extend beyond this age.[92]

C. *Longer periodicities: a "Natural Century Periodicity."* Besides the periodicities in man's life discussed above, the ancients believed in the existence of periodicities of a longer time in the life history of a people. According to Censorinus, some of the ancient authors and peoples had an idea of a periodicity equal approximately to the longest duration of human life and styled it by the term of "the natural century" (in difference from the civil century, always

[91] It is curious to note that number 9 is regarded as climacteric by many composers. As Dr. S. A. Koussevitsky informs me, many a composer is apprehensive about writing his ninth symphony because many died after their ninth symphony was written. A few wrote their ninth simultaneously with the tenth, in this way avoiding the climacteric effect of the ninth.

[92] *Ibid.*, xiv. It is interesting to note that the above data and opinions give an idea of the duration of prominent men's lives in the remote past. As we see and as we shall see further, the ancient span of human life as shown by these estimates was not shorter than now. Censorinus' subsequent data about the length of life of the different eminent men of antiquity still more support this. Essentials of his "statistics" are as follows. At the age of 81 years died Dionysius, Heracleites, Diogenes, Eratosphenes, Xenocrates Platonicus. Others surpassed even this age: such were Carneades and Cleanthes, who lived 99 years; Xenophanes and Colophonius, who lived more than 100 years; and Democritus, Isocrates, and Gorgias Leontinus, who died at the age of 108 years. Such a long life of these "disciples of wisdom was due either to the power of their soul or to the destiny or to both." *Ibid.*, xv. Further he informs us that Epigenes regarded as the longest span of human life 112 years; Berosos, 116 years; others, 120 and even more years. "Our ancestors observed that many of their fellow-citizens lived up to age of 100 years." *Ibid.*, xvii. Pseudo Plutarch, Hesiod and many others "allow to the age of man a hundred and eight years, saying that fifty-four years are just the half part of a man's life, which number consists of unity, the first two plane numbers, two squares, and two cubes (*i.e.*, 1 + 2 + 3 + 4 + 9 + 8 + 27); which numbers Plato himself appropriated to the procreation of the soul." "Why the Oracles Cease," etc., chap. ii, *Plutarch's Morals*, ed. by W. W. Goodwin (Boston, 1870), Vol. 4, pp. 15–16. Together with the testimonies of Herodotus, Ibn-Khaldun for the Middle Ages, and many others, all this material does not justify at all the usual ideas of the short duration of life, especially of prominent thinkers, in the past.

equal to one hundred years). Such, for instance, was the system of epochs (*saeculum*, natural century)[93] of many cities of the ancient Etruscans. In their system the first epoch (*saeculum*) in the life of the city was from its foundation to the moment of death of the longest-lived person born at the moment of the city's foundation. The second epoch was from the moment of this death to the death of the longest-lived person born at the moment of this death, and so on. But as such a system was not free from uncertainty as to when exactly one epoch was ended and a new one began,

> the people thought that certain prodigies usually happened, through which the gods announced to the mortals that the epoch given was ended. . . . Likewise, the annals of the Etrurians, written in the eighth epoch of their existence, as Varro tells us, show how many epochs elapsed since the beginning of their history, how many epochs remained to exist, and through which prodigies was marked the end of each of the epochs. . . . Thus we read that the first four epochs lasted 105 years each; the fifth, 123 years; the sixth, 119 years; the seventh as long as the eighth, which was continued (in the moment of writing of the annals) and that there remained only two epochs, the ninth and the tenth, to elapse, after which the name of the Etrurians would disappear. . . . As to the length of the Roman epoch (*saeculum*), its duration is uncertain . . . (it is somewhere around 100 to 110 years).
>
> As to the number of epochs reserved for the city of Rome, it is not for me to tell it; but I cannot help saying what I read in Varro who in the eighteenth book of his *Antiquities* informs us that in Rome there was a certain Vettius, celebrity in the art of prognostication, remarkable by his genius and not a second to any one in science and erudition; and that Varro happened to hear him saying . . . that Rome will reach the age of twelve hundred years.[94]

These lines give an idea of the "natural century" periodicity in the life of societies. Though its length is not quite the same, nevertheless, most sources regard it as near to, or about, one hundred years,

[93] In difference from the civil — artificially established — century of 100 years. The author distinguishes clearly between the "natural" and the civil century. The natural century is a period of time not necessarily equal to 100 years; it may be more or less. And it is natural because such periods are the real periods where one period is separated from the other by clear signs — prodigies, miracles, and great changes. The civil century does not have this significance and does not mean a real period. The term "natural century" is translated by that of "epoch." Here we have thus a distinction between what I call "astronomical" and "biological" or "social" time and time units. The "natural century" and "the generation" periodicities are the biosocial types of periodicity.

[94] Censorinus, *ibid.*, X, xvii.

sometimes less, sometimes more. We shall see that this periodicity runs throughout the history of human thought, and is repeated again and again in our day in several contemporary theories.

D. *"One Generation Periodicity."* Another periodicity widely recognized by the ancients was that of the length of time which elapses between the moment of birth and moment of the procreation, or giving birth, of the same man. While the basis of the "natural century" cycle is the longest duration of man's life from birth to death, the basis of this periodicity is the duration from man's birth to that of giving birth by him.

According to Heraclitus this span of time is called *generation* (γενεὰ) because during it the age of man concludes its cycle (*quia orbis aetatis in eo sit spatio*). This name of the cycle of man's age is given to the span of time between the moment of birth and giving birth. As to the number of years which compose the generation-period it varies according to the authors. Herodotus claims it is made out of twenty-five years; Zeno, of thirty years.[25]

Thus the cycle's length is about 25 to 30 years. Note again, that many modern theories sponsor the same length of cycle and often on the same generational reason and basis.

E. *"Grand Year's Periodicity."* A third long-time periodicity, different from the preceding ones, is that of "the great year" (*annus magnus*). Censorinus's account of the ancient theories in this problem follows:

Its length is so different, in the practices of different peoples as well as in the traditions of various authors, that some make the grand year consist in a reunion of two solar years only, while some others in a concurrence of many thousands of years. I shall try to explain these differences.

Censorinus proceeds further to explain that at the basis of various computations of the length of the grand year lie the different ways of astronomical calculation of the length and the number of the revolutions of the sun, the moon, and some other stars in their mutual relationship. Correspondingly, in many ancient Greek cities the length of the grand year was *two* solar years with additional intercalary months, and each grand year was celebrated by many special festivities (so-called *dieteride* and *trieteride* years). In other places the

[25] *Ibid.*, xvii. Plutarch or pseudo Plutarch testifies: Man's "Flourishing" period, according to Heraclitus, is thirty years; "this being the space of time in which a father has begotten a son who then is apt and able to beget another," *Plutarch's Morals*, ed. by W. W. Goodwin (Boston, 1870), Vol. IV, p. 15.

length was about four solar years, with some intercalary months (*tetraeteride* and *pentaeteride*). Therefore in every *fifth* year there were great celebrations in honor of Jupiter, as a mark of the end of the given grand year.

This period was, however, found to correspond to the course of the sun only and not to that of the moon. Therefore it was doubled, and in this way the grand year consisting of *eight* solar years (with some intercalary months), so-called *octaeteris*, was established. . . . It was generally accepted in Greece and its invention was ascribed to Eudoxis Gnidius. . . . Its end was celebrated in Greece with great ceremonies and many religious festivals. . . . The grand year which closely approaches that is *dodecaeteris*, formed out of *twelve* solar years. It is called the Chaldean grand year: the Chaldean astrologers established it not only on the basis of the course of the sun and the moon, but also on that of many other observations because, they claim, such a period marks a cycle in the phenomena of storms, abundance, sterility and epidemics. There are many other great years, such as the Metonic year composed out of nineteen years established by Meton of Athens (more exactly it consists of 6940 days). There is also the grand year of Philolaos Pythagorean, formed of *59 years and 21* intercalary months; then there is the grand year of Callipus Cyzicenus, consisting of *66 years and 28* intercalary months; that of Democritus, of *82 years with 28* intercalary months; then that of Hipparchus, of 304 years with 112 intercalary months. These differences are due to the fact that the astrologers are in disagreement in regard to the fraction which should be added to the 365 days of the solar year, as well as the fraction which should be taken off from 30 days of the lunar month. (The Egyptian grand year, called God's or the Sun's year, consists of 1,641 years which is due to their civil year, equal to 365 days without any intercalation: this makes their civil year shorter than the natural solar year and the difference is re-established only after 1,641 years.) There is the grand year called by Aristotle by the name of the Supreme Year, within which the sun, the moon, and five errant stars return to their previous positions. This year has the grand winter styled by the Greeks cataclysm, *i.e.*, flood; then it has the grand summer or the conflagration of the world.[96] The world appears to be alternately inundated and burned during each of these supreme years. This year is composed, according to Aristarchus, of 5552 years; Heraclitus and Linus give to it 10,800 years; Dion, 10,884 years; Orpheus, 100,020 years; Cassandrus, 3,600,000 years. Others consider this year endless and never being recommenced. . . . But of all these years, most common in Greece is the grand year of *four* solar years, which they call Olympiadic. . . . The Roman

[96] Here Censorinus ascribes to Aristotle the Babylonian "world's year" described by Berosos.

grand year is the same interval of time, which they call *lustrum*. Its institution is ascribed to Servius Tullius and is applied to each period of five years, at the end of which they make the census of the citizens.[97]

The preceding quotations from Censorinus give an idea of the main types of periodicities claimed by various Greek thinkers. Some of these periodicities are not cosmic but biological or social in their source and nature. However, in order not to "cut" to pieces the general picture given by Censorinus, it was advisable to group the main types of periodicities noted by him. Now we can continue our survey of the astrological and astronomical periodicities mentioned by later Graeco-Roman and then medieval and modern writers.

Among the Romans, the belief in the astrologico-astronomical periodicities, and through them in those in human affairs, was as widespread as among the Greeks. As they rarely present anything original and new, compared with the Oriental and Greek theories, there is no need for a detailed presentation of them. A brief sketch suffices for our purposes.

Polybius (205–123 B.C.), probably following Plato, shared also the theory of the long-time catastrophic rhythms, though without any particular reference to stars or similar causes. He simply states: "When a deluge, a pestilential disease, a famine, or any other similar cause, has brought destruction upon the human race; as tradition assures us has happened in former times; and as it is probable it will again happen hereafter; and when all arts and institutions are extinguished in the same calamity, from the few that are left alive, another progeny of men springs up."[98]

Virgil (70–19 B.C.), in his famous Fourth Eclogue, subscribed to the old Orphic and Etruscan belief in the *annus magnus* and the repetition of the great cycle in the world's history with the stages in the cycle.

> *"Ultima Cumaei venit jam carminis aetas:*
> *Magnus ab integro saeclorum nascitur ordo."*

[97] Censorinus, *ibid.*, xviii. Plutarch's (or pseudo Plutarch's) statements of this problem are as follows: "As to the great year, some make it to consist of eight years solar, some of eighteen, others of fifty-nine. Heraclitus, of eighteen thousand. Diogenes, of three hundred and sixty-five such years as Heraclitus assigns. Others there are who lengthen it to seven thousand seven hundred and seventy-seven years." "The Sentiments of Nature," Book ii, chap. xxxii. *Plutarch's Morals*, Vol. III, pp. 147–8.

[98] *The General History of Polybius*, translated by Mr. Hampton (Oxford, 1825), Vol. II, pp. 123–24, Bk. vi, 1.

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[98] *The General History of Polybius*, translated by Mr Hampton (Oxford, 1825), Vol II, pp 123-24, Bk VI, 1

The last era of the song of Cumae has come at length, the grand file of the ages is being born anew; at length the virgin is returning, returning too the reign of Saturn; at length a new generation is descending from heaven on high.[99] Again mighty Achilles will be sent to Troy.[100]

Likewise *Lucretius* (96?–55 B.C.), in spite of his criticism of many cosmological theories, shared also the theory of an incessant change of everything, and that of the eternal return of things.

Lapse of time changes the nature of the whole world, and one condition after another must succeed to all things, nor does any being continue *always* like itself. All is unsettled, nature alters and impels every thing to change [101] It is in vain to expect that this frame of the world will last forever.[102]

In another place he admits that in the process of this perpetual change, there can be, after a relapse of time, a return of the situation and even persons which existed before. Arguing in favor of mortality of soul and mind he says:

Nor, if time should collect our material-atoms after death, and restore them again as they are now placed, and the light of life should be given back to us [we would have a recollection of our previous existence].

And it is now of no importance to us, in regard to ourselves, what we were before, nor does any solicitude affect us in reference to those whom a new age shall produce from our matter, *should it again be brought together as it is at present.* For when you consider the whole past space of infinite time, and reflect how various are the motions of matter, you may easily believe that *our atoms have often been placed in the same order as that in which they now are.*[103]

The famous architect *Vitruvius* (contemporary of Julius Caesar and Augustus) in his treatise *De architectura,* comments with admiration on the theories of Berosos and his continuators (Antipater and Archinapolus); agrees with them, and shows himself a believer in astrology.[104]

[99] *The Works of Vergil,* translated by John Conington, edited by John A Symonds (Boston, 1888), pp 17 ff By song of Cumae is meant the prophecy of the Cumean sibyl and the theory of the grand cycles supposedly given in the Sibylline Books outlined above by Censorinus.

[100] *"Atque interum ad Troiam magnus mittetur Achilles"*

[101] Lucretius, *On the Nature of Things,* translated by John S Watson (London, 1904), p 223, Bk v, 820 ff.

[102] *Ibid*, p 96, Bk ii, 1130 ff

[103] *Ibid*, pp. 134–35, Bk iii, 859 ff

[104] Vitruvius, *The Ten Books on Architecture,* translated by **M. H. Morgan** (Harvard University Press, 1914), Bk. v, chap. vi; Bk ix, chaps ii, vi, viii.

Though *Cicero,* in his *De divinatione,* sharply condemns the astrological theories,[105] in his *"Somnium Scipionis"* and partly in his *De natura deorum,* he shows himself a believer, first, in the existence of the grand year periodicity, in the influence of stars on human destiny; in the periodicities expressed by the perfect numbers seven and eight, and the climacteric character of the product of these numbers — fifty-six — the fatal year for Scipio.[106]

Seneca (4 B.C.–A.D. 65) accepted Berosos' theory of the grand year with its periods of conflagration when all the stars are in conjunction in the sign of Cancer, and the period of deluge when they are in Capricorn.[107]

Though *Pliny* was somewhat sceptical in regard to several astrological conclusions, including the great year of Berosos and similar long-time cycles; and though, with his usual eclecticism, he believed in "progress"; nevertheless he shares many ideas about the influence of the stars on human destiny, and his criticism is rather that of a believer than that of an irreconcilable opponent to these theories.[108] For instance, he connects "the unusually long and portentous eclipses of the sun" with extraordinary human phenomena, such as "when Caesar the Dictator was slain, and in the war against Antony, the sun remained dim for almost a whole year."[109]

Or talking about the comets he states: "It (comet) is generally regarded as a terrific star, and one not easily expiated, as was the case with the civil commotions in the consulship of Octavius, and also in the war of Pompey and Caesar. And in our own age, about the

[105] See his statement in *Dynamics,* Vol II, p 362, footnote 35

[106] Cicero, *De natura deorum,* Bk II, chap 20 There he alludes to the great year completed on the return of the Sun, Moon and five other stars to some original configuration — *"inter se, confectis omnium spatiis"*, and of its duration he says *"quae quam longa sit, magna quaestio est; esse vero certam et definitam, necesse est"* In his *Scipio's Dream* he admits a complete return of all the heavenly bodies to their previous position and correspondingly a new repetition of the history of the world *"tum signis omnibus ad idem principium stellisque revocatis, expletum annum habeto"* The phantom does not say how long is this grand year, it says only that the period is long and that not one twentieth part of it has been yet accomplished

In writing of *Hortensius,* he mentions again *Is est magnus et verus annus, quo eadem positio coeli siderumque quae cum maxime est, rursum existet, isque annus horum, quo vocamus, annorum* XII MDCCCLIV *complectitur*

[107] Seneca, *Naturales Quaestiones,* III, 29 See the quotation in *Dynamics,* Vol II, p. 362

[108] Pliny, *Naturalis Historia,* Bk vii, 37, 50, 57, Bk II, 24, 6, 18, 23, 30; Bk VIII, 193

[109] Pliny, *The Natural History,* translated by John Bostock and H T Riley (London, 1855), Vol I, Bk II, 30, p 62.

time when Claudius Caesar was poisoned and left the Empire to Domitius Nero, and afterwards, while the latter was Emperor, there was one which was almost constantly seen and was very frightful." If a comet resembles a flute, "it portends something unfavorable respecting music"; if it appears triangular, something is going to happen to learning; if it appears in the serpent, somebody is going to be poisoned, etc.[110]

In the works ascribed to *Hermes Trismegistus*[111] and collected in the Hermetic *Corpus*, a set of astrological theories is mentioned: the decisive influence of the stars on human affairs; the periodicities measured by the number 7 (7 planets, 7 human types); by the number 12 (12 signs of the zodiac, which govern 12 parts of the human body; 12 torturers of man, inherent in his nature)[112] and by the numbers 4, 8, 16, 32, 36 and 60. Under all this there lie the general principles: "The kosmos exists in process of becoming; it is ever becoming; it is therefore in motion" (*Corpus*, Lib. x, 10-11; Lib. ii, 1); "And every birth of living flesh will be followed by destruction; but all that decays will be renewed by the measured courses of the gods who circle in the heaven" (*Corpus*, Lib. iii, 4). . . . "All things being subject to alteration, there is nothing that stands fast, nothing fixed, nothing free from change among the things which come into being; neither among those in heaven, nor among those on earth. God alone stands unmoved" (Asclepius, III, 30); "Coming into being is the beginning of destruction, and destruction is the beginning of coming into being" (Excerpt XI, 35). "To heaven is committed the administration of all bodies; and the growth and decay of bodies fall under the charge of the Sun and Moon" (Asclepius, i, 30); "We are subject to the planets." "They act on us most potently" (Excerpt vi, 7–9).

Finally, one place is devoted to a striking description of one of the social catastrophes to come, which happen once in a while. Here is its abbreviated description. "Egypt will be forsaken. . . . This land and region will be filled with foreigners. . . . In that day will our most holy land be filled with funerals and corpses, . . ." [the

[110] *Ibid*, Bk ii, 23, pp 57–58.

[111] The name is mythical The works ascribed to him were written by different persons sometime between the third century AD and the beginning of our era See Walter Scott's Introduction to his translation of *Hermetica* (Oxford, 1924), Vol I, pp 2–3, see also Joseph Kroll, *Die Lehren des Hermes Trismegistus* (München, 1914), R Reitzenstein, *Poimandres* (Leipzig, 1904)

[112] See *Hermetica*, translated by W Scott, Vol I, pp 123, 129, 503, 513, 531–32

Nile will be] "swollen with torrents of blood . . ." "There is worse to come. . . . The dead will far outnumber the living; . . . Of religion nothing will remain but an empty tale, which . . . children in time to come will not believe. It will even be decreed that he who shall have devoted himself to the religion of mind shall be liable to the penalty of death. . . . And in that day men will be weary of life. . . . Darkness will be preferred to light, and death will be thought more profitable than life. . . . The fruits of the earth will rot; the soil will turn barren; and the very air will sicken in sullen stagnation. After this manner will old age come upon the world. . . . All good will disappear."

Then, the God would interfere again and would re-establish order —"He will cleanse the world from evil; now washing it away with water floods, now burning it out with fiercest fire, or again expelling it by war and pestilence. And thus he will bring back his world to its former aspect, so that the Kosmos will once more be deemed worthy of worship and wondering reverence, and God, the maker and restorer of the mighty fabric, will be adored by the men of that day. . . . Such is the new birth of the Kosmos" (Asclepius, III, 24–26).[118]

Plutarch (46?–120? A.D.) or rather pseudo Plutarch (because these essays ascribed to Plutarch are now regarded as spurious) in several of his works touched the problems discussed. In the work *Of Fate* he definitely sets forth the theory of the eternal return of things and the ever repeated identical rhythms in the history of the world and man.

The total revolution and the whole time in which the revolutions of the eight circles (that is, of the eight spheres of the fixed stars, sun, moon, and five planets) having (as Timaeus says) finished their course, return to one and the same point, being measured by the circle of the Same, which goes always after one manner. For in this order, which is finite and determinate, shall all things . . . be reduced to the same situation, and restored again to their first beginning. Hereafter then, when the same cause shall return, we shall do the same things we now do, and in the same manner, and shall again become the same men; and so it will be with all others. And that which follows after shall also happen by the following cause: and, in brief,

[118] All quotations and numerations are taken from the *Hermetica*, translation mentioned. This fragment shows a considerable similarity to the ancient Egyptian "Admonitions of Jpuver," "The Prophecy of Neferrohu" and "The Dispute with His Soul of a Man Who Is Tired of Life." See the texts of these in A Erman, *The Literature of the Ancient Egyptians* (London, 1927), pp 86–134; E. A. Wallis Budge, *The Teaching of Amen-em-apt* (London, 1924), pp. 29 ff.

all things that shall happen in the whole and in every one of these universal revolutions shall again become the same.[114]

In other works ascribed to Plutarch, he discusses many forms of periodicities. First, the period of the grand year, and informs us of its length according to different thinkers (8, 19, 59, 7777, 9720, 9920, 18,000, 6,570,000 years; Heraclitus, 18,000 solar years; Diogenes, 365 years, each of which is equal to Heraclitus' year; others, 7777 years, etc.).[115] Second, the period expressed by the number seven as important in the prenatal and postnatal life of man, and the period of eight months as particularly harmful for the baby born within this period after its conception.[116] He mentions also an important significance given by various thinkers to some other numbers, such as 5 (for instance, 5 worlds, 5 elements of matter, 5 geometrical solids, 5 species of animated beings, 5 symphonies, 5 principal beginnings, etc.).[117] Further, he informs us that the belief in the periodical conflagration of the world is quite common among the Stoics and composes one of their principles.[118] Next, he informs us of Hesiod's "age" (γενεά) as the unit of time for measurement of the world's history as well as that of man, and as a span of periodicity in man's life. This once more shows how common were the ideas concerning the "generation periodicity" in the life of man and society. In accordance with the data of Severinus, he testifies that most of the authors gave to this "generation periodicity" a lap of 25 or 30 years.[119]

Hesiod imagines that the Daemons themselves after certain revolutions of time, do at length die. For, introducing a Nymph speaking, he marks the time wherein they expire:

> Nine ages of men in their flower doth live
> The railing crow; four times the stags surmount
> The life of crows; to ravens doth Nature give
> A threefold age of stags, by true account;

[114] *Of Fate*, chap. 3. *Plutarch's Morals*, ed. by W W. Goodwin (Boston, 1870), Vol. V, p. 295. Compare with Plutarch's "Sertorius," *Plutarch's Lives*, Everyman's Library edition, Vol. II, p. 307.

[115] "The Sentiment of Nature Philosophers Delight In," Bk. ii, chap. xxxii; *ibid.*, (Boston, 1878), Vol 3, p. 148; "Why the Oracles Cease to Give Answers," chaps. 11, 12; *ibid.*, Vol. 4, pp.-15–16.

[116] "The Sentiment of Nature," Bk. v, chap. xviii; *ibid.*, Vol. 3, pp. 184 ff.

[117] "Of the word EI engraven over the Gate of Apollo's Temple at Delphi," *ibid.*, Vol VI, pp. 484 ff.

[118] "Of Common Conceptions, Against the Stoics," *ibid.*, Vol. 4, p. 409; "Why the Oracles Cease," *ibid*, Vol. 4, p 16 He himself seems to be critical toward such theories.

[119] "Why the Oracles Cease," *ibid.*, Vol. 4, pp. 11, 12; *ibid.*, Vol. 4, pp. 15–16.

One phoenix lives as long as ravens nine.
But you, fair Nymphs, as the daughters verily
Of mighty Jove and of Nature divine
The phoenix's years tenfold to multiply.

Now those who do not well understand what the poet means by this word γενεά (age) do cause this computation of time to amount to a great number of years. For the word means a year; so that the total sum makes but 9720 years, which is the space of the age of Daemons. And there are several mathematicians who make it shorter than this. (Here Demetrius, one of the members of the discussion, interrupted and asked Cleombrotus, the main lecturer): "How is it possible that you should maintain that a year was called by this poet the age of a man, seeing it is not the space of his flower and youth, nor of his old age? For there are divers readings of this place, some reading ἡβώντων, others, γηρώντων, — one signifying *flourishing*, the other *aged*. Now those that understand hereby 'flourishing' reckon thirty years for the age of man's life, according to the opinion of Heraclitus; this being the space of time in which a father has begotten a son, who then is apt and able to beget another. And those that read 'aged' allow to the age of man a hundred and eight years, saying that fifty-four years are just the half part of man's life, which number consists of unity, the first two plain numbers, two squares, and two cubes (*i.e.*, $1 + 2 + 3 + 4 + 9 + 8 + 27$); which numbers Plato himself has appropriated to the procreation of the soul. And it seems also that Hesiod by these words intimated the consummation of the world by fire.". . . I have heard, says Cleombrotus, this alleged by several, and find that the Stoical conflagration hath intruded itself not only upon the works of Heraclitus and Orpheus, but also upon Hesiod's, imposing such a meaning on their words as they never thought of. But I cannot approve of the consummation of the world which they maintain, nor of the other impossible matters; and especially what they say about the crow and the stag would force us to believe in the most excessive numbers. Moreover, the year . . . may, in my opinion, be not impertinently called the age of man. For you yourself confess that Hesiod does somewhere call the life of man γενεά (age). . . . It is also certain that we call the vessels whereby we measure things by the names of the things measured in them; as a pint, a quart, or a bushel. As we then call a unit a number, though it be but the least part and measure and the beginning of a number; so has he called a year the age of man, because it is the measure wherewith it is measured. As for those numbers which those others describe, they be not of such singularity and importance. But the sum of 9920 is thus composed. The four numbers arising in order from one, being added together and multiplied by four, amount to forty; this forty being tripled five times makes up the total of the forecited number. . . . But as to that, it is not necessary to enter into a debate with Demetrius.[130]

[130] "Why the Oracles Cease," *ibid.*, Vol. 4, pp. 15–16.

Marcus Manilius (who wrote in the time of Augustus) was inspired by "the divine science" of astrology and wrote a long poem called "Astronomicon." This work represents a treatise in astrology and astronomy, and as such it naturally contains many theories which bear upon our problem.

Like many others, Manilius puts forth the claim that this science, established in the Orient, between the Nile and the Euphrates, consists "of the rules founded on a long experience; observation of the past paved the way for the future; and, after a profound speculation, it was found that the stars have a power over man subjected to hidden laws; and that the movements of the universe are controlled by the *periodic* causes; and that the vicissitudes of life depend upon the different configurations of the heavenly bodies." [121] This is followed by another general principle that "all that is created to be ended is subjected to change; after several years the nations do not recognize themselves; every century (*saeculum*) the laws and the mores change. Only the sky is exempted from it," [122] and revolves eternally without being subject to change.

From these premises a multitude of more detailed conclusions follows, namely, that practically everything in human affairs and societal destiny is controlled by the stars and their constellations; that even the plan and number of the parts of the human body reflect the zodiac; that since in the heavens the relationships of the stars are peaceful and belligerent, solidary and antagonistic, war and peace, solidarity and antagonism must be and are in human relationships; that the racial and national differences of men are again due to the same heavenly factor; that practically every event of individual or group life is predetermined by the influence of the stars; that since in their movements there is a periodicity, it exists also in human affairs; that there are as many different professions or social classes, each of which is subjected to a special sign of the zodiac, as there are signs of the latter, namely, twelve; that it is possible to predict, on the basis of the character of the constellation under which the man is born, what is to be his longevity or span of life; and he gives "the quantitative averages"

[121] M. Manilius, *Astronomicon*, lib. i, 55 ff. I quote the edition of *Collection des auteurs latins, publiés sous la direction de M. Nisard; Stace, Martial, Manilius, etc.* (Paris, 1843).

[122] *Saecula dinumerare piget, quotiesque recurrens*
Lustrarit mundum vario sol igneus orbe.
Omnia mortali mutantur lege creata;
Nec se cognoscunt terrae, vertentibus annis;
Exutae variant faciem per saecula gentes. Lib. i, 500 ff.

of the number of the years of life duration for various signs and the moon's positions.[123]

Finally, the comets are extraordinary — nonperiodic — factors, whose function remains, however, the same: namely, to warn about coming extraordinary upheavals or catastrophes. Correspondingly, the appearances of comets are always followed by such catastrophes: epidemics, revolutions, invasions, wars, famine, etc.[124] In this way the eternal movement of the stars calls forth the incessant change in human affairs; the periodical revolutions of the former condition the periodicity in the latter; the nonperiodical heavenly factors, like the comets, cause the nonperiodic and extraordinary upheavals in human affairs. The Fate rules the men. *"Fata regunt orbem, certa stant omnia lege, cunctaque per certos signantur tempora casus."*

Tacitus and *Marcus Aurelius* also regarded the existence of periodical rhythms as possible.[125]

Philo Judaeus (at the beginning of our era) was one of the most prominent theorizers on astrology subordinated to theism. His astrology led him to stress particularly the mystical significance of certain numbers, and through that, corresponding periodicities in the earth life and human affairs. Of these the numbers stressed by him were 7, 50, 4, 6, 12.

> It is in heaven, too, that the ratio of the number seven began.

Its significance is shown in that there are seven planets, seven circles of heaven, four quarters of the moon of seven days each, seven stars in the Pleiades and the Bear; strong vitality of the children born at the end of seven months and weak vitality of those born in the eighth month; critical character of the seventh day in a disease; seven ages in man's life; seven vowels in speech; seven strings in a lyre; seven divisions in the head — eyes, ears, nostrils, mouth; seven divisions of the body; seven senses, etc., etc.[126] Seven times seven gives some-

[123] It is to be noted again that Manilius' longevities are long enough to dispel once more the idea of the short duration of life in the past. Besides the early death under twenty-three years in the three specific positions of the moon-sky, in the other nine positions the duration is above sixty years, in most of the cases about eighty years. *Ibid.*, lib. iii, 555 ff.

[124] See *Astronomicon*, lib. i, 550 ff.; 785 ff.; lib. ii, 85 ff.; 445 ff.; 575 ff.; lib. iii, 45 ff.; 550 ff.; lib. iv, 10 ff.; 710 ff.

[125] Tacitus, *Annals*, Bk. iii, chap. 25; Marcus Aurelius, *Meditations*, Bk. v, chap. 13; Bk. vii, chap. 1; Bk. ix, chap. 28.

[126] Philo Judaeus, *De mundi opificio*, chaps. 30–42. "Quod Deus Immutabilis," § 176, in *Philonis Alexandrini Opera*, edited by L. Cohn (Berlin, 1896–1930), vols. I, II.

thing like the fiftieth day. Hence the importance of this number and corresponding periods.[127] For somewhat similar reasons, the numbers twelve, four, and six are given analogous significance.

The periods of *seven days*, or months, or years were recognized by a great many other writers. Thus *Galen* (born in 129 A.D.) in his treatise (or one ascribed to him), *Prognostication of Disease by Astrology*, claims that the sun, and particularly the moon, influence greatly conception, birth, disease, and "all beginnings of actions." Since there is a certain periodicity in the revolution of these heavenly bodies, a corresponding periodicity and critical days exist in the above phenomena influenced by them. But this periodicity is not exactly of seven days, because "the moon's quarter is not exactly seven days in length, and that the fractions affect the incidence of the critical days." [128]

The Gnostics. Various gnostic writings, in spite of some reaction against star worship, are permeated with the familiar astrological conceptions and with a slight variation repeat them and their number mysticism and their periodicities. Besides the numbers seven and twelve in the theories ascribed to some of them, like Simon Magus, Marcus, Basilides, Bardesanes and other gnostic writers, particular significance was given to the number 30 (30 followers of John the Baptist, 30 days in a month, etc.); to numbers 360 and 365 (so many degrees in the circle of the zodiac, heavens, bones in the human body, angels, principles, powers, days in a year, etc.); to 240, and finally to 6000, to 15,000 or 36,000 years, to 60,000 and 480,000 years, as the length of the *annus magnus*, at the end of which period all the stars return to their previous positions and history begins to repeat itself.[129]

Church Fathers. The same is to be said of many other thinkers of the first centuries of our era. Though most of the Church Fathers rejected and vigorously criticized astrological beliefs as well as the Pythagorean mysticism of numbers — and to that extent were much more scientific than some of their gentile opponents [130] — some of the

[127] "De vita contemplativa," chap 8, *ibid.*, vol II. See about Philo's theories in L. Thorndike, *op. cit.*, Vol. I, chap xiv. See there other literature.

[128] See L. Thorndike, *op cit.*, Vol. I, pp. 178–180.

[129] See the details about various Gnostic theories in the field in L. Thorndike's work quoted, Vol. I, chap. xv See there also the literature.

[130] One of the best criticisms is given by Hyppolitus in his "Refutation of All Heresies," Bk. iv, *Ante-Nicene Fathers* (Buffalo, 1888), Vol. V, pp. 25 ff. See further criticism in Methodius, "The Banquet of the Ten Virgins," *ibid.*, Vol VI, pp. 341 ff.; Tatian, "Address to the Greeks," *ibid.*, Vol. II, pp. 66, 75 ff.; Alexander, Bishop of Lykopolis, "Of the

Christian thinkers, and especially the pagan scientists (like Celsus), scholars, and philosophers continued to subscribe to the astrological and Pythagorean beliefs. Other Christians, however, did not subscribe to these, but for other reasons set forth other periodicities. For instance, in *Revelation* we read about one thousand years, during which Satan is bound and after which he again will be released.[181] Clement of Alexandria shows a rather favorable attitude towards astronomy.[182]

The *pseudo Clementines* and its Latin version the *Recognitions* — works ascribed to Clement of Rome writing to James, the brother of Jesus — endorse astrology as "the science of mathesis," stress a particular significance in the numbers *seven* and *twelve* (for the Christian reasons, like twelve apostles, twelve months of Christ's sufferings, etc.), and subscribe to the belief of good and bad influence exerted by stars.[183]

Persons like the famous *Celsus*, according to Origen's testimony, believed in astrology, in the *annus magnus*, and in the eternal return of things. Julius Firmicus Maternus (*c.* 350 A.D.) in his *Mathesis* (ascribed to him) offers a vigorous theory of astrological interpretation of human affairs. The same beliefs, as we have seen, were shared by the later Stoics, Neo-Platonists, and Neo-Pythagoreans.[184]

Likewise, many Christian leaders, like John Chrysostom (in his Sixth Homily on Matthew) [185] and those unknown authors whose works were ascribed to various old authors, were not entirely free from similar beliefs. These and similar opinions were very commonly diffused in the early Middle Ages in the pagan and Christian worlds.[186] In Arabia such great scholars as Alkindi (died about 850 or 873 A.D.), not to mention lesser names, shared these opinions and set forth their own theories of the periodicities in the life of the world and in the political and social phenomena. Writing on the duration of the em-

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Manicheans," *ibid.*, Vol. VI, pp 247 ff ; Irenaeus, "Against Heresies," *ibid*, Vol I, 393 ff. Here he ridicules especially the mysticism of numbers; Origen, "De Principiis," *ibid*, Vol. IV, pp. 240, 272 ff.; "Against Celsus," *ibid.*, Vol. IV, pp. 527 ff.; Theophilus, "To Autolycus," *ibid.*, Vol. II, pp. 116 ff.

[181] *Revelation*, chap. 20.

[182] Clement of Alexandria, "The Stromata," *Ante-Nicene Fathers*, Vol II, p. 501.

[183] See L. Thorndike, *op. cit.*, Vol. I, pp. 410–414.

[184] See sources and description in L Thorndike, *op. cit.*, Vol. I, pp. 455–56; P. Duhem, *op. cit.*, Vol. I, pp. 261 ff., 284 ff., 386 ff.

[185] "In Matthaeum," 75, 4. *Migne, Patrologiae cursus completus*, LVIII, 691.

[186] See F. Cumont. *Les religions orientales* (Paris, 1929), pp. 151 ff.; 166–67; 284 ff.; 290. L. Thorndike, *op. cit.*, Vol. I, chaps. xix to xxvii; P. Duhem, *op. cit.*, Vols. I, II, III, *passim*.

pire of the Arabs, Alkindi makes a political forecast based on the data of the stars' conjunctions. According to Alkindi, the lesser conjunctions of the planets, which occur every 20 years, middle conjunctions, coming every 240 years, and great conjunctions, occurring every 960 years, all exert a great influence not only upon the world of nature but upon political and religious events. The great conjunctions open new periods in history. The horoscope forecasts the fate of the individual; the conjunctions, the fate of society.[137]

In later centuries of the Middle Ages, the astrological studies and corresponding prognostications and periodicities based on the movement of the heavenly bodies became again more numerous, fashionable, powerful, and were stimulated and recommended by "the councils in their decrees, the bishops in their statutes, the kings in their capitularies." Accordingly, in many works we find again specific numbers and periodicities emphasized.

> Schemes in which the world, the year, and man were associated, and where are shown the *four* elements, four seasons, four humors, four temperaments, four ages, four cardinal points, and four winds, are frequently found in extant manuscripts of the ninth, tenth, and eleventh centuries.[138]

Similarly, the number seven continues to be one of the favorites,[139] especially after the introduction of Arabic astrological works into medieval Europe.

The early scholastics, like Peter Abelard, Hugh of St. Victor, Abelard of Bath, William of Conches, Bernard Sylvester, Daniel of Morley, Roger of Hereford, Alexander Neckam (with his *annus magnus* of 36,000 years), the leading Hebrew scholar, Moses Maimonides, and the authors of the spurious works ascribed to Aristotle, like *Theology, Book of Judgments,* and "the best seller" of the Middle Ages, *The Secret of Secrets,* as well as many other medieval scholars and their works of the eleventh and twelfth centuries, all share astrological theories and their prognostications. Scholars of the thirteenth and subsequent centuries, like Michael Scott,[140] William of Auvergne,[141] Thomas

[137] L. Thorndike, *ibid.*, p. 648 and chap. xxviii.

[138] L. Thorndike, *ibid.*, Vol. I, p. 674.

[139] *Ibid*, pp. 676, 709, *et passim.*

[140] Who, among many effects of the moon and heavenly bodies upon human behavior, indicated also that in the new moon mental work goes much better and that scholars study and teach more successfully than during the other phases of the moon

[141] He claimed that high intelligence and human will are much less controlled by the stars than low intelligence and "the multitude of populace, with its mob mind and evil dispositions." Therefore astrologers may predict popular agitations and mob uprisings

of Cantimpré, Bartholomew of England (who again holds the theory of an *annus magnus* of 15,000 or 36,000 years), Robert Grosseteste, Gilbert, Albertus Magnus (who ascribed to the stars' conjunctions the oscillations of the curve of mortality, depopulation, catastrophes, cycles of epidemics, revolutions, and other effects), Thomas Aquinas, Dante [142] and many others, professed similar beliefs and opinions, making stars and their conjunctions and properties one of the most important factors in the causation of social events, destiny, and the characteristics of an individual and society.[143]

Even such supposedly scientific thinkers as Roger Bacon subscribed clearly to such opinions. Like hundreds of his predecessors, he believed that the stars were responsible for good or bad actions of men and particularly of the masses of people; that they determined the national and racial traits of the groups; that they predicted and conditioned social catastrophes, wars, and revolutions; that they controlled also religious movements, their characteristics and destinies. Of the periodical conjunctions of stars he stressed particularly that of Jupiter and Saturn (in its tenth revolution) which happens at intervals of 320 years, and which is always marked by some exceedingly important historical event, like the advent of Alexander the Great, or Mohammed (whose religion, according to Roger Bacon's forecast, can endure only 693 years), and so on.[144]

Possibly the most important astrological work of the Middle Ages, the *Speculum astronomiae* (ascribed by some to Roger Bacon, by others to Albertus Magnus) [145] outlines most of the above astrological doctrines, with their periodicities and their bearing upon the interpretation of social phenomena. The same doctrines are expressed in 219 opinions ascribed to Siger of Brabant and condemned in 1277 by Stephen, Bishop of Paris. In these opinions we read:

6. That when all the celestial bodies return to the same point, which happens every 36,000 years, the same effects will recur as now.

with a much better degree of accuracy than the actions of an intelligent individual. A claim similar to those of our time, which contend that the mass phenomena are easier to be forecast than individual events and actions.

[142] See Dante, *Convivio*, Bk II, chap. xiv.

[143] L. Thorndike, *ibid.*, Vol. II, pp. 12, 40, 42, 55–56, 103–7, 177, 183–85, 203, 211, 254, 267 ff., 325–26, 369, 393, 416–19, 485–87, 581–83, 608 ff. See there the literature and details.

[144] See *The Opus Maius of Roger Bacon*, ed. by J. H. Bridges (Oxford, 1897), Vol. I, pp. 138–39, 253, 386, and others. L. Thorndike, *ibid.*, Vol. II, pp. 671 ff.

[145] See on this L. Thorndike, Vol. II, pp. 692 ff.

133. That the will and intellect are not moved in acts by themselves but by an eternal cause, namely, the heavenly bodies.

143. That from diverse signs of the sky are signified diverse conditions in men, as well of spiritual gifts as of temporal things.

162. That our wills are subject to the power of the heavenly bodies.[146]

Not mentioning several other writers of the Middle Ages with similar opinions, the name of Peter of Abano (b. 1250) is to be added. In his main work, the *Conciliator,* he discusses in considerable detail the same problems. Most important of his opinions in the field are:

1. Flow of human life and events are conditioned by the heavenly bodies.

2. Longevity of human life is controlled by these bodies.[147]

3. Human life has *seven* climacteric periods corresponding to the seven planets.

4. There are longer periodicities in the revolutions of the heavenly spheres, especially of the eighth sphere of the fixed stars, which are followed by the periodicities in the human history. Of these he stressed the periodicity of the *seventy years* (during which the eighth sphere moves one degree); periods of 20, 240, and 260 years, during which several not especially important conjunctions of the planets take place; the period of 354 years and four lunar months, during which each of the planets dominates human history and gives to it specific character; the period of *960 years* (of conjunction of Saturn and Jupiter in the head of Aries); and finally, the period of the *annus magnus*. Each of these periodicities in the revolution of the heavenly bodies is marked by corresponding periodicities in human history. Periods of seventy years are marked by such great events as the sinking of the lost island of Atlantis. The times when the *annus magnus* is near to its completion are marked by advents of a "golden age," peace, an abundance of men of genius, etc. One of such golden periods was that of classical antiquity, when great rulers like Alexander, Caesar, Darius lived; great thinkers like Hippocrates, Plato, Aristotle, Euclid, Ptolemy, Galen, Cicero, Virgil, and when the Christian religion and Roman Law were created. Such a period being over, with an increase of the discrepancy between the mobile and immobile spheres and signs, the "golden age" is replaced by regress, deterioration, and decay.

[146] L. Thorndike, *ibid.*, Vol. II, pp 709–72.

[147] Like many of his predecessors (see above) he claims that the natural longevity of man is 120 years — the length of a greater solar year — but factually in many places, due to the influence of the unfavorable stars, and the bad climate due to the stars, it is shorter.

Similarly each of the above periods of conjunction is paralleled by corresponding, periodically recurring, events in human history. When, for instance, Mars dominates during the period of 354 years, this portion of human history is usually rich with war and flood. A similar period of domination of another planet has again its own marks.

In this way he sets forth several theories of periodic rhythms in the field of vital processes, forms of government, war and peace, catastrophes and happy periods, centralization and decentralization, and many other social phenomena as conditioned by the periodicities of the heavenly bodies.[148]

These views have continued to exist during subsequent centuries. The fourteenth, fifteenth, sixteenth, and seventeenth centuries continued to support them with some variations. During these centuries, especially the sixteenth and the seventeenth, an enormous number of voluminous treatises in astrology and in the astrological interpretation of human affairs and periodicities was produced. Great scholars like J. Bodin, great scientists like Tycho Brahe, Kepler or Cardanus, and a multitude of "philomats," "teachers of mathematiks and astrology," participated in such a movement and interpretation.

Various *Catastrophe Mundi,* like that of John Holwell (London, 1682), *Astrological Predictions on the Affairs of the English Commonwealth,* like that of John Russell (London, 1659); *The Celestial Science of Astrology,* of E. B. Sibley (London, 1788), M. Hale's *Primitive Origination of Mankind* (London, 1677), with its survey of the theories of the *annus magnus,* and the like were published in great numbers and were full of various "correlations" between the movement and constellation of the heavenly bodies and "mutations" in human affairs, in the course of empires, societies, cities. The very terms "change," "mutation," "beginning and dissolution," and the like become quite common in such works.[149] Cyclical interpretation of the sociocultural processes continues to flourish respectively. A great many thinkers

seem to have thought there was a certain equality in human affairs, above or below which they never rose much higher, or sunk much lower; but that all sublunary things, as if under the more immediate influence of that planet, from whence they have their name, were actuated by a kind of tide; which,

[148] L. Thorndike, *ibid.,* Vol. II, pp. 892–900.

[149] See a sample quotation in *Dynamics,* Vol II, pp. 373–374. Generally speaking, the enormous literature of this kind is not studied seriously at all. It still waits for its investigator.

by turns, would occasion a flow, as it were, in some places, and an ebb in others; each of which would be followed again by its respective ebb and flow in regular succession. And, in fact, something very like this has happened in the world. States and Empires have had their rise and fall; different places, at different times, have been the envied seats of learning; and, in their turns again, have become the contemptible residence of ignorance, slavery, and meanness.[150]

Correlations themselves become quite concrete. The authors give, for instance, a long series of the conjunctions of Jupiter and Saturn by definite years, beginning with 3958 B.C. up to the seventeenth century A.D., and a respective series of extraordinary events in the history of nations and mankind, timed with the conjunctions of the first "variable." Or a long list of the years of the appearance of comets, timed with a series of specific events in human affairs. The appearance of a comet in 1402 was synchronous with that of Tamerlane; of the comet of 1558 with the death of Charles V, three kings, two queens, two dukes, fifteen cardinals, and many other princes.[151]

They begin to compute the duration of existence of various empires, nations, cities (*e.g.*, Persia existed in its "flowing and ebbing" 810 years; Greece, 505 years; and so on); durations of the peace and war periods; frequency and duration of famines, earthquakes, and other calamities; "flow and ebb" of mortality and morbidity; and of many other social processes. In this sense they become "Cameralists" and "Political Arithmeticians"; collect a mass of empirical quantitative data (accurate or faulty just now does not concern us), and in this way tend to become more and more empirical, specific, and quantitative "fact-finders" and "correlators" of the astrologico-astronomical phenomena and periodicities with the sociocultural events and periodicities.

During the eighteenth and nineteenth centuries theories similar to the above have continued to be set forth. Some of them, as we shall

[150] John Gordon, *A New Estimate of Manners and Principles: Being a Comparison Between Ancient and Modern Times, in the Three Great Articles of Knowledge, Happiness and Virtue* (London, 1760), pp. 41–42. The conceptions of Machiavelli, G. Botero (quoted in Chapter Thirteen), of G Bruno, and others, are quite similar to that, with the exception that they do not stress the role of the heavenly bodies so much in these "swings" and periodicities.

[151] *Catastrophe Mundi*, quoted; pp. 10–11 See many other examples in other works mentioned above. See the prediction of astrologers concerning the Reformation and their role in it and in the peasant wars of the sixteenth century, in J. Friedrich, *Astrologie und Reformation, oder die Astrologen als Prediger der Reformation und Urheber des Bauernkriegs* (München, 1864).

see, do not represent any considerable modification of these "astrological" theories; others have deviated from them widely. The main points of deviation have been: first, dropping all references to the Divine Providence and accepting the uniformities in rhythms and oscillations as purely natural; second, a decrease of the references in the causative process to the stars and heavenly bodies, and a greater and greater stress of the *"geographic factors,"* like climate, its change, its seasonal variation, its cycles, only, from time to time, mentioning the influence of "the sun spots" and a few other influences of the sun and moon. Viewed in perspective, the astrological theories, as we have seen, regarded the immediate *geographic agencies* (climate, etc.) of social changes and rhythms as the result of the movement and influences of the heavenly bodies. In their theories, these geographic agencies have been the intermediate links between the stars and the social phenomena. In the geographic theories, the causative chain stops at the geographic factors and usually does not go beyond them, either to the stars or to Divine Providence. In other words, their analysis deals with the shorter causative chain. Whether this is reasonable or not, this difference exists, though it can scarcely be regarded as a fundamental difference. When all is said, the geographical theories are "twins" or perhaps "children" of the astrological theories with all the "earmarks" of their relatives or parents.[152]

In accordance with this, we must take samples of the astrological and the geographical theories of the nineteenth and twentieth centuries to have an idea of the present status of this branch of the interpretation of the social rhythms and periodicities.

One example of these — in their naïve form — is given by R. Mewes' *Kriegs- und Geistesperioden im Völkerleben* (Leipzig, first edition in 1896; the fourth in 1922), outlined and criticized in *Dynamics,* Vol. III, pp. 352 ff.

The author assumes a decisive influence of a certain recurrent conjunction of Jupiter, Saturn, and Uranus in regard to the sun upon all human affairs, particularly upon war and peace, aridity and blossoming of science and arts. These conjunctions and the sun, determining climate, ether radiation, and so on, condition "the manifestation and production of human mind and human volitions." (Page 17 of the edition of 1922.) He assumes further that these conjunctions are repeated every 675.5 years. This period, in its turn, consists of six

[152] Purely geographical theories also appeared long ago and have always been in the closest relationship with the astrological theories.

subperiods of 111 to 112 years each. During each of such 111-year periods, there are two periods of wars and two periods of peace, with a flowering of arts and sciences, each period being of about 27.8 years duration. (*Ibid.*, pages 7, 17.) Accordingly, he tries to show that, beginning with 2400 B.C. and ending with A.D. 2100, there indeed was and will be a continuous succession of such 111-year periods, each with two subperiods of war and two of peace. (See the details in *Dynamics*, Volume Three, pages 352 ff.)

Side by side with these 27 or 55 to 59.2-year periods (according to the author, Jupiter and Saturn are in the same position toward the sun every 59.2 years) there are, as it has been said, still larger periodicities of 220 and 550 years. The great cycles of war (1904 to 1932, 1798 to 1827, 1686 to 1714) are repeated every 111 years on the average. Still greater movements of the peoples are repeated after every 550 years, on the average. There are still greater periodic rhythms of about a thousand years, during which the centers of human civilization are shifting from one country to another. (*Ibid.*, Chapters Five and Six.)

Not only the phenomena of war, peace, rise and decay of culture show the above periodicities, but many other phenomena, such as epidemics, also have their periodic cycles of similar duration, namely the cycles of 11, 27, 55, and 110–113 years. (*Ibid.*, Chapter Eighteen.) This periodicity is again due to the sun spots and the conjunction of the stars.

In a similar manner the author, following Stromer-Reichenbach, claims there are periodicities in the occurrence of the revolutions (150 years), reformations (300 years), and other important social phenomena. Furthermore, he mentions also the periodicities of 5–6 years, 11–12 years, 17–18 years, 22 years, 28, 34–35, 45–46, 52 and 57 years. (*Ibid.*, Chapter 32 and pages 660–665.) In addition, he contends that there is a certain regularity in the movement of these phenomena in space: as a rule, they move from the East to the West in the course of time.

Though in each case the author gives many figures and computations to support his claim, these figures are given so carelessly, in such a fantastic and haphazard way, that they are scarcely worth repeating here, and the author's conclusions and discussion appear often not only naïve but almost incoherently unsound.

Works of this half-mystical, half-naïve, and incompetent type are rather numerous, each one trying to find the explanation of social

phenomena in the sun and stars and the planets. Among them the works of Friedrich Stromer-Reichenbach should be mentioned. Of these works, only two, namely: *"Deutsches Leben. Was ist Weltgeschichte"* (Hans Lhotzky Verlag, 1919), and *"Deutsche verzaget nicht! Eine geschichts-philosophische Prophezeiung zum Weltkrieg"* (Hans Lhotzky Verlag) were available to me. In these works the author says that an enormous work of "Die Historionomie" has been prepared by him for publication, giving more than sixty thousand historical data concerning historical *"Synchronismen"* and *"Periodismen."* According to the author, they disclose many periodicities concerning revolutions, world commerce, reform movements and so on. This huge work has not been published, so far as my knowledge goes. Therefore, it is impossible to judge how serious the author's claims are. In the above works published there is but a general — exceedingly wide — scheme of what a real historical science ought to be, and a few generalizations, given dogmatically with a very thin set of evidences.[153]

According to Stromer, there are eight fundamental areas of peoples or culture complexes, namely: 1, Greek; 2, Italian; 3, Iberian; 4, British; 5, Celtic; 6, Teutonic; 7, Slavic; 8, Mongolian. Whether it be world commerce, revolution, or reformation, these processes and their centers usually move from the first area to the eighth in the course of time. Moving so in space and time, revolutions usually occur every 150 years on an average; reformations, every 300 years; and so on. The whole historical process is a wavelike process, rhythmically moving in time and in space.

Other things to be noted, mentioned by the author, are: his criticism of a one-sided specialization of the historians, which leads to a lack of understanding of the fundamental processes of history, and which makes syntheses particularly necessary; his criticism of neglect by historians of the history of the primitive and most of the Oriental peoples; his exceedingly wide plan of what history should be; his remarks concerning the recurrence of various catastrophes, like earthquakes, inundations, epidemics, etc., and their effects upon historical events.

Still more fantastic is Fritz Noetling's *"Die kosmischen Zahlen der Cheopspyramide, der mathematische Schlüssel zu den Einheitsgesetzen im Aufbau des Weltalls"* (E. Schweigerbarth, Stuttgart, 1921) where Noetling claims that the cosmic number is 5.711576 or 5 years 71 days,

[153] *Was ist Weltgeschichte,* pp. 30 ff.

which period plays an exceedingly important part in the history of mankind.

A little better is Kemmerich's *Die Berechung der Geschichte und Deutschlands Zukunft* (1921).

A somewhat similar theory of the periodicity of war and peace influenced by the stars was set forth by L'Abbé Moreaux, director of the observatory in Bourges, in his paper: "Influences astrales: la guerre et la paix" (*La revue de l'Ouest*, October, 1920). More serious is Ernst Sasse's *"Zahlengesetz der Völkerreizbarkeit"* and "Plan zu einer allgemeinen Statistik der Weltgeschichte" in the *Zeitschrift des Konigl. Preuss. Statistisches Bureau*, 1879, in which, with reference to the cosmic influences, he outlined several rhythms of social phenomena.

His paper contains some methodological indications and an interesting — "spectroscopic" — way of picturing the recurrence of these various rhythms. Here is its essence: "The world is the sum of all things (Dinge); history is the sum of all events." A part of this world history is the history of peoples. Its essential processes run either regularly or irregularly. Which of them is regular is to be found out. One of the ways of finding out is a spectroscopic picturing of the events in a specific way given by his spectroscopic graphics. They help to see and to time the regularity or irregularity of the processes studied. (See the graphics in his paper.)

Following this method, he depicts the graphic spectra of several wars: the Crusades, the wars of Friedrich Barbarossa, Russian-Turkish wars since 1700, the wars of Prussia since 1700, the great wars of the great powers since 1700. Showing on the graphic spectra their time of recurrence, and confronting the periods of recurrence with those of the ideal periods of ten years each, he finds that there is quite a tangible correlation with the ten-year and partly with twelve-year periods, which give a median period of some 11.86 years. Not all the wars happen exactly at each tenth or eleventh year, but most of them are timed with such an "ideal period."

Studying further important events of ancient history, beginning with the seventh century B.C., such as: wars, rise and fall of Babylon, Persia, Athens, Sparta, Macedon; the rise of Rome; the Punic wars, subjugation of Greece, Carthage, and the Spanish provinces; civil wars and Roman wars with the Teutons; and the fundamental events of history from the fourteenth to the twentieth century: rise of the Mongols' empires; rise of the Turkish Empire; discovery of America;

the Renaissance and Reformation; religious wars in France, liberation of Holland from Spain, Spanish-English wars; religious wars in Germany, revolution in England; rise of the Russian Empire and of Prussia; the French Revolution and Napoleonic wars, and finally, the revolutions of 1848 and Franco-Prussian War, he finds that there are the longer periods of about sixty years (six times ten or five times twelve), when we have a higher and greater wave of war; and still longer periods of about one thousand and two thousand years, during which a fundamental shift of the center of world civilization from the East to the West, and back again, took place.

With the same spectroscopic graphic, he shows further that in the past, within approximately one century, an elevation of a new civilization occurred: up to the eighth B.C., the Egyptian; in the eighth, the Mycenaean; in the seventh, the Babylonian; in the sixth, the Persian; in the fifth, the Greek; in the fourth, the Macedonian; in the third, the Carthaginian; in the second, the Roman; in the first, the Teutonic. From the standpoint of the spatial movement of the process of the civilizations' elevation, they have been moving somewhat from the East to the West.

He does not insist that the periodicity or regularity is rigid and without exceptions. On the contrary, he stresses that the waves of these processes are only approximately regular, and that there are several irregular waves. For instance, in the history of China, as well as of Egypt, there are several periods of effervescence divided from one another by different time intervals. In Eastern Asia (China), according to him, such periods were about 2000 B.C.; 250 B.C.; 200 A.D.; and 900 to 1200 A.D. The Central Asiatic Mongols and other peoples of this region had such periods of rise around 1600 B.C.; 640–515 B.C.; 315 A.D. (Huns); 1200 to 1400 A.D. The West Asiatic peoples had their elevations and rise about 2000 B.C. (Egypt); about 600 B.C. (Persians); and later on, other peoples.

All this leads the author to summarize these "waves" of war, and rise and fall of cultures in the hypothesis of the long-time waves of an effervescence and sinking of the peoples in the course of time. The essence of the hypothesis is as follows:

> Historical performances of nations (or peoples) show a kind of wave-like secular rhythm. [Considering that these performances . . . are conditioned by activity of the nervous system, it is convenient to describe them in the terms of the rising and sinking irritability of the nervous system (*Nervenreizbarkeit*) of the corresponding peoples.] Usually this irritability of the

population of a definite area grows during a certain period of time — some hundred years. Its growth is paralleled by an extraordinary activity of the people in all walks of life. During such a period, intensive — inner or exterior — wars break out. The irritated people expand — mainly by conquest — the boundary of their land and create a great empire. An extraordinarily great number of prominent statesmen, military leaders, thinkers, artists, explorers, poets spring up amidst the people during such a period, and enrich the commerce and industry of the country. Also epidemics of certain diseases break out more often, due to the overstimulated status of the nervous system. . . . After a certain time the nervous irritability sinks back and the opposite symptoms come: decrease of the population and efficiency of the people; disorganization of their empire; a more passive political role. Active epidemics of the first period fall down and are replaced by new — and different — epidemics due to the lowered tone of the nervous system. . . . History does not give any evidence that the above irritability is limited only to certain peoples or areas. On the contrary, the irritability shifts from people to people, from country to country. . . . The symptoms of these effervescences and apathies of the nervous system are different among different peoples. But in the extraordinary growth of warlust, all the peoples in the "irritated period" seem to be quite similar. (*Ibid.*, p. 25.)

The author is inclined to explain these waves by the changes in the magnetic rays and gravitation rays, and by the variation of the sun's radiation.

Along somewhat similar lines runs the theory of Colonel E. Millard, who in a series of works [154] tries to establish several periodicities in biosocial processes and sees their source mainly in the periodicity of various cosmic factors. Among the periodicities in the field of various social and demographic processes (such as the movement of births, climacteric periods in the life of great men, change of literary and artistic styles, growth and decline of cultures and nations, and some others), he notes the periodicities of 3.5 to 4 years, 30–33 years, 250 and 500 years.

Another variety of the climatic theories of periodicity is represented by A. B. Gough's theory (similar to the above theories of Sasse and others) that:

There is a tendency for the centers of [sociocultural] activity to move westward, but that in the northern hemisphere the more northern centers tended

[154] See E. Millard, *Le destin de l'Allemagne d'après le déterminisme historique* (Beaugency, 1918); "Essai de physique social et de construction historique," *Revue International de Sociologie*, February, 1917.

to lag behind the more southern, and that the interval between two such series of pulsations averaged about 850 years.[155]

He gives a long list of the culminations which allegedly fit his theory and even a mathematical formula. His explanations of such pulsations are climatic-geographic in the terms of the energy wave.[156]

Finally, several modern astrologers attempt to give a scientific character to astrology and to its methods. For them, "Astrology is a science of the relationships (correspondences) — direct and indirect — which may exist between the stars and ourselves, and that which surrounds us." It is based on probabilities and frequencies of correlation between such and such a constellation of stars, and such and such human traits of those born under such a constellation. For instance, the study supposedly shows that when Jupiter is at the middle of the sky (*au milieu du ciel*) the number of men of genius born is twice as great as in other periods, when such a constellation is lacking. In this sense, we can talk of "the law of astral heredity." Astrology cannot have a certitude, but only more or less probable statements and forecastings. So understood by many a great scientist, like Kepler, astrology is a real science of probabilities. As the constellations of the heavenly bodies are repeated in time, corresponding qualities of the generations born under the same constellations should be expected, according to the "law of astral heredity," to be recurrent also.[157]

The above gives the examples of practically all the varieties of the astrological and astrophysical theories of periodicities that have been set forth in the history of human thought, from the remotest past down to the present time.

IV. Geographic Branch of Cosmic Theories of Periodicity

As mentioned, the geographic interpretation of sociocultural phenomena is a mere branch of the cosmic, and, ultimately, astrophysical

[155] A. B. Gough, "An Alleged Periodic Factor in History," *The Sociological Review*, Vol. XXVIII, pp 365–366, 1936.

[156] *Ibid.*, pp. 361–388. Other samples are represented by the following works. E. von Lasaulx, *Neuer Versuch einer allein auf die Wahrheit der Tatsachen gegründeten Philosophie der Geschichte* (München, 1857). It claims a secular westward movement of civilization, due to the earth's rotation, with universal and local periodicities. More fantastic is Remy Brück's *Manifeste du magnétisme du globe* (Bruxelles, 1866) and *L'humanité, son développement, et sa durée* (Paris, 1866). It claims the westward cycles of some 516 years, during which the center of history moves 6°36'.

[157] See Paul Choisnard, *Les précurseurs de l'astrologie scientifique* (Paris, 1929), pp. 6–7; *L'influence astrale et les probabilités* (Paris, 1924), pp. 119 ff. The claim is but a mere re-statement of the old tradition of astrology. See above.

type of theories. When the geographers attempt to interpret various sociocultural phenomena in terms of climate, amount of rainfall, the sun spots, cosmic dust, ultra-violet rays, the electrical, magnetic and other meteorological factors, they all regard them as the result of the cosmic, astrophysical forces. Many of them do not deduce their geographical factors directly from these forces, but this means only that they carry their factual analysis to the immediate given geographic factors, without taking a step further to the astrophysical or cosmic factors that determine these immediate geographic factors. When they take such a step — and as soon as they attempt an interpretation and explanation of their findings they have to take it — they invariably come to the sun, the moon, volcanic dust, ultra-violet rays of the sun and other cosmic forces, like the explicit astrophysical, astronomical, and astrological theories.

The same is still truer of the geographic theories that attempt to establish various sociocultural periodicities as derivative of the periodicities of geographic forces and processes. In such theories we meet, almost always, such factors as revolutions of the sun (daily, seasonal and others), the sun spots, the role of the moon, the amount of rainfall, climate and other similar factors, that by their very nature are of cosmic character and are determined by the sun, the solar system, and other heavenly bodies.

The main difference between the above astrophysical and geographical theories of periodicity is that the latter, at least, in the presentation of the modern investigators, have been more cautious and freer from various fantastic conjectures. They have kept closer to the empirical — verifiable — facts, and in this sense are more accurate. This, however, is a difference in accuracy, not in the nature of the geographic and astrophysical theories.

It is outside the purpose of this chapter to give a survey of the multitude of various geographical theories of sociocultural phenomena. They are well known and their survey and analysis can be found in many works.[188]

For my purposes it is enough to mention here typical modern theories of sociocultural periodicities interpreted "geographically." Such mention will show at once their similarity to, and their affiliation with, the above cosmic theories. At the same time, it will give an idea of

[188] See particularly P. Sorokin, *Contemporary Sociological Theories*, chaps. ii and iii, where all the main theories are given; likewise, the literature and criticism of these theories.

the nature of the periodicities claimed by the partisans of the contemporary geographic branch of the cosmic theories of periodicity.

The main field where such theories and periodicities have been set forth is the field of business fluctuations and rhythms. A number of investigators, such as W. S. Jevons, H. S. Jevons, W. N. Shaw, E. Brückner, H. H. Clayton, W. H. Beveridge, E. Huntington, V. P. Timoshenko, H. L. Moore, C. Garcia-Mata, and F. Shaffner,[159] and several others, have claimed the existence of various periodicities in the business fluctuations and have tried to explain them by various cosmic factors, such as sun spots, volcanic dust, the amount of ultra-violet rays reaching the earth, and similar cosmic variables.

Some of these investigators attempt to establish the connection of the cosmic phenomena and their periodicities, either directly or indirectly, through the influence of climate, rainfall, etc. on man's health and energy.[160] As a result of their often painstaking study, they claim the existence of various and diverse periodicities in the field of business phenomena: "cycles" of 2.74, 3.71, 4.38 years, 5.11, 7, 8.34, 11, 15.3, 30, 33, 34, 48, 74–75, 271 years, with slight variations in the decimals.[161]

As mentioned above, the method of linking the cosmic and economic phenomena varies with each of these authors; but they all

[159] W. S. Jevons, *Investigations in Currency and Finance* (London, 1884), pp 194–243; H. S. Jevons, "The Causes of Unemployment," *The Contemporary Review* (1909), pp. 165–189; W. H. Shaw, "An Apparent Periodicity in the Yield of Wheat," *Proceedings of the Royal Society*, Series A, Vol LXXVIII (1906), pp. 69–76, E Bruckner, "Der Einfluss d. Klimaschwankungen," *Geographische Zeitschrift*, Vol. I (1895), pp. 39–51, 100–108; H. H. Clayton, "The Influence of Rainfall on Commerce and Politics," *Popular Science Monthly* (December, 1901), W H Beveridge, "British Exports and the Barometer," *The Economic Journal* (March, 1920); "Weather and Harvest Cycle," *The Economic Journal* (1921), pp 429–449; E. Huntington, *World Power and Evolution* (New Haven, 1920), chaps ii, iii, iv; V P Timoshenko, "The Rôle of Agricultural Fluctuations in the Business Cycle," *Michigan Business Studies*, Vol. II, No. 9 (June, 1930); H. L. Moore, *Economic Cycles; Their Law and Cause* (New York, 1914); *Generating Economic Cycles* (New York, 1923); C. Garcia-Mata and F I Shaffner, "Solar and Economic Relationships," *Quarterly Journal of Economics*, Vol. XLIX (1934), pp. 1–51

[160] Besides E. Huntington, several other investigators stress the important influence of various cosmic factors, like ultra-violet rays and so on, on man's health, and through that on economic phenomena. See, for instance, J. Vallot, G. Sardou and M. Faure, "De l'influence des taches solaires sur l'accidents aigus des maladies chroniques," *Bulletin de l'Académie de Médecine* (Paris, 1922, Vol. 88); T. Moreau, *Les énigmes de la science* (Paris, 1925); G G. Sardou, "L'effet des taches solaires sur l'homme," *La Revue Universelle* (August, 1929); C. A. Mills, "Depression, Weather and Health," *Human Biology* (September, 1938), pp. 388–399.

[161] See the details in Sorokin, *Contemporary Sociological Theories*, pp. 120 ff.; and in the above works of these authors.

see the source of the periodicities of the economic phenomena (claimed by the author) in various cosmic factors and their periodicity.[162]

This shows that the contemporary geographic theories of the periodic rhythms in the sociocultural processes are but a continuation of the ancient astrophysical and astrological theories.[163] In this way, the above sketch of the historical "evolution" of these theories is brought up to the present moment.

Criticism. As to the validity of all these theories, the weaknesses of the geographic interpretation of the sociocultural phenomena, including the theories of periodicity, were given in my *Contemporary Sociological Theories*, to which the reader is referred. Farther on, in a brief form, the criticism will be summed up. For the present, let us turn to the biological interpretation of the periodicities.

V. Bio-Organismic Theories of Sociocultural Periodicities

The theories of this class look for the causes of the sociocultural periodic rhythms mainly in the field of the organic conditions and

[162] See a good account in Garcia-Mata and Shaffner's paper, quoted.

[163] The additional repetition of the old theme is given by R H Wheeler's theory, summed up by the *Boston Transcript* (December 30, 1938) as follows:

"Trend Toward Cold Climate Means Revival of Democracies, Harvard Meeting Learns"

"Dr Raymond H Wheeler of the University of Kansas showed the Association of American Geographers a detailed chart demonstrating a correlation between weather and civilization, going back to the days of the cave man.

"The weather pulse shown in the Wheeler chart swings from a cold-dry period, up through an unsettled, warm-moist period, to a hot-dry maximum, and then back again.

"This cycle is repeated over and over again throughout history in periods of about a hundred years.

"At the bottom of the curve, the cold-dry maximum, one finds the great individualistic periods of history characterized by intense romanticism

"Dr Wheeler finds that the periods of greatest activity of human beings — notably war eras — coincide with the warm-moist periods when storms and other natural phenomena are most violent

"The indications are that the world's climate is half-way down on the curve from hot to cold, Dr. Wheeler said Thus, for the next five or ten years, the weather says to look for a breakdown of dictatorship, a trend to the revival of democracies and emphasis on the individual

"Dr. Ellsworth Huntington of Yale made a detailed study of death rates; he said that it shows that the ordinary cyclonic storm appears to be one of the important factors in promoting health and vigor.

"According to his hypothesis, with the changes in climate the crops grew unusually well and a denser population could be comfortably supported More than the usual number of parents were endowed with great physical vigor; hence from conception onward their children also enjoyed unusual vigor."

rhythms. Some of these theories turn sometimes to the cosmic influences as the factors of the bio-organic rhythms and periodicities, but these factors do not play a primary role in their constructions and, at the best, are only their subsidiary element. Other theories of this class do not refer to the cosmic factors at all.

The bio-organic theories show several varieties.[164] Some of them merely compare the biological and the social organisms and from this comparison deduce various rhythms or cycles in the life history of the social organism. Such, for instance, are the life cycles of a society; like every organism, it originates, grows, reaches its limit and declines; like every organism, society passes through the stages of childhood, youth, maturity, and old age; like any organism, the social body passes in its growth through progressing differentiation and integration of its parts and reaches its climax; after which, with coming senility, differentiation and integration of its parts become less clearly cut; plasticity and effervescence of the parts decline; and finally comes death and complete disintegration. In addition to these general statements, some of the theories of this kind tried to indicate the average duration of each of these main periods in the life history of society.

The statements and theories of this type have been very numerous and have been set forth many times by the thinkers of the remote past, in India, China, Greece, Rome, and of the Middle Ages as well as of the present time.[165]

The second branch of the bio-organismic interpretations of social rhythms and periodicities does not stop at these generalities and goes much farther in the analysis of the social rhythms and periodicities. This branch can be styled the *"generation theory"* of social rhythms and periodicities.

Its interpretations center around the concept of the *human generation.* By studying the duration of life of a generation, the succession of one generation by another, its biological and social conditions, its biosocial consequences, the generation theories attempt to formulate several laws of social rhythms and periodicities, the average length of these cycles in various fields of social phenomena, the order of the succession of the cycles, and many other generalizations.

[164] See their general survey and criticism in Sorokin, *Contemporary Sociological Theories,* chaps. iv, v, vi, vii.

[165] See chap. iv in *Contemporary Sociological Theories.* See above, in chap. ix, the statements of Florus, Ibn-Khaldun, G. Botero, O. Spengler, as examples.

Some of the best-developed theories of this branch give sometimes a whole philosophy of history, interpreted from the "generational" standpoint.

As these "generation" theories go much farther in the analysis of social phenomena and their rhythms and periodicities than the general organic analogies, the former naturally deserve much greater attention than the latter.

VI. "Generational" Interpretation of Social Rhythms and Periodicities

Since the remotest past, the "generation" has played an important role in various forms: as a *time unit;* as a *unit of duration of the positive or negative social consequences of certain acts* or *certain events* to a certain generation (for instance, crime and its consequences, "last to the seventh generation," in the Bible or Gautama); as a *criterion for the establishment of certain social relationships* (for instance, consanguinity and kinship); or *social differentiation of the members of a group into various classes and strata;* as a *source of periodicities of various kinds;* finally, the *succession of generations as the continuous source of an incessant sociocultural change.* This diversity of the roles in which the generation has functioned evidences its importance and reality.

Generation as a Time Unit. Time reckoning by the generation unit has been one of the widely diffused methods for the location of the phenomena in the time *continuum:* "before-simultaneously-after." A succession of generations played the role of the referential frame on which and through which the relative position of events in time was determined. The duration of a generation functioned in such systems of time reckoning as a real time unit; functioning so, it performed the role of the caesura that separates one rhythm or a phase of a rhythm from the others; when and in so far as such a generation time unit was more or less of equal or of the same duration, the rhythm punctuated by it tended to be *eo ipso* periodical. Such is the connection between the generation time unit and the problem of periodicity. Factually, a number of primitive peoples "measure" time by the generation time unit.

In fact, such a chronology is one of the most natural and accessible. In domestic religion, time is constituted by the succession of generations beginning with the founder of the family. The grouping of the individuals by

generations exists among the peoples with promiscuous marriages as well as among the families with the patrilineal and matrilineal descent.[166]

Among many primitive peoples the time span or chronology is often determined by reference to the person's age measured in various ways. Among the natives of the Marquesas Islands, for instance, in order to determine the time of any event, the people indicate how tall a person was, or how long his beard was, at the time when the event took place. The Indians of Pennsylvania determined the time position of an event by referring to their own age at the time of its occurrence.

From these indications of relative ages there arises of itself a familiar chronological expedient usually found at the point where history begins, viz., the *reckoning by generations,* which is common among the Polynesians [167] and in the older Greek historians.

Among the Masai an elaborate system for classifying ages has exceptionally developed. The circumcision takes place at four-year periods with intervals of three and a half years. The circumcisions are known alternately as "right-hand" and "left-hand." Those who have been circumcised at the same time have a special name, such as "those who fight openly or by day," "those who are not driven away," etc.; one "right-hand" and one "left-hand" period combine to form a generation. The "those-who-fight-openly" period is a "right-hand" period, and those who belong to it were circumcised in 1851–5; the "those-who-are-not-driven-away" period is a "left-hand," and its members were circumcised in 1859–63. The two periods or ages together form a generation composed of persons born from 1834–1850. Each age has three divisions, first those known as "the big ostrich feathers," secondly those called "the helpers," and thirdly those known as "our fleet runners." [168]

It is evident that an excellent basis for the determination of relative time is hereby given. With time-reckoning *per se* the system is not concerned.[169]

In varied forms the biological facts of birth and death, as well as various biosocial events, like the passage of a child to puberty, to marriage, to more advanced age, in connection with the social ceremonies and rites marking such passages — these facts and their durations have often been used as units of time for various purposes. The differentiation of the population of the primitive (and other) groups into the age groups, with different functions and rights and duties for

[166] F. Mentré, *Les générations sociales* (Paris, 1920), p. 15.

[167] See W. Ellis, *Polynesian Researches in the Society and Sandwich Islands* (London, 1883), Vol. I, p. 86.

[168] A. C. Hollis, *The Masai* (Oxford, 1905), pp. 261 ff.

[169] Martin R. Nilsson, *Primitive Time-Reckoning* (Lund, 1920), pp. 98–99. See many other details in this excellent work.

each age, is an almost universal phenomenon. In various tribes, the number of the age groups and, respectively, the duration of time from an initiation into one age group, and then into another, varies. But such initiations — whatever is the duration of the time from one occurrence of initiation to another — exist and respectively punctuate the life of the group, and mark in its life a period of certain duration from one initiation to another. Respectively such a period is used in the group as a unit of time, which is utilized to measure the duration of other processes and the respective position of many an event in the time flow of the "before-simultaneously-after." If the rites of initiation of the age groups occur in a given group often, say every two or three years, the group would have, as Rivers tells us, up to twenty or thirty age groups and the unit of time would mean in our astronomical time something equivalent to two or three years. If the group has only a few age groups, then the age initiation rites also take place less frequently, and the respective time unit would be longer, say some seven or ten of our astronomical years.

Whatever is the situation, one thing seems to be certain: that in such groups the time unit is computed not only by the units of astronomical time, but also by the biosocial phenomena of birth and death, marriage, puberty, and other age events marked by their respective initiation rites.[170] In all such cases, not so much our astronomical or clock units of time determine the duration of such "age periods," and the duration from one initiation to another, but rather the age periods and the duration of the interinitiation period are used to determine the comparative duration of many other events, or their relative (before-after) position at the time of occurrence. In this sense, they are either a variety of the generational time unit or of a phase of it.

So far as such events mark as caesura a definite period in the life of an individual and group, and as these periods are always recurrent, such a time unit is a real unit, and repeats itself again and again in the life of the group. In this sense, it denotes real periodic beats in the social life.

Among the historical peoples the generational method of time reck-

[170] See Nilsson's work quoted "Savages generally fail to keep account of their ages by years." R. H. Lowie, "Age Societies," *Encyclopedia of the Social Sciences*, Vol. I, p 482. See about the age groups and the methods of their definition, the respective initiation rites and the consequent time units in R. H. Lowie, *Primitive Society* (New York, 1920), pp. 313 ff.; H Schurtz, *Alterklassen und Männerbünde* (Berlin, 1920); W. H. R. Rivers, *Social Organisation* (New York, 1924), pp. 136 ff.; W. I. Thomas, *Primitive Behavior* (New York, 1937), pp. 358 ff.

oning and of placement of events in the time flow was fairly common. Such, for instance, was, according to Herodotus, the system of chronology of the Egyptian priests.

> The priests related that from the first king (of Egypt) to this priest of Vulcan (Sethon) were three hundred forty and one generations of men; and during these generations, there were the same number of chief priests and kings. . . . Now, three hundred generations are equal to ten thousand years, for three generations of men are one hundred years.[171]

Herodotus himself uses widely this unit of time in his history.[172] Here the time unit of a generation is the major, while the year unit is the minor. The chronology of the Bible is also computed by the generation time units; respectively, of Adam-Seth-Enos-Cainan, and so on, from generation to generation.[173] This unit plays an important part in many other ways, such as the duration of the consequences of a crime or a sin up to the third, fourth, the seventh, or the tenth generation of the posterity of the guilty man. "The Lord . . . visiting the iniquity of the fathers upon the children unto the third and fourth generation of them that hate me." [174] "A bastard shall not enter into the congregation of the Lord, even to his tenth generation." [175]

Among the ancient Greeks and Romans, as we have seen from the testimony of Censorinus and Plutarch, the generational time unit (*aetas*) was widely used, especially in two forms: "natural century unit" (*saeculum*) and "generation" time unit (*aetas*).[176]

A similar method of time reckoning in unit of generation(s) is found among the ancient Hindu, Chinese, and many other peoples. In all such cases, a generation functions as a kind of unit, whose duration measures the comparative duration of other phenomena, as well as their relative positions in time's "before-simultaneously-after."

What the duration of the generation time-unit is in terms of our modern clock-time — our hours, days, months, years — seems to vary.

[171] Herodotus, *Histories*, translated by Henri Cary (London, 1854), p. 152 (or Bk. ii, 142).

[172] Example. "For in three following generations of Darius the son of Hystaspes, Xerxes the son of Darius, and Artaxerxes the son of Xerxes, more woes befell Greece than in the twenty generations preceding Darius." *The History of Herodotus*, Bk. vi, chap. 98 The generational unit of time is widely used also by other Graeco-Roman historians, especially by Diodorus Siculus.

[173] See, for instance, *Genesis*, chaps. 5, 10, 11, 25, 36. Also, "One generation goeth, and another generation cometh," *Ecclesiastes*, i·2–11.

[174] *Exodus*, xx·5; *Numbers*, xiv:18.

[175] *Deuteronomy*, xxiii:2, 3.

[176] See above, pp. 474–75, 482–84.

The Bible's generation unit is about 40 years, according to A. Loisy (though in fact it is much longer for the first generations of Adam and other patriarchs); among the Greeks, Heraclitus and Zeno regarded it as equal to 30 years; Herodicus, 25 years; Herodotus, 30 to 35 years. Its length depended upon how it was computed: either from birth to the giving of birth (*aetas*),[177] in which case it was about 25, 30, 35 years; or from birth to death, in which case it was longer; or from birth to death of longest-living person (*saeculum*), in which case it was about 100 to 110 or 120 years. For some, three *aetas* made a *saeculum*.

The generation time unit has functioned among the primitive and ancient peoples in a variety of other ways, and in connection with many other social events; for instance, in matters like kinship, marriage, incest, and crime. Here the generation time unit enters in the form of a certain number of the generations which determine the permissibility or impermissibility of marriage, and measures the degree of consanguinity and affinity between the parties; it determines the presence of an incest, if the parties involved are less distant in their kinship from one another than the number of generations a given society requires; it denotes the elimination of the consequences of a crime or sin, when the posterity of the offender is separated from him by a greater number of generations than that which is indicated in the norms of the society.

> In the Murngin tribe it is as if a genealogical bureau were established to trace and record the lineage of every individual for generations back. . . . A mother's mother's brother's son's son's son's daughter, for example, stands in a certain relation to a father's father's father's sister's daughter's daughter's son, and the two may or may not marry, according to the traditional definition of the situation.[178]

When the parties involved are within the prohibited number of generations, the marriage is not permitted or becomes an incest. Similar is the role of the generation time unit even in the contemporary norms that determine the degree of consanguinity, affinity, and kinship.

The quoted case of the Bible serves as an example of the function-

[177] *Orbem autem vocant aetatis, dum natura humana a sementi ad sementem revertitur.* Censorinus, *op. cit.*, xvii. See also G. Rümelin's "Über den Begriff und die Dauer einer Generation," in his *Reden und Aufsätze* (Tübingen, 1875), Vol. I; Mentré, *op. cit.*, pp. 15 ff.

[178] W. I. Thomas, *Primitive Behavior* (New York, 1937), p. 103. W. L. Warner, "Morphology and Functions of the Australian Murngin Type of Kinship," *American Anthropologist*, Vol. 32.

ing of the generation time unit in the determination of the duration of the consequences of crime or sin upon the posterity of the culpable person; or whether a given person is a "bastard" or not. In a somewhat similar way, it functions in our society for determination whether a person is a "Negro" (in the United States), an "Aryan" (in Germany), and so on. Such norms again are found among many primitive peoples, in many ancient codes of law, and in many contemporary societies.

The above remarks show that the generational time unit — whether it means the span of human life from birth to death, or that from birth to giving birth, or that of the active phase of a man's life, or any interval between the main age classes of a given society and their initiation rites — has indeed played a real and important role in the time reckoning of the primitive, ancient and even modern societies, and reflected real rhythms or their phases in the life history of these societies.

We shall not be surprised, therefore, that in some form, such a generational time unit is found in the theories of sociocultural change and periodicity of many a thinker of the past, as well as the present. As in any continuously living society there is a continuous flow of the generations — continuous births and deaths, and continuous aging of individuals — and in such an incessant flow of the generations they saw one of the important sources of the continuous sociocultural change. As these generational time periods systematically recurred in the life history of the society and were regarded equal to themselves, they became for many a thinker a source and at the same time a manifestation and unit of the periodicity of the sociocultural processes in such societies.

We have seen that generational time periods in social and human existence were noted in the *Hindu* thought: the human soul changes its status in the process of transmigration through the gates of death and birth, as passage through the same gates changes the caste position of the individual.[179] Likewise, it had its influence also among the periodicities of the Babylonians,[180] and of the Greeks and Romans (Hesiod, Heraclitus, Herodotus, Zeno, Herodicus, and others).

Traces of generational periodicity are noticeable in Plato's works (for his theory of the immanent change of the political régimes begins

[179] See above, p. 443.
[180] See above, p. 461.

with the birth of a new generation), in Herodotus, Ephorus,[181] Polybius,[182] Aristotle, Virgil, Lucretius, Plutarch,[183] Varro, and many other thinkers. Some of them regarded the generation period as a mere consequence of the periodic revolutions and constellations of the heavenly bodies; others regarded it as an autonomous periodicity. But in both cases such a time unit is used and such a periodicity considered as real.

During the subsequent centuries, the idea of the generation periodicity and of the importance of the change of generations in the sociocultural life has never been entirely dead. Either in the form of a general statement about the life span of a generation, during which this or that event takes place; [184] or in the form of a reference to "the past generation," "the generation of our grandfathers," or to that of Pericles; or in the form of a more specific statement as to the number of generations when a certain event has taken or will take place; or in a still more systematic generation theory of social change and periodicity, the generation theory continued to persist. Such allusions and traces are found among the statements of the Christians of the first centuries of our era as well as of the Middle Ages. A conspicuous example of the medieval theory of the generational periodicity is given in the quoted work of Joachim de Flore.[185]

Among the Arabian thinkers, Ibn-Khaldun's (1332–1406) theory of generational periodicity in the change of cultures, the rise and fall of empires, of dynasties, and other sociocultural processes, was given above.[186] In the works of the later thinkers, the generational concep-

[181] The Greek historian Ephorus (*c* 405–330 B C) in his *Histories* used as a basic system of ordering his material "the generation time unit," which unit was a period of thirty years. Lycurgus' time, for instance, was in his system "eleventh from Heracles" F J. Jacoby, *Die Fragmente der griechischen Historiker* (Berlin, 1923 and 1926), Ephorus, fr. 62. Also G L Barber, *The Historian Ephorus* (Cambridge, 1935), pp 171–72. So far as another historian, Diodorus of Sicily (who lived in the time of Julius Caesar) is influenced by Ephorus, some traces of generation periodicity are present also in his *History*. See *Diodorus of Sicily*, translated by C. H Oldfather (London-New York, 1933), Vol. I, p 25 (Bk. i, 6).

[182] In explanation of his famous cycle of the political régimes, Polybius says that in each régime "After the course of one or two successions (generations) new men sprang up" with different habits, ideas, conduct. *The General History of Polybius*, translated by Hampton (Oxford, 1823), Vol. II, pp. 124–31 (or Bk. vi, chap. i).

[183] See above, Censorinus' statement and quotations from these authors

[184] For instance, "Verily I say unto you, that this generation shall not pass, till all these things be done," *Mark*, xiii:30; "Verily . . . this generation shall not pass away, till all be fulfilled," *Luke*, xxi:32; also *Matthew*, xxiv.34; *Mark*, ix:1.

[185] See above, pp. 413, 456–57.

[186] See above, p. 418.

tion crops up also, as in Machiavelli,[187] G. Botero, Vico,[188] and many others. Sometimes we find a fairly definite statement of this kind, as for instance, in the *Ethnographia mundi* by Joh. Olorinus,[189] in whose work we read:

To those who want to see clearly and to understand the truth, there is given a new world about every fifty years, new not only in the sense that it is composed out of new men, but also in that which concerns their qualities. Likewise, there seems to exist a similar fatal period in the history of Germany (*fatalis Germaniae periodus*); speaking more exactly, this cycle need not necessarily be so long; it may be even shorter, as can be testified to by many, including myself, who barely reached the age of forty years.

Among still later writers various phases of the problem are touched upon in the works of J. Bodin,[190] Pascal, A. Ferguson, J. J. Rousseau, St.-Simon, David Hume,[191] and especially of Auguste Comte, and after him, of J. Stuart Mill, Littré, Cournot, and many others.[192]

This brings us to modern times and permits us, instead of outlining the theories of these authors of the past, to take the contemporary monographic works on the problem, and see how it is interpreted and

[187] In his *Discourses*, among other things, Machiavelli states that in order to avoid revolutions, it is necessary every ten years *rigiuare lo stato*, through a periodic reduction of social and political institutions to their principle and origin. *Discours*, Bk. iii, 1.

[188] See above, pp. 411–12.

[189] Second edition, Magdeburg, 1614. See about him the paper of G. Steinhousen in the *Zeitschrift fur deutsche Kulturgeschichte*, 4th Series, Vol I, 1894.

[190] See J. Bodin's *Six Books Concerning a Republique*, Bk. iv, chap. iii, on Revolutions

[191] Here is the general statement of David Hume, showing his "cyclical" conception of sociocultural processes.

There is very little ground, either from reason or observation, to conclude the world is eternal or incorruptible. The continual and rapid motion of matter, the violent revolutions with which every part is agitated, the changes remarked in the heavens, the plain traces as well as traditions of an universal deluge, or general convulsion of the elements; all these prove very strongly the mortality of this fabric of the world, and its passage, by corruption or dissolution, from one state or order to another. It must therefore, as well as each individual form which it contains, have its infancy, youth, manhood, and old age; and . . . in all these variations man, equally with every animal or vegetable, will partake. In the flourishing age of the world, it may be expected that the human species should possess greater vigour both of mind and body, more prosperous health, higher spirits, longer life, and a stronger inclination and power of generation. . . . The arts and sciences have flourished in one period, and have decayed in another; at the time, when they [progressed] to greatest perfection among one people, they were perhaps totally unknown to all the neighboring nations — and though they universally decayed in one age, yet in a succeeding generation they again revived and diffused themselves over the world. . . . David Hume, "On the Populousness of Ancient Nations." *Essays, Literary, Moral and Political* (London, 1870), pp. 222–23.

[192] See an outline of their theories in F. Mentré, *op. cit.*, pp. 66 ff.

analyzed by these contemporary investigators who examine it more systematically than the thinkers of the past.

The literature on the problem of generations is already quite voluminous. The writers attack it from diverse standpoints and in its different aspects. Therefore, for the sake of clarity it is advisable to choose what seem to be the most important works in the field and present the problem as they see it, which does not hinder us from indicating, in passing, several specific points set forth by other studies in the field.

The contemporary works in this field stress particularly the following roles of the succession of generations in the sociocultural processes: *first, as a continuous and main factor of an incessant change and flow in the sociocultural life; second, as a factor of generation rhythm and periodicity in the sociocultural processes; third, as a natural time unit for the division and punctuation of historical processes, instead of a purely artificial and mechanical time unit, like a year, or ten years, or one hundred years, or such divisions as "the ancient, medieval, and modern"; fourth, as an explanatory principle for an understanding of a number of sociocultural and psychological phenomena, such as the eternal contrast and conflict of the "fathers and sons" in any period of history, the psychology of the younger and older generations at any given time, the reason for the presence or absence of this or that great man and for a sudden change in his popularity and many other phenomena.*

A. As to the first point, namely, the flow of the generations as the continuous factor of sociocultural change, it is more or less unanimously accepted by practically all the generation periodicity partisans, and by many others who do not share other points of the "generational theory." As in any society, the population is incessantly renovated, new persons being born and others dying, children maturing and mature persons aging; and as, according to the claims of the generational theory, persons of different ages feel, think, and react differently in the same objective situation, the result is that this incessant flow of the generations is the continuous "motor" of the sociocultural change.

The phenomenon is general: the flow of the human cellules explains the life of ideas as well as of institutions. Society progressively changes through a continuous change of the social personnel.[193]

[193] F Mentré, *Les générations sociales* (Paris, 1920), p. 218 *et passim* See similar ideas in Karl Joël, *Wandlungen der Weltanschauung. Eine Philosophiegeschichte als Geschichtsphilosophie* (Tübingen, 1928) Vol. I, pp 42 ff.; K. Joël, "Der seculare Rhythmus

B. The second thesis of the generation theory is, as mentioned, that persons of different age feel, think, believe, react and behave differently, not only in different but in the same conditions and situa-

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der Geschichte," *Jahrbuch fur Soziologie* (Karlsruhe, 1925), Vol. I; P. Ligeti, *Der Weg aus dem Chaos* (München, 1931), pp. 154 ff.; E. Spranger, *Die Kulturzyklentheorie und das Problem des Kulturverfalls* (Sitzungsberichte der Preussischen Akademie der Wissenschaft, 1926. 28. Januar. Sonderabdruck), pp 18 ff.; W. Pinder, *Das Problem des Generation in der Kunstgeschichte Europas* (Berlin, 1928), pp. 145 ff., *et passim;* Hans von Müller, *Zehn Generationen Deutscher Dichter und Denker* (Berlin, 1928), pp 9 ff ; G. Ferrari, *Teoria dei Periodi politici* (Milano-Napoli, 1874). pp. 6 ff., 16 ff., *et passim.* F. Kummer, *Deutsche Litteraturgeschichte des 19. und 20. Jahrhunderts nach Generationen dargestellt* (Dresden, 1922), Vol. I, pp. 1–25, *et passim;* O. Lorenz, *Die Geschichtswissenschaft in Hauptrichtungen und Aufgaben* (Berlin, 1886), pp. 277 ff ; O. Lorenz, *Leopold von Ranke* (Berlin, 1891), pp. 175 ff.; G. Rümelin, "Ueber den Begriff und die Dauer einer Generation," *Reden und Aufsätze* (Tübingen, 1875), pp. 285–305; E. Du Bois-Reymond, *Reden* (Leipzig, 1886), pp. 518 ff.; L Benloew, *Les lois de l'histoire* (Paris, 1881), pp 263 ff.; J. Dromel, *La loi des révolutions, les générations, les nationalités, les dynasties, les religions* (Paris, 1862), pp. 115–315; K. Mannheim, "Das Problem der Generationen," *Kolner Vierteljahrshefte für Soziologie,* Vol VII, pp. 170 ff Likewise, the thesis is shared by other theorizers like· R M. Meyer, *Die deutsche Litteratur des Neunzehnten Jahrhundert* (Leipzig, 1899); Adolf Bartels, *Die deutsche Dichtung der Gegenwart* (Leipzig, 1897); J. Petersen, *Die Wesenbestimmung der Romantik* (Leipzig, 1926), chap vi; J. Petersen, "Die litterarische Generation," in E. Ermatingen (ed.) *Philosophie der Litteraturwissenschaft* (Berlin, 1930), pp. 130–187, G. Valois, *D'un siècle à l'autre. Chronique d'une génération* (Paris, 1921); F. Ball, *Die Lebensalter. Ein Beitrag zur antiken Ethologie und zur Geschichte der Zahlen* (Berlin, 1913); R. Hamann, *Die deutsche Malerei vom Rokoko zum Expressionismus* (Leipzig, 1925); Alfred Lorenz, *Abendlandische Musikgeschichte im Rhythmus der Generationen* (Berlin, 1928); E. Wechssler, "Die Generation als Jugendgemeinschaft," in *Festschrift für Breyssig,* Vol I, pp. 66 ff.; E Wechssler, *Die Generation als Jugendreiche* (Leipzig, 1930), A. E. Brinckman, *Spätwerke grosser Meister* (Frankfurt a. M., 1925); R Alewyn, "Das Problem der Generation in der Geschichte," *Zeitschrift fur deutsche Bildung* (1929) The same is true of such works as G. Renard, *Méthode scientifique de l'histoire littéraire* (Paris, 1900); V. Giraud, *Maitres de l'heure* (Paris, 1927); F. Strowski, *Tableau de la litterature française au XIX^e siècle* (Paris, 1912), pp. 454 ff ; J Ageorges, *La marche montant d'une génération, 1890–1910* (Paris, 1912); J. Bainville, *Histoire de trois générations* (Paris, 1918); Agathon (pseudonym), *Les jeunes gens d'aujourd'hui* (Paris, 1913); F. Brunetière, *Manuel d'histoire de la littérature française* (Paris, 1897).

This thesis is also stressed by many thinkers who do not share some of the other claims of the partisans of the generation theory, such as: J. L. G. Soulavie, *Pièces inédites sur les règnes de Louis XIV, Louis XV et Louis XVI* (Paris, 1809); Albert Nogue, C. Jannet (see about them in F. Mentré, *op. cit*, pp 112–114; Auguste Comte, *Cours de philosophie positive* (2nd ed. by Littré), Vol. IV. pp. 411, 452, 483, *et passim;* A. A. Cournot, *Considérations sur la marche des idées* (Paris, 1872), Vol. II, p. 43; Vol I, pp 126, 344; *Traité de l'enchainement des idées fondamentales dans les sciences et dans l'histoire* (Paris, 1861), Vol. I, pp. 8 ff ; W. Dilthey, *Das Erlebniss und die Dichtung* (Leipzig, 1906) in his *Novalis-Essay.* C. Furier, *Sommaire du traité de l'association domestique-agricole* (Paris, 1823), p. 59; W. Scheidt, *Lebensgesetze der Kultur* (Berlin, 1929); H. Cysarz, "Das Periodenprinzip in der Litteraturwissenschaft," in E. Ermatingen (ed.) *Philosophie der Litteraturwissenschaft* (Berlin, 1930).

tions. From this standpoint there is an eternal cleavage, and an eternal opposition between these age groups: as a rule, the sons are opposed to the standards of the fathers. Such an opposition and cleavage is due to both parties, in a sense: on the one hand, the fathers want to improve the training and education of their children, to help them avoid the mistakes and defects which they themselves made and had, and from which they themselves suffered; on the other hand, the sons or the young people cannot help reacting to many things in a way different from and opposite to, the reactions of the fathers or the older people. These latter already have their habits formed in regard to a great many values, objects, relationships, persons, etc., and cannot and do not change them easily; while the sons and the young people do not have, as yet, in regard to the same values, objects, persons, standards, relationships, any habits whatever, and therefore are in a sense free to react to them in a way different from that of the parents and the old people.

Such a contrast and opposition is evident in practically any family series of grandparents, parents, children, grandchildren. For this reason it is not an infrequent phenomenon when the grandchildren are more similar to their grandparents than to their parents. It is also clearly noticeable in the relationships of the old and the young, and in such "spiritual series" (as Mentré calls it) as the relationship in the schools of art, literature, philosophy, etc., between the master (leader) and his pupils, and the disciples of these pupils. No matter which "school" in such a series is taken, the cleavage between "the spiritual generations" of the master or the founder of a school in art, philosophy, religion, etc., and his disciples and "grand-disciples" is always found, and often results not only in a marked difference between the founder and his disciples, but in an open opposition, like the relationship, say, between Plato and Aristotle, A. Comte and his disciples. Such an eternal difference leads to the above continuous or rhythmic change of the sociocultural processes, through this factor of an incessant flow of the generations.

The psychology of the familial generations is extremely monotonous: the young revolt against the old and seek to dispossess them, waiting that they themselves will be criticized and dispossessed by their children.[194]

[194] F. Mentré, *op. cit.*, p. 188 and part ii, *passim*. See the details and variation of this argumentation in G. Ferrari, *op. cit.*, chaps. ii–xiv; in O. Lorenz, *Die Geschichtswissenschaft*, quoted, pp. 280 ff; K. Mannheim, *op. cit.*, pp. 170 ff., 309 ff. (especially his Generationseinheit); W. Pinder, *op. cit.*, pp. 145–156. In practically all the above works

Or, as Kummer puts it:

> The sons are more congenial and better adapted to their time than their fathers. . . . The youth feels the ideas (and values) of the older generation always only in their fading stage, in their decline and twilight. . . . It sees only the remnants of these values and these "left-overs" are not always the best of what was created by the older generation.

Hence the cleavage.[195]

C. Omitting several points of various generation theories — points interesting but not closely related to the problem of periodicity, turn now to the periodicity aspect of these theories.

Their general stand in this respect is that a generation is a natural period, or time unit, which punctuates the sociocultural or historical process given, serves as a natural caesura for distinguishing one rhythm or phase in this process from another. In so far as such a generation time period is, all in all, of a certain uniform length, it gives us a natural and periodic generation rhythm in many sociocultural processes.

So far as the family series of generations is concerned, the succession of the generations — say of the grandparents, parents, children, grandchildren — is clear-cut and punctuates the history of the family plainly and definitely. In such series it is not difficult to distinguish one generation from another. Therefore, the rhythm of the succession of generations and their periods is perfectly clear and definite. In so far as each generation is a biological, psychological, and social unity, different from and contrasting with other older or younger generations, and in so far as the average duration of the generation is about the same (as we shall see), in such a series the generational periodicity and rhythm is unquestionable. As such, it gives a natural unit of time, instead of artificial units of astronomical time, and as such serves for periodization and punctuation of the sociocultural process.[196]

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quoted we find a somewhat diversified stressing of this point. Only those who, like E. Wechssler, reject entirely the biological basis of generation and view it as an ever-creative stream, do not stress the point in this manner, but emphasize it as an eternal creative current without any calendar periodicity. E. Wechssler, *Die Generation als Jugendreiche*, pp. 25, 29–31, 194 ff.

[195] F. Kummer, *op. cit.*, p. 6.

[196] See a detailed development of these ideas in F. Mentré, *op. cit.*, pp. 177–204; O. Lorenz, *Die Geschichtswissenschaft*, pp. 277–288; *L. v. Ranke*, pp. 141–276; G. Ferrari, *op. cit.*, chaps. ii, xiv, *et passim*, and almost any other work quoted above.

With a proper variation, the same can be said of the nonfamily, or in terms of Mentré, "spiritual or serial generations" of the master and successors or disciples in the "noninstitutional" sociocultural activities, like art, philosophy, literature, religion, and several others. Such series are also clearly cut; master or founder or leader (one generation) has successors or disciples (second generation); these their disciples (third generation), and, if the movement persists, the fourth generation of disciples, and so on. In such "spiritual series" all the essentials of the family or genealogical series are repeated, and one generation is almost as clearly separated from the next as in the family or genealogical series.[197]

D. In the whole social and historical process, the situation is, however, different and much more difficult. There, in contradistinction to the family and "spiritual" series of generations, the population is composed of the most different age groups, from newly born babies up to old persons, with all the continuous age groups in between. More than that: an incessant and continuous flow of all these age groups exists there: new babies are continually being born, the old people continually die, and all the living continually change in their age, becoming older all the time. Here, then, there are no clearly cut generational groups. Instead, there is an uninterrupted *age continuum*, in which there is no possibility of distinguishing the generation of grandfathers, fathers, and sons. Instead we have a *continuum* of persons one-two-three-four days old, one-two-three-four weeks old, one year, between one and two years, three years old, and so on. In addition, all this *age continuum* again flows incessantly and imperceptibly, aging and being rejuvenated at the same time. No caesurae of generations are visible in such a *continuum*. Such is the essence of this — the greatest difficulty for the generation theory when one attempts to apply it to the sociocultural and historical processes generally.

Its partisans realize this quite clearly. And realizing it, they have attempted to overcome the difficulty in various ways. A study of these ways leads us to the very heart of such theories generally. What, then, are the ways of overcoming the difficulty?

The general answer is that though it is true that the population of any society represents the *age continuum*, nevertheless, a continuous, incessant, and gradual renovation of the population of a given society

[197] Probably this aspect is best developed in F. Mentré's work, quoted, pp. 205 ff., but many other works referred to above stress it also.

leads practically to the same results as the clear-cut renovation in the family and the "spiritual" series.

If in the family series after, say, thirty years, the generation of the fathers is replaced by that of the sons, the same result follows in a society where, through an incessant and continuous change of the population, after thirty years the members — and especially the active members — are found to consist also predominantly of "the generation of the sons," or those who were much younger thirty years before, when the generation that was active then is now either dead or retired. In other words, the process of the "replacement" and "renovation" goes on there, though continuously, in difference from the family change; nevertheless, the net result is similar: within the same approximate period when in the family, the fathers are replaced by their sons, the mature and active generation is replaced by a new one, by, so to speak, the historical generation of the sons. In some 25 to 35 years on an average, the population of any social system, say, the professors of a university, are found to be replaced to 50 or more per cent by new men, of a younger generation. Such is the general answer.[105]

E. This, however, does not solve the problem entirely. Though within, say, thirty years (see further about various periods offered) the older generations to a considerable degree are replaced by the younger ones, this replacement proceeds gradually, without any clear-cut caesurae, without any punctuation; it just flows incessantly and evenly; therefore, as such, it does not provide any point which would indicate the beginning of a new generation period and the end of the previous one. The whole process of the flow of generations is like a straight line, where no marks or punctuations are given. If such is the situation, then how and in which way can the generation punctuation of the process take place? How and for what reasons can we say, here, in this *continuum*, is the mark that signifies the era of a given generation, and here is where a new generation period begins? Such is the difficulty.

The generationists are aware of it and try to meet the problem in a number of ways. The first step in this direction is the establishment of the concept of the generation and its average duration,

[105] See on this point particularly O Lorenz, *Leopold v. Ranke*, pp. 175 ff.; F. Mentré, *op. cit.*, pp. 213 ff.; W. Pinder, *op. cit.*, 149–50; G. Ferrari, *op. cit.*, pp 9 ff ; 109–110; J. Dromel, *op. cit.*, pp. 115 ff.; H. v. Müller, *op. cit.*, pp. 14 ff.; A. A. Cournot, *Traité*, quoted, Vol. I, pp. 8 ff.; *Considérations*, quoted, Vol. I, pp. 125 ff.; G. Rümelin, *op. cit.*, pp. 285–305. See also other works quoted above.

expressed in the terms of astronomical years. We have seen before that some of the ancient thinkers meant by a generation the time from birth to that of giving birth. (Censorinus' *orbem autem vocant aetatis, dum natura humana a sementi ad sementem revertitur, De die natali,* quoted edition, xvii.)

Contemporary theorizers unanimously declare that by "generation" they do not mean the whole length of the biological life of a person, but only *that part of it during which man is an active member of society.* From childhood up to the age of some 20 or 25 years is a preparation to an active role in society; likewise, after an age of some 60 to 70 years, most men retire from the active role. Thus the active period of social life is somewhere between the ages from 20 to 30 and from 60 to 70 years. For elucidation of this point, Ferrari took a series of 600 lives of prominent men, and statistically computed the duration of their active social life, from the moment of active social emergence to the moment of retirement (or death in some cases). The average length of such a "political generation" is 31.76 years. "Great men are given a miraculous longevity." For common mortals, the figure may be somewhat lower, but not far from the vicinity of 30 years. Thus "every thirty years the generations are renovated with the renovation of their government." [199]

O. Lorenz, F. Mentré and many others proceed similarly. Lorenz says that "the object of history is man in his relationship to his contemporaries and to all other men who were before and will be after him. . . . History seeks to explain (*zu erklären*) the character of generations." [200]

For that purpose the usual mechanical system of years, decades, and centuries is quite inadequate, and L. von Ranke and Dubois-Reymond rightly jeered at it. The only system is the system of generation periods, meaning by this the duration of the active life of men, from the moment of their social emergence to that of retirement or death.[201]

[199] G. Ferrari, *op. cit.*, pp 7–16.

[200] O Lorenz, *Die Geschichtswissenschaft*, pp. 272–73.

[201] O. Lorenz, *L. von Ranke*, pp. 175–76. Retirement, because the generationists again and again indicate that even for the majority of great men, like Luther, Corneille and many others, the period of social retirement comes earlier than that of their death, or even of the cessation of their activities. When such men outlive their generation, they lose their previous influence and fascination for the new generation, and become socially dead or retired. See about that, *ibid.*, pp. 177 ff ; F. Mentré, *op. cit.*, pp. 332 ff.; E. Wechssler, *op. cit.*, chaps. ii, iii; G. Ferrari, *op. cit.*, pp. 61 ff G Ferrari gives a large number of cases of such great men outliving their generation and, as a consequence, the loss of their influence over the men of another generation. For instance, Descartes had

In studying the genealogies of many families, and especially those of the princely families, Lorenz finds that the average duration of each socially active generation is about 30 to 35 years. The duration of three generations gives a century; of three times three generations gives 300 years.[202]

To similar conclusions come also Mentré, A. E. Brinckman, H. von Müller, A. Bartels, F. Kummer, A. Lorenz, K. Joël, P. Ligeti, J. Petersen, W. Pinder (25 years), and, partly, A. A. Cournot and G. Rümelin, though the latter studies not so much the duration of the social or political as the biological generations. Other authors who are not strictly generationists have given somewhat similar periods of alternation of, for instance, the periods of analysis and synthesis in science, which periods, according to H. Berr, are about 30 to 40 years. Similar (32 years) is the length of the period of alternation of the periods of anarchy and integration according to Furier. Other generationists deviate somewhat from this average length of social and political generations, but, as in the case of J. Dromel, mainly for the purpose of dividing this period of 25 to 35 years into two halves, arriving thus at 15 years as the period during which the newer generation succeeds in obtaining a majority among the socially active generation. For other purposes, Dromel notes the period of 20 and 40 years or near that.

Such, then, is the average duration of the social or political generation, and the way in which the duration is obtained by the theorizers of generation periodicity. This typical length does not preclude, of course, some fluctuations in the form of a generation that lives somewhat longer or shorter than this typical duration; some of the generationists talk even of the "in-between generation," whose length can be far shorter than the average or typical duration.

F. Now the problem is reduced to finding where one generation begins and another ends. Where to start the computation of the succession of the generations and what are the marks that denote the boundary line between the generations?

O. Lorenz answers that we must just observe historical facts, which will show such boundaries clearly by the social and political events.

thirty-two years of social activity, but of these only twenty-eight were socially influential. Only a few great men have a second youth, like Goethe, and live actively the life of two generations. See about that, especially F. Kummer, *op. cit.*, pp. 9 ff., about so-called "law of repeated puberty."

[202] O. Lorenz *L. v. Ranke*, pp. 191–208, 286 ff.

More specifically, as a mark we can take the succession of the generations in the ruling dynasties — because each generation of rulers incarnates and expresses the culture and trends of their time. A factual study of the change of generations in the family of the Hohenzollerns, the Carolingians, and Hapsburgs, made by him, corroborates this claim: a change of the generation of these dynasties always marked and was synchronous with a change of the total physiognomy of the culture and society from one generation period to another.[203]

Similar is the procedure of Ferrari. He also takes for the criterion the change of the political generations of the rulers or the politically influential families. Testing such a hypothesis on the facts of history he finds it excellently corroborated.

> Each thirty years the generations with their governments renovate; each thirty years there begins a new (social and political) action; each thirty years a new drama with new personages presents itself; finally, each thirty years there develops a new event. . . . Each thirty years the existing government wears itself out, declines, and becomes inadequate; each thirty years a battle, a conflict, a surprise, a violent or pacific mutation creates a new régime.[204]

Ferrari lays down a long series of facts which, in his opinion, definitely corroborate this statement. Using the data of history, he shows that each generation has its own government; that each generation has its own great men as its mouthpieces, and that some great men who outlive their generation lose their influence and become socially dead; that likewise, many great men are born before their generation, therefore they do not have a natural influence upon their contemporaries, but obtain it and rise when the generation to which they belong comes on the scene of history; and so on.[205]

Somewhat similar, but not identical, is the procedure used by other generationists for marking the beginning and end of the generations, in the continuous flow of age groups in a society. They all seem to agree that the generation is the totality of the individuals born and working more or less synchronously in the same society and the

[203] O Lorenz, *L von Ranke*, pp 209 ff

[204] G Ferrari, *op cit*, pp 16-20 According to Sir Isaac Newton's computation, "by the ordinary course of nature kings reign, one with another, about eighteen or twenty years apiece" Respectively he thinks that Egyptians and Greeks and Romans who ascribed from thirty to forty years as an average duration of the reign of their kings exaggerated the duration See many computations of that kind in Sir Isaac Newton's *The Chronology of Ancient Kingdoms Amended* (Dublin, 1728), pp. 52 ff and chaps i, ii.

[205] G Ferran, *ibid.*, pp. 21–110.

same situation; therefore feeling, reacting, thinking, and behaving somewhat similarly, having a similar mentality and similar "entelechy."[206] But the concrete way of marking the passing and coming generations differs somewhat. For instance, F. Mentré finds — and reasonably — that a purely political criterion is inadequate and one-sided. We do not have any right to ascribe to the political events (and rulers) any specific importance greater than that of scientific, philosophic, artistic, and other events and processes. Therefore he prefers to use other social symptoms for demarcation of the generations' change. First, as one of the symptoms or landmarks, he uses the facts and testimony of the great men and centenarians who found themselves anachronistic or forgotten by the new generations, after their own generation had passed from the scene of history. The facts of an almost complete loss of popularity of such idols of the public as Corneille (1606–1684), as the Grande Mademoiselle (1627–1693), Chateaubriand, or Abbot Seyes, and their own testimony that they did not understand the new generation and that it appeared to them like a perfectly different race, indicate the change of the generation and its approximate boundaries. The reason is that each generation has its own leaders and each leader is influential and popular only within his own generation. Such is one of the symptoms. Another indication is the literature and art, as two of the most all-embracing and sensitive barometers of a change of ideals, values, and mentality of the society, and therefore, barometers of the change in the generations.[207]

Though in each human society at any moment there coexist side by side and one in another several generations, but mainly three — the survivals of the past, the dominant of the present, and the anticipa-

[206] See W. Pinder, *op. cit.*, pp. 149 ff ; F. Mannheim, *op. cit*, pp. 174 ff.; H. von Müller, pp 14 ff ; F. Kummer, *op cit*, pp 5 ff ; K. Joël, *Wandlungen*, quoted, Vol. I, pp. 42 ff ; F. Mentré, *op cit*, pp 40 ff ; 271 ff ; A Lorenz, *Abendlandische Musikgeschichte, in Rhythmus der Generationen* (Berlin, 1928), pp. 30–39; A. E. Brinckman, *Spätwerke, passim*

[207] F. Mentré, *op. cit.*, pp 334 ff.; A E. Brinckman in his *Spätwerke grosser Meister* (Frankfurt, 1925), after his study of the paintings of El Greco, Murillo, Rubens, Rembrandt, Hals, Dürer, Titian, Tintoretto, Michelangelo, Donatello, Leonardo, Bernini, Renoir, came to the conclusion that each school of painting and the works of its leader pass through three phases the phase of youth (in early age of the masters and the school) marked by vitality, revolutionary exuberance, and similar traits; the phase of maturity (in about 35 years) stamped by ripeness, firmness, and clearness of the style of the master or the school; the phase of old age (in about 60 years) characterized by *Verstimmtheit*, mellowing and blending of the colors and lines, by spiritualization (*Vergeisterung*), by an effort to soar over empirical things, and so on.

tors of the future — so likewise, in the ideals and value systems of the society at any moment there are the survivals of the past, the dominant values of the present, and the anticipatory values of the future. When the given dominant values and ideals change, the change denotes a passing of the previously dominant generation and its replacement by the new one, and vice versa.

With some variation, a similar system is used by many other representatives of the generation theory.

Having formulated such a method, many of them do not stop at that point but proceed to test and support it by a series of long and often very elaborate factual data. They take, like Mentré, Pinder, Müller, Kummer, Bartels, Joël, Ligeti, Ferrari, Lorenz, Wechssler and others, long periods of the history of literature, painting, philosophy, political events, or other forms of art, or of political and social theory and, having grouped the leading men in each field according to approximate synchronicity of their birth, they try to show that indeed those born together and working in about the same time belong mostly to the same school, style, pattern, current, or had the same "entelechy." The problems they work over are the same, though the solutions may be different. Such an "entelechy" stamps their generation's culture and society; when they pass and are replaced by a new generation, with a new entelechy, a new stamp is put upon the culture and society; and so the ever-repeated process goes on.[208]

Alfred Lorenz (a son of O. Lorenz) arranges the important Western musicians in the generational periods of some 33 to 34 years, particularly stressing in each century the years 10, 43 and 76 as the years marking the end and the beginning of a new generation. H. von Müller gives us the list of the German writers, philosophers, educators, and art-theorizers from 1561 to 1892, arranged in ten generations, each of which is subdivided into five or four subperiods of the duration of seven to eight years. This means that the generationists have tried to test and to interpret the data of history in the light of their theory. In this sense they cannot be accused of stopping at a mere speculative stage of their hypothesis and in not continuing to

[208] See long lists of the most painstaking series of the German literati in F Kummer's work, quoted; a series of the artists in W. Pinder's work, quoted, a series of generations in French literature in F Mentré's work, quoted; many and various series in G. Ferrari's and O. and A. Lorenz's works, quoted; in a sense, a whole history of philosophy of Greece, Rome and the Western world is given in this generational framework in K. Joël's three volumes of the *Wandlungen*, quoted.

its factual verification. The examples of these factual series will be given further, in the *critical examination of the theories of generations.*

G. Many of these theorizers do not stop at the contention of the existence of one-generation periodical rhythms. Several go beyond one generation and try to establish longer periodicities, composed of the periods of three or more generations. Such, for instance, are O. Lorenz's 100, 300 and 600-year periods. One hundred years is a natural time unit designating the duration of three generations which live together. When the social life of three generations is ended, the period is always marked by events far more important than the events separating one generation from another. Periods of 300 and 600 years mean the duration of nine and eighteen generations respectively. Several great sociocultural processes need and take such durations for their realization. Three hundred years were necessary for Christianity to grow from the illegal and persecuted sect to its legalization by Constantine; another 300 years were necessary for it to become established as the Catholic Christian Church (the time of Gregory the Great).[209]

Much more systematic and interesting is Ferrari's theory of the ever-repeated sequence of four generations, which are given a period of 125 years as an average. According to Ferrari, there is not only a one-generation periodicity but also a four-generation periodicity, composed of a uniform succession of four specific generations, namely: predecessors that academically examine, study, and criticize the existing political and social régime; revolutionaries that follow the predecessors and try to put into practice the results of their academic criticism, through a sharp and mostly violent modification of the social and political institutions; the generation of reactionaries which follows that of the revolutionaries, and tries to erase all the destructive effects of the revolutionaries and, in doing so, goes to the opposite extreme and opposite destruction; finally, the generation of the accomplishers, who follow the reactionaries. This generation quite easily and successfully solves the problems of its time and establishes new stable conditions — the happiest period of the four. Then the cycle begins again; and so goes on, uniformly and forever.[210]

Ferrari does not stop at a mere sketch of such a theory but attempts

[209] O. Lorenz, *Die Geschichtswissenschaft*, pp 286–292. Similar periods (100, 300, 600 years) are claimed by K Joël (*op cit*, Vol I, pp 42 ff), by W Scherer (*Geschichte der Deutscher Litteratur* (Berlin, 1885), Introduction and chaps. i, ii), and several other writers.

[210] G Ferrari, *op cit*, pp 113 ff, *et passim*

factually to show such a cycle in the history of several European and even some Oriental countries (like China). Here is a sample of his long series of data. Christianity was established in 115 years (from Diocletian to Theodosius), with four marked generational periods. The religious reform in France took some 110 years (from 1514 to 1620) with four generational acts. In the history of France, the generations of the *predecessors* were: that of the Encyclopedists around 1750; that of the Cartesians around 1620; that of the Calvinists around 1514; that of the plebeians around 1378; that of poets and scholastics around 1271; that of the troubadours around 1135; that of the theocracy of Gregory VII around 1000; and so on. All these generations were predecessors and preparers of the next — *revolutionary* — generations, such as that of the revolutionaries of 1789; of the Fronde of 1648; of the religious wars of 1547; of the Burgundian crisis of 1411; of the explosive generation of Philip the Fair in 1285; and so on. Each of these revolutionary generations was succeeded by *reactionary* generations, such as: the generations of 1814–1848; 1685–1716; that of 1576; and so on. Finally, each of these reactionary generations was followed by the "*resolutive* generations" (*le generazioni Risolutive*), such as: the generation of Louis Napoleon, of the Regency of 1716; of the reforms of Henry IV, of Charles VIII, of Louis XII, and so on.[211]

Ferrari goes to much greater detail and gives practically the whole history of France and several other countries, arranged and interpreted from the standpoint of this periodicity of four generations.[212]

In the light of these periodicities, he interprets the movement of a great many scientific, philosophical, artistic, political and other processes. In all these, the generational and four-generation periodicities are present.

Several other authors, though for various reasons, claim a periodicity of 130 or 125 years (as an average).[213]

Other authors claim partly similar, party dissimilar periodicities of a duration longer than the one-generation period. For instance, L. Benloew claims periodicities of 150, 300, 1500 years, the cycle of 300 years being the most important.[214] Of shorter periods, he particularly stresses the periodicity of 15 years. So do also Soulavie and Dromel. O. Spengler claims periodicities of 50, 300, and 1000 years.

[211] *Ibid.*, pp. 113–180.
[212] *Ibid.*, pp 181 ff *et passim*.
[213] See, for instance, P Lugeti, *op. cit.*, pp. 154 ff.
[214] L. Benloew, *op. cit.*, pp 267 ff.

Without going into other details of various generational theories, the above sums up all their essential points, so far as they concern the problem of sociocultural periodical rhythms. We see that for the source of their periodicities they examine the biological differences of various age groups, and their biological succession and flow. To that extent, they are a branch of the biological interpretation of the sociocultural periodicities. We see also that this branch has gone in their study and interpretation much farther than general organismic and biological theories do. A considerable number of the adherents of the generational theory; the large amount of work they have done in the way of framing and especially in testing their theories on actual historical material; the ingenuity and originality of some of their ideas; and finally, the purely sociological analysis of the role of the generations in the sociocultural process — all this justifies the above characterization (somewhat less brief than for several other currents) of this particular current of thought.

With this I can close the account of the biological theories of periodicity.

VII. Mixed Theories of Periodicity

By this class is meant all the theories that claim various periodicities in the sociocultural processes, but ascribe their source to a combined action of the cosmo-biosocial factors, or do not specify it clearly. Such, for instance, is the above theory of Louis Benloew. He claims, first, the existence of a cycle of 1500 years, that manifests itself in a realization of an ideal of either Goodness (*Bien*) or of beauty, or any other fundamental value. Such cycles are the great caesurae of history and mark the most important events. For instance, the realization of the ideal cycle of Goodness represented by Christianity took 1500 years — from 300 to 1800 A.D. Such also was the period for a realization of the ideal of Beauty — from 1200 B.C. to A.D. 300; and so on.[215] Each of the longest cycles consists of five shorter cycles of an average of 300 years' duration. For instance, the above cycle of Christianity consisted of five subcycles: from Constantine to Gregory the Great (*c.* 600); from him to about 900; then to 1200 (supremacy of papacy, feudalism); then to 1500 (climax and decline); then to 1800 (the Reformation, French Revolution).[216]

Then there are cycles of 150 years, and of 15 years.

[215] L. Benloew, *Les lois de l'histoire* (Paris, 1881), pp. 267–272.
[216] *Ibid.*, p. 268 ff.

Among other processes that show a periodicity, is that of the movement of civilization from the Orient to the Occident. Such a movement is the line of progress. But there occur reactions to it, in the form of the opposite movement of civilization, from the Occident to the Orient. Such movements are the line of regress.[217]

The factors of these periodicities are mainly — but not exclusively — cosmic, biological, and partly social.

Somewhat similar is the theory of P. Mougeolle, claiming the secular poleward movement of civilization, in which some sort of periodicity is also given; the sources of it are of a mixed character, with the climatic factors dominant.[218]

U. von Wilamowitz-Moellendorff, drawing a parallelism of the development of Graeco-Roman and Western cultures, points out that both have a duration of some 1500 years (Graeco-Roman from 1200 B.C. to 300 A.D., the Western from 300 A.D. to 1800). So far as the problem of the factors of such a cycle is concerned, no specific analysis is given.[219]

A. Quetelet contended that the average duration of a nation or a state is 1461 years — an average obtained by him on the basis of the computed durations of Assyria, Egypt, the Jewish state, Greece, and Rome.[220]

[217] *Ibid*, pp 351–365.

[218] P. Mougeolle, *Les problèmes de l'histoire* (Paris, 1883) and *Statiques des civilisations* (Paris, 1886) Without stressing the periodicity trait, similar claims of the northward movement of civilization and progress are expounded by S C Gilfillan, "The Coldward Course of Progress," *Political Science Quarterly*, Vol XXXV (1920), pp. 393–410; and by V. Steffanson, *The Northward Course of Empire* (New York, 1922) See their criticism in Sorokin, *Contemporary Sociological Theories*, pp. 107 ff., 180 ff.

[219] U. von Wilamowitz-Moellendorff, "Kulturperioden" in his *Reden und Vorträge* (Berlin, 1901), pp. 120–135. Similarly C Dawson suggests also the existence of a succession of world civilization cycles of about 1500 years' duration. C Dawson, "The Life of Civilizations," *The Sociological Review*, Vol XIV (1922), pp. 51–68, G. Milner (*The Problem of Decadence*, London, 1931), in discussing the problem of duration and decay of Roman civilization, paralleling the Roman decay with that of the modern period, suggests a long-time cycle of about 1721 years.

[220] A Quetelet, *Du système social, et les lois qui le régissent* (Paris, 1848), pp. 158–161; he also claims that the average duration of the big cities is 627 years, *ibid*, pp 163–167 See my criticism of that in my study: "Life-Span, Age-Composition, and Mortality of Social Organizations," in *Mensch en Maatschappij, 9e Jaargang*, pp. 76 ff., K C Schneider (*Die Periodizität des Lebens und der Kultur*, Leipzig, 1926) claims that the life cycle of the great cultures is about 2100 years. A. J. Toynbee (*A Study of History*, London, 1935, Vol. III, pp 408–420) suggests a cycle of 600 years in the nomadic movements, divided into advance and retreat. G G. Wieszner, *Der Pulsschlag deutscher Stilgeschichte* (Stuttgart, 1933), claims the existence of 600 and 300-year periods in the change of the fundamental style in art.

Then there are a large number of works that claim various short-time cycles in the dynamics of various sociocultural and demographic phenomena, such as: *the average duration of various social institutions:* 3 years for contemporary small economic enterprises, like drug and grocery stores, and the like; 28 years for 7,337 Swiss joint-stock companies, 25 years for the Italian joint-stock companies, and the like; from 2 to 7 years for various local cultural organizations in the United States; and the like.[221] Others are an irregular rhythm in the *change of fashions in dress;*[222] an *alternation of the domination of the Republican and Democratic parties in the United States,* 8 years for the Republican and 4 years for the Democratic,[223] from 1876 to 1930; *then a 24-hour cycle in the movement of death and suicide* (Guerry, Durkheim, Millard);[224] "seasonal periodicities" in the movement of births, deaths, suicides, crimes, business; 3.5-year cycles in the movement of business, births; 5-year cycles in the movement of birth of the prominent men of letters in France; in the life history of great men (5-year climacteric periods); 7, 8, and 11-year periodicities in the movement of business, and the social phenomena allegedly correlated with it: divorces, suicides, crimes, religious revivals, births, deaths; 15 to 16-year cycles in the change of the political régime and public opinion, and in that of various styles and schools in literature and art; 30 to 33-year periodicities in the movement of births, epidemics, deaths, business conditions, political parties and political régimes; 48 and 60-year cycles in business; a 100-year periodicity in many historical processes and in the occurrence of extraordinary important events; a 200-year periodicity in the movement of birth and death rates; 300, 500, 600, 1200, 1800-year cycles in important sociocultural processes, like the rise and decline of civili-

[221] See the data and literature in the above quoted paper of Sorokin "Life-Duration, Age-Composition"

[222] See A. L. Kroeber, "On the Principle of Order in Civilization," *American Anthropologist,* Vol. XXI (1919), pp. 235–263. Irregular periodicities of 60, 35, 15 years, but "whimsical" and far from being real periodicities. In J. Richardson and A. L. Kroeber's *Three Centuries of Women Dress Fashions* (Berkley, 1940) 50 and 100-year periods are given. P. H. Nystrom, *Economics of Fashion* (New York, 1928), irregular periodicities of some 25 years (pp. 20–21)

[223] W. Lippmann, "The Astonishing Normalcy of the American Voter," *Boston Globe,* November 12, 1938. In a personal letter, Walter Lippmann specifically points out that before 1876 "the preceding twenty years contain the Civil War, and so one could not carry the thing back through that period" (Letter, November 16, 1938)

[224] See for all these periodicities and cycles, for the sources, authors, and the literature, P. Sorokin, *Contemporary Sociological Theories,* pp. 730 ff. The same concerns the subsequent cycles and periodicities.

zation, epochal periods; a 1330-year periodicity of great revolutions in the change of civilizations.[225]

The above survey gives an idea of the multiplicity and diversity of the cycles and periodicities formulated by various authors whose theories fall mainly in the "mixed class."

All that has been said above about the metaempirical, the cosmic, the biological, and mixed theories of periodicities depicts the present-day status of the problem fairly adequately. One can identify the main types of the theories, their historical predecessors, their varieties, the varieties of the periodicities claimed, the fields in which their existence is contended, and the type of the argumentation and evidence with which they are sustained.

Now we can turn to a critical consideration of these theories in their fundamental principles and assumptions. What will be said of the metaempirical, cosmic, and biological theories is applicable also to most of the theories of the mixed type.

[225] See the literature and sources in *Contemporary Sociological Theories*, pp. 730 ff.

Chapter Ten

CRITICISM OF THE METAEMPIRICAL, COSMIC, BIOLOGICAL AND MIXED THEORIES OF SOCIAL RHYTHMS AND PERIODICITIES. SOCIOLOGISTIC THEORY OF PERIODICITY

I. Criticism of the General Premises of Cosmic and Biological Theories

A concise but clear statement concerning the validity of the metaempirical theories of periodicity has been given above (p. 460). We turn now to the criticism of the cosmic and biologic theories of periodicity. Some of these criticisms bear also upon the metaempirical theories.

In the cosmic, and to some extent in the biological and mixed theories of periodical rhythms, we have three common fundamental premises besides a number of other points mentioned later: first, that the cosmic or biological phenomena are closely related to the sociocultural phenomena and largely condition and control them; second, that in the cosmic or biological phenomena there are periodical rhythms, manifested in a recurrence of the rhythm within a more or less equal duration of clock time; third, that these rhythms must be and are reflected in the sociocultural processes (controlled by cosmic or biological forces) in the form of periodical rhythms of the same durations. We can now inquire to what extent these premises are sound generally.

A. As to the first premise, in a general form, so far as the sociocultural phenomena exist and occur in the matrix of the cosmic or biological *milieu*, some influence of the forces of these environments cannot be denied. No sociocultural system and its processes can be declared perfectly independent of the cosmic or biological *milieu* in which it exists and functions. Likewise, the cosmic and biological forces enter in the form of vehicles and human agents as components of the sociocultural systems. From this admission, it does not follow, however, that we are entitled to conclude that the dependence of the

sociocultural system upon these factors is so close that any detail, trait, or change in the cosmic or biological processes must necessarily be tangibly reflected in sociocultural processes: and that vice versa, any change in these processes is rooted in cosmobiological forces. Admission of *some* dependence is not identical with an admission of the *closest* dependence — so close that anything that happens in the cosmic or biological milieu must be reflected in the life and structure of the sociocultural system and that it is entirely controlled and is at the mercy of cosmic or biological forces.

Such a conclusion, being unwarranted logically, is unacceptable also because of the principle of autonomy and immanent self-direction of the sociocultural systems (discussed above in Chapter Two and further in Chapters Twelve and Thirteen). Indeed, if we postulate the closest dependence of the sociocultural systems upon either cosmic or biological forces external to them, we have to deny any marginal autonomy of these systems, any immunity from any external forces, and have to relapse into an extreme "environmental or externalistic theory of change," which is criticized and rejected later (see Chapter Twelve). So far as sociocultural phenomena are integrated into a system, they certainly have some margin of autonomy and immunity from cosmic and biological forces. If they have it, then not everything that happens in cosmic or biological realms has necessarily to be reflected in the structure and functions of the sociocultural systems. Some happenings may be reflected, some others may not. Which, and when, deductively cannot be claimed, and one has to turn to the relevant facts to elucidate the problem. A careful study of the facts shows clearly that there is a multitude of happenings in cosmic and biological milieus which do not tangibly influence sociocultural phenomena and processes. Likewise, there is a legion of sociocultural changes that go on independent of cosmic and biological forces. Finally, there is an enormous mass of sociocultural events that happen contrary to such forces.[1] The net conclusion is that, even if cosmic and biological phenomena have some periodical rhythms in their processes, such rhythms are not necessarily reflected on, nor do they necessarily control, the kind and duration of the rhythms of the sociocultural processes. The chances that these latter may be immune to all or to many of the cosmic or biological rhythms are as great as the chances of their complete dependence upon them, and, therefore, their faithful reflection of them. From the principle of autonomy of the social system,

[1] See the facts in my *Contemporary Sociological Theories*, chaps. li–vii.

it follows also that it can have rhythms and periodicities of its own, quite different from cosmic or biological rhythms and periodicities. Such is the net conclusion concerning the first premise, and an unlawful identification of a general dependence with the closest and perfectly complete dependence.

B. Now we can test the validity of the second assumption that cosmic and biological processes have certain clear-cut periodicities, which, according to these theories, control and "impregnate" with similar periodicities, the sociocultural processes. Again, that there are certain periodical rhythms in the movement of the heavenly bodies and in certain climatic and biological conditions can be granted. But are there clear-cut periodicities in exactly those cosmic and biological processes which the theories claim to be reflected in the sociocultural periodicities? As soon as such a question is put, another weak point of the theories is disclosed. Are, for instance, the "cycles" of movement of the sun spots (by number or by area) or other "solar cycles" — be they changes in the amount of solar energy reaching the earth, or of the ultra-violet rays, or of the shape of the corona, or of the area of the faculæ — are all these processes and cycles periodical indeed, in the strict sense of the term, and is their periodicity an ascertained fact? Nothing of the kind. One of the comparatively ascertained facts concerning sun spots is that they are not periodical: their maximums happened in the years: 1750, 1761, 1770, 1778, 1804, 1817, 1830, 1837, 1848, 1860, 1871, 1883, 1893, 1906. As we see, instead of a periodicity, we have the most diverse range of years, from maximum to maximum: 11, 9, 8, 26, 13, 13, 7, 11, 12, 11, 12, 10, 13.[2] As to other solar "cycles" their periodicity or nonperiodicity is less known and still more questionable. With even still greater reason this can be said of the alleged periodicity of the climatic conditions generally, and the amount of rainfall specifically.[3] The same has to be said about the periodical fluctuations of the health of the population, by

[2] See the details in *Contemporary Sociological Theories*, pp 120 ff , also *Handbuch der Astrophysik* (Berlin, 1929), Vol IV, pp 99 ff

[3] "We are somewhat embarrassed by its diversity as reported by different authors According to H. L. Moore, these periods are of 8 and 33 years of length, according to Beveridge, they are 4 37, 5.1, 11.12, 8 34, 15.3, 30.6 and other years of length; according to Jevons, both W S and H S , they are 10.44, 3 7, and 11 years, according to W. H Shaw, 2.75 and 3 67 years, according to Brückner, 35 years, and so on This discordance . . . raises the question as to whether the above periods are really existing or have arisen as a result of arithmetical and mathematical manipulations of the authors." P. Sorokin, *Contemporary Sociological Theories*, pp. 124–25.

means of which Dr. Huntington and some others try to connect the cosmic and biological periodicities with such social processes as the alleged periodicity of business fluctuations. Practically all the cosmic periodicities that have been claimed to be relevant in conditioning and creating similar periodic fluctuations in business, and some other sociocultural processes, have been purely statistical averages — mean or mode, or median — that appear as periodicities but are not such in fact at all.[4]

Still less is it possible to find any strict periodicity in the biological processes that are claimed to be responsible for various sociocultural — "generational" — periodicities. That this is so is witnessed by the respective theories: they prefer definitely to talk of the "political or social generation," but not of a biological generation. As we have seen, they try to deal with the social generation in the sense of the duration of the socially active role of a person or persons from the moment of becoming an active member of society up to the moment of "social retirement." [5] That is something fundamentally different from the duration of a biological generation, either from the moment of birth to death or from that of birth to giving birth. In regard to this biological generation, we know well that both durations (from birth to death or from birth to giving birth) are exceedingly variable values: from individual to individual, from sex group to sex group, from certain social, occupational, economic, religious, and other groups to similar ones; from society to society generally, and from period to period in the same society. Even talk of the average expectation of life at the moment of birth for all individuals of all countries and times, for all individuals of the same society and period, for all occupational and diverse social groups of the same society and period, or for all groups and individuals of the same society for different periods, is idle chatter. But even when some "average expectation of life" is given, this means merely a paper — statistical — average, which does not imply any equality of the duration of life of the individuals, or groups of the society, with such an "average expectation of life."

[4] See the facts and the details in *Contemporary Sociological Theories*, chap iii, and in the *Handbuch der Astrophysik* cited. The lack of real periodicity has to be admitted even by such partisans of the cosmic theory of business cycles as C. G. Mata and F. J. Schaffner in their paper, quoted, "There is no exact period" in the sun spot cycle, pp. 6 ff.

[5] Some "generationists" definitely reject any biological and calendaric conception of generation and make it an entirely sociocultural phenomenon. See E. Wechssler, *op. cit.*, pp. 25–32, *et passim*.

The same is true of the duration between birth and giving birth. This interval again enormously fluctuates from individual to individual, from group to group, from sex to sex, from society to society, from period to period; finally, a portion of individuals never marry and therefore are supposed to be giving no birth. This means that in the realm of the biological processes of the succession of generations, there is no periodicity in the strict sense of the term. Therefore, the second premise of the cosmic and biological theories is also far from being validly proved or grounded.

C. If, thus, it is uncertain as to whether periodicities in the course of the cosmic and biological processes closely control and create similar periodicities in the sociocultural processes; if, further, the very existence of the periodicities in the relevant cosmic and biological processes that are held to be responsible for the sociocultural periodicities is quite open to doubt; it follows that the third premise — that the sociocultural processes must exhibit the periodicities that reflect the cosmic and biological periodicities, and that most, if not all, periodicities of the sociocultural processes are of that origin and character — becomes groundless. When we turn to factual verification of the sociocultural periodicities, claimed by the partisans of the cosmic and biological theories of periodicity and of the methods of their establishment and corroboration, the groundlessness of their claims becomes obvious *de facto*, not only deductively but inductively.

If we inquire as to whether the sociocultural periodicities claimed by the partisans of the critized theories are real and well ascertained, the answer is, for an enormous majority of the cases, in the negative. Most of their periodicities are but fictitious statistical averages and not real periodicities; and even their statistical averages are greatly varying and shifting averages for the same process, and for the same alleged periodicity. In other words, they are not real periodicities at all. In order to see that, take almost any of the sociocultural periodicities claimed by the partisans of either the cosmic or biological factors. Some of them, like R. Mewes' periodicity for peace and war, for decline and blossoming of arts and culture, are perfectly naïve and fantastic concepts, repudiated by an elementary knowledge of history and especially by a systematic study of the relevant facts.[6] Most of the surveyed astrological and astrophysical theories of the sociocultural periodicities are of exactly the same type as Mewes' theory. As such, they either do not give any relevant facts and corroborations, or

[6] See my criticism of his theories in *Dynamics*, Vol. III, pp. 352 ff.

give only a few fragments of such evidence, or a purely fantastic array of so-called factual corroborations.

Other theories, like most of the theories of the periodicity of business "cycles," are less fantastic, but none of them has proved the existence of any real periodicity in business fluctuations. What they have given are but purely statistical averages of what is supposed to be the typical or average duration of the business cycle, either from prosperity to prosperity, or from depression to depression. Such averages, as mentioned, are not identical with a true periodicity (because from the most heterogeneous series of figures one can always get some sort of average). What is still worse, even these averages vary from author to author, from country to country, from period to period. Therefore, in fact, at the present time, we do not have even an average that can be regarded as typical for the duration of the business cycle generally, that is accepted by all the competent specialists, and is applicable to all countries and periods (as seemingly it should be if it reflects the cosmic periodicities which, for human practical purposes, have to be viewed as eternal and uniformly repeating themselves) Take the occurrence of the great famines in the past, which occurrences were for those periods the sharpest form of what, in the nineteenth and twentieth centuries, has been called "crisis"; [7] study them in any country, China or India, Russia or Persia, Greece or Rome, medieval Europe or any country in it (one finds a large number of such occurrences in any of these and in other countries in the past) and it is doubtful if one can find any periodicity in these occurrences.[8] On the contrary, it is reasonably certain that the famines occurred very irregularly, and spaced by different durations of time from one another. The same is true of the more recent economic or business crises and depressions. In Europe, or in some of the European countries, the following years are regarded as the years of the crises: 1810,

[7] "Up to the eighteenth century production rested upon agriculture, the crisis also was therefore always agricultural . . Its sharpest form was famine" Jean Lescure, *Des crises générales et périodique de surproduction* (Paris, 1932), Vol I, p 1.

[8] See, for instance for China, Mable P H Lee, *The Economic History of China* (New York 1921); for Greece and Rome, P Novosadsky, "The Struggle against Dearth in Ancient Greece," *The Journal of the Ministry of Public Education* (in Russian, St Petersburg, 1917); M Rostovtzeff, *Social and Economic History of the Roman Empire* (Oxford, 1926); P. Giraud, *Études économique sur l'antiquité* (Paris, 1905); for the Middle Ages, F. Curschmann, *Hungersnote in Mittelalter* (Leipzig, 1901), for the later period, many works, among them Afanassieff, *The Conditions of Food Trade* (in Russian, Odessa, 1893), A Araskranianz, *Die französische Getreidehandelspolitik bis zum Jahre 1789* (Leipzig, 1882)

1815, 1818, 1825, 1836, 1839, 1847, 1857, 1866, 1873, 1882 (1884, the United States), 1890 (1893, the United States), 1900, 1907, 1913–14, 1920, 1929–.[9] Thus the intervals run from three to twelve years, giving many intermediary figures between these numbers, and without any uniformity in the sequential order of the crises.[10]

The same is true about the occurrence of the fluctuations of either weather conditions, or crop cycles,[11] or any specific business condition.

W. L. Crum correctly sums up the situation, saying that "the economic period should not be assumed constant." [12]

Thus there is not only no periodicity, but even purely statistical averages for the duration of various "cycles" are given differently by different authors, and for different business variables. These averages shift, according to the author and the field of economic processes. For instance, in the movement of prices, Sir W. Beveridge alone cuts out the periods: 2.74 years; 3.71; 4.38; 5.11; 15.3; 30.6; 34.992; 48;

[9] See J Lescure, *op cit*, Vol I, pp 1–339 Though J Lescure, averaging these fluctuations by three to five years of prosperity and by similar periods of depression, calls such fluctuations "périodique," he himself hastens to add that "*cette périodicité n'a rien de mathématique*" *Ibid*, Vol I, p 3

[10] This lack of periodicity is testified to by almost all the competent investigators of business fluctuations In England, "From 1860 till 1914 the intervals between successive years of minimum unemployment are 7, 10, 7, 7, 7, and 5 years respectively; the intervals between successive maxima 6, 11, 7, 7, 11, and 4 or 5 years respectively; the average length of periods of lessening employment being 26 6 years and that of periods of improving employment 21 6 years . . . As regards the amplitude of the fluctuations, the differences between the maximum positions and the succeeding minimum positions were 4 2, 5 8; 9 1, 8 1, 5 5, 2 4, and 5 7 per cent respectively" Average duration from minimum to minimum is 7 4 7 years, range from minimum to maximum 5.8 per cent, A C Pigou rightly concludes from this lack of periodicity that it is impossible to forecast these fluctuations A C Pigou, *Industrial Fluctuations* (London, 1927), pp 14–15. Of 210 cases of the secondary secular movements in production and prices, studied by S S Kuznets, 20 cycles had a duration of 3–5 years, 52, 6–8 years; 48, 9–11 years, 39, 12–14 years, 25, 15–17 years; 10, 18–20 years; 1, 33–35 years; average being for "the duration of a complete swing for production" 22 years, and for price 23 years S S Kuznets, *Secular Movements in Production and Prices* (Boston-New York, 1930), *passim*, and pp 76–77, where a list of crises from 1550 to the present time is given, and p 80, where W R Scott's opinion concerning the role of the unforeseen is quoted See a summary of other data in my *Contemporary Sociological Theories*, pp. 120 ff.; E. Wagemann, *Economic Rhythm* (New York, 1930), p 93; J Schumpeter, *Business Cycles* (New York, 1939), pp 143, 164 ff; E B Wilson, *Periodogram of American Business Activity*, quoted.

[11] V. P Timoshenko rightly says that, contrary to Moore, "the length of these crop cycles is not always eight years, but varies from five to eight years" "Sometimes there are cycles of only three or four years' duration." V P. Timoshenko, "The Rôle of Agricultural Fluctuations in the Business Cycle," *Michigan Business Studies*, Vol. II, No 9 (June, 1930), pp 6 7

[12] See his article in the *Review of Economic Statistics* (January, 1923), Vol. V, p. 24.

74–75, and 271 years. Quite a rich assortment of the most diverse periodicities.[13] H. L. Moore claims an existence of cycles of 8 and 33 years' duration in the crop production [14] and business fluctuations respectively, which cycles, as we have seen, are denied by Timoshenko.[15] Other partisans of the cosmic factors of the business cycles give still different figures, while other economists, not belonging to this school, impress us with a further variety of the figures offered for various short and long-time business fluctuations, such as 22 and 23 years (S. Kuznets), 10 years (J. Fedder van Gelderen), 19 and 25 years (S. de Wolff); 3 to 4, 7 to 10, and 50 years (N. Kondratieff), 15 years (C. Wardwell), and several others.

There remain only the so-called "seasonal fluctuations," which supposedly are periodical and, as the name indicates, are due to the periodicity of the seasons' succession. But again, when examined closely, even the succession of the seasons is not quite periodical from year to year, as to their length and the time of their arrival. Still less periodical (and even "seasonal") are these "seasonal fluctuations," and, according to many of their investigators, they are, at the best, only in part caused by the seasons, while in the other and possibly the major part, they are caused by social factors.[16]

To sum up, so far none of the investigators of the business fluctuations has discovered any real periodicity in the business cycles. What they have discovered are but fancifully varying intervals and their averages. And even these averages vary with various authors, and certainly shift even with the same author when he studies different periods and societies. All this means that even this third premise of the cosmic theories of periodicity is unsafe; therefore, the whole theory remains nothing but a mere speculation, greatly contradicted in its essential parts by the known facts.

Is the situation better, in regard to the third premise, with the generational theory of periodicity? Are the sociocultural periodicities claimed by its partisans real, or are they also mere averages at best? It is enough to compare all the conflicting and shifting durations of the periodicities of various "generationists" to show that their perio-

[13] Sir William Beveridge, "Weather and Harvest Cycles," *The Economic Journal*, 1921, pp 429–49.

[14] H. L. Moore, *Economic Cycles* (New York, 1914), pp 147 ff.

[15] See about these, W Mitchell, *op cit.*, pp. 226 ff., S. Kuznets, *op. cit.*, pp. 260 ff; J. Schumpeter, *op. cit.*, pp. 164 ff.

[16] See about them E Wagemann, *op cit*, pp 51 ff; W Mitchell, *op cit.*, pp. 233 ff. See my statement in *Contemporary Sociological Theories*, pp 128–29.

dicities are no better than those of the partisans of the cosmic factors. Indeed, even a small fraction of the various short and long-time periodicities given above shows that they also greatly differ with different authors. Omitting the ancient writers and their fantastic periodicities, we have seen that the modern theorizers themselves give only the averages, while their actual durations shift and vary (for the same rhythm or phase), and that these averages are different with different authors. The actual durations of, for instance, Ferrari's one-generation periods are: 17, 19, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 42, 43, 44, 45, 50, 51 years; while the actual durations of his four-generational periods are: 101, 113, 126, 127, 132, 133, 134, 137, 141, 142, 156, and so on.[17]

In other words there is no periodicity at all. The same is true of the actual periods of H. von Müller, F. Mentré, W. Pinder, O. Lorenz, and practically all the other generationists. For instance, the lengths of the ten generations of H. von Müller (1561–1892) are: 36½, 38, 29½, 38, 36½, 30, 29½, 30, 35, and 38 years.[18] Still more shifting are the durations of F. Mentré's generations, and especially those of W. Pinder: 20, 25, 10, 15, 15, 10–15, 25–20, 30, 40, 15 years, and so on.[19] Some of their actual periods are two or three times as long as the others. Even their averages vary greatly and in no way coincide with one another. This lack of a periodicity many of them have to acknowledge explicitly.[20]

This means that their third premise is also unsafe, so far as by periodicity we mean the same interval of time, but not the mere fact of a recurrence of certain sociocultural rhythms. The net conclusion of this analysis is that *all the three main premises of the cosmic and generational theories of periodicity are mere assumptions hanging in the air, and contradicted by the relevant data. The assumptions crumbling, the theories crumble also.*

D. This conclusion is corroborated by the test of a procedure they use. Its essence in both kinds of theories is to grasp first some kind of periodicity in the sociocultural phenomena, and having grasped it — real or imaginary — they deduce from that the existence of the

[17] G. Ferrari, *op cit*, pp 181–196, 255, *et passim*

[18] H. von Müller, *op cit*, pp 43–108

[19] F Mentré, *op cit*, pp 5, 347 ff ; W Pinder, *op cit*, pp 40 ff

[20] E. Wechssler and a few others explicitly reject any periodicity of either biological or sociocultural generations "The duration of the [sociocultural] generation stretches from 30 to 10 or even fewer years" ("*Il n'y a pas de loi de générations*") *Die Generation als Jugendreihe*, pp 19, 31.

respective cosmic or generational periodicities. Meanwhile, if their first two premises were valid, they have to proceed in the reverse way: from the existence of the ascertained cosmic or generational periodicities, to deduce and to find the corresponding sociocultural periodicities.

This peculiar mode of procedure is particularly conspicuous in the generational theories. What do most of its authors do? They take literature or painting or music or political régimes, and try to mark the periods of a tangible change in these cultural and social processes. Those who are comparatively competent and somewhat careful with facts find that the tangible caesurae — the succession of different "styles," "schools," "fashions," "régimes" in these processes — occur within varying and different durations, measured by the number of years.

Sometimes a "school" persists 50 and more years; sometimes it changes within 10 or 15, or 17 or 35 or 55 years. Having marked such periods, they deduce and add: the respective generations continue so long, because some of the generations have "a second puberty," or because they are "abortive generations," or because they are "in-between generations" (*zwischen-Generationen*), or the like. Thus proceeding, they make a generation unit as elastic as they please and as long or as short as the circumstances demand. Certainly, a very handy procedure, but perfectly arbitrary and unsound logically, as an explanation of the *clarum per obscurum*. Their sociocultural data are immediately given and more certain, while their "generation factor" is pure conjecture, derived in its very existence from the sociocultural data.

This shortcoming becomes still clearer when we consider how the generationists determine the caesurae that end one generation and begin the other. In a population composed of continuous and ever-flowing age groups, the age groups themselves do not give the caesurae. It has to be looked for somewhere else, and we have seen various ways of beginning and ending the generations. Some take the genealogy of the ruling houses; others, the specific entelechy of the periods; a third, the changes in literature, or in *Weltanschauung*, or in some other field of sociocultural phenomena. This means that here again the generation does not establish its own end and beginning of the new, and respectively the turning periods in the proceeding sociocultural processes; but the changes in the sociocultural processes as such are

used to mark the intergenerational boundaries. That is, the variable of a generation, instead of being used as an independent variable that determines the length (and character) of its dependent function, the sociocultural periods, is in fact a completely dependent function of the sociocultural rhythms, and is determined by them in its very existence as well as in its length. Such a perfectly parasitic variable does not help at all in finding the punctuating caesurae and rhythms of the sociocultural processes; it does not determine even its own length; such a hypothesis or variable is perfectly useless and parasitic. As such, it is not an explanatory or needed principle, but merely a liability.

Shall we wonder then that the average and other length of the alleged generations so varies with the same and different authors; shall we be astonished that various authors begin and end given generations of the same century at quite different years and decades? No wonder also that if we follow "the generational punctuations" of the same centuries in the same field, or especially in different fields of a given culture, we find ourselves in a maze of discordant figures and data, which no one can bring into order or into any sort of concordance. As a result, the whole process of manipulation with figures and numbers hardly helps much in the discovery or analysis of the phenomena of the sociocultural periodicities.

The above considerations are sufficient for the rejection of the cosmic as well as the generational theories of the sociocultural periodic rhythms.[21] The attempt to find sociocultural periodicities through the assumed periodicities of the cosmic or biological processes has failed. The reasons for such a failure are many; one of these is the wrong premises and assumptions of the authors.[22] Another mistake is that they look for the periodicities in the wrong realm of reality (cosmic and biological) instead of looking for it in the only proper realm, the world of the sociocultural phenomena itself. Let us examine the situation there.

[21] This does not hinder us from acknowledging that several of these theories contain several other, and valuable, principles

[22] See about general shortcomings of any mechanical periodization of historical or sociocultural processes in H Cysarz, "Das Periodenprinzip in der Literaturwissenschaft"; in E Ermatingen's *Philosophie der Literaturwissenschaft* (Berlin, 1930), in E. Wechssler's work quoted, chap ii Many of the conscientious generationists, like F. Mentré or J. Petersen, themselves stress the futility of purely mechanical periodization according to the preconceived notion and duration of generations.

II. Sociologistic Theory of Periodicities in the Sociocultural Rhythms

The above criticism and rejection of the cosmic and biological theories of periodicity of the sociocultural rhythms does not mean at all that some of the sociocultural rhythms are not periodical. As a matter of fact, some are strictly periodical, whether measured by clock time or by other units of social time. *But all such periodicities are definitely and explicitly of sociocultural origin, and represent, intentionally or unintentionally, established social conventions.* Only in the sociocultural recurrent rhythms, whose duration is established socially, in the units of social time, is the periodicity found in the strict sense of the term, and then only within the societies which use such conventions, and only for a period during which such a convention is operative. Outside of this, strictly periodical sociocultural rhythms generated by periodic or nonperiodic cosmic or biological processes hardly exist. Such forces can produce, at best, some rhythms in the sociocultural processes, but they can hardly make them periodical. In order to accomplish that, the factor of "social convention" is necessary.

Such a purely sociologistic theory of the periodic sociocultural rhythm may sound one-sided to many. However, a few considerations are sufficient in order to make its validity reasonably certain. Let us look at the matter carefully. First of all, let us ascertain the existence of periodic punctuations in the sociocultural processes. There is a large mass of various periodicities in the life of any man and society. For the sake of clearness, I shall take the examples from contemporary society, with its clock time units for the measurement of the durations of the punctuated processes. Omitting a number of processes where the same recurrent rhythm has a duration of a definite number of seconds and minutes, let us take the processes punctuated *by hour and day periodicities.* The process of work and labor in numerous occupations of our society is strictly periodical, from day to day; during the working days, it lasts, say, eight hours, starting at 9 and ending at 6, with one hour, from 12 to 1 o'clock, for lunch. The number of hours of work may be different in different societies and periods, but the fact of the existence of such a recurrent periodical rhythm, for an enormous number of occupations, is unquestionable. In many cases it is so strictly periodical that a few additional overtime minutes of work lead to additional pay at an overtime rate. Likewise,

a few minutes of delay in the worker's arrival at work are registered and lead to some form of penalty or fine.[23]

Such a daily rhythm of meals as breakfast, lunch, dinner is also periodical, up to the minute, for a considerable part of the population, and for a large mass of it, is periodical with a narrow shift of a few minutes for each meal, from day to day.

The same can be said of the daily rhythm of sleep and activity for a large proportion of the population.

Our trains, steamers, airplanes, busses, all operate on periodically repeated time-table schedules, computed in terms of hours, minutes and seconds. Due to an interference of extraordinary factors, once in a while, they run off their time schedule; but such cases are exceptions, while the running according to the time schedule is the rule.

With a proper variation, the same can be said of our school classes, lectures, church services, concerts, theaters, movies, sessions of public bodies and associations; add to this such periodic activities as "daily papers" and thousands of other daily sociocultural activities and processes. They all are punctuated by the recurrent rhythms of definite and clear-cut periodicities, of the same duration in the terms of hours or even minutes. Generally, the greater part of the activities of an individual or of social institutions and groups is made up of periodically recurrent activities, repeated from day to day, during the weekdays. The same is true of the social daily processes of a given society: most of them recur from day to day with the same periodic duration of a certain number of hours or minutes.

Side by side with these periodic rhythms of such short durations, *there are naturally many sociocultural rhythms punctuated with longer periodicities, measured by such time units as "week," "month," "year," and several years.* First of all, in our culture we have "weekly"

[23] What W F Cottrell says of railroads can be said of many other activities "All those who have direct responsibility for the actual operations of trains must carry a fine timepiece which will gain or lose not more than forty seconds in two weeks. . . A delay of thirty seconds in leaving a terminal calls for an explanation, five minutes' delay means investigation, and a half hour gives apoplexy to every official . This time-emphasis is an aspect of the lives of all moderns They catch the timed trains, eat by the clock, quit by the clock, and are clocked in their amusement 'The next feature will begin at 8 12'; 'Twenty-five cents for the first three minutes, five cents for each additional minute'; 'The kickoff will be at 2 30'; and so on, *ad infinitum*". . . "As 'time marches on,' its rhythm is set, not by organic impulse, but by the clacking of wheels on rail joints, the clatter of a telegraph key, and the distant whistle of a train departing 'on time'" W F Cottrell, "Of Time and the Railroader," *American Sociological Review* (April, 1939), pp 190–198.

rhythms, in an enormous number of sociocultural processes and in our individual life. From week to week; the five-day week — plus Saturday — and Sunday rhythm has been repeated for many, many years. Almost all our activities experience this periodical weekly rhythm, undergoing the same or an essentially similar course during weekdays and during Saturday and Sunday.[24] In all such cases the duration of "the week" remains identical from week to week, in terms of our clock time. "Week" here is a periodical duration. The week functions in many other social processes as a punctuating period. Quite a large number of persons are hired to work by the "week," and receive their pay by the "week period"; rooms are often hired by the "week"; so are many other activities hired and rented; many publications — magazines, journals, bulletins — are "weekly"; many meetings, sessions, lectures, services, concerts, forums, etc., occur once a week, on the same day, at the same hour, with the same duration. Generally, each of us has some form of activity that occurs once a week, on a certain day, at a certain hour. Likewise, many social systems, the family, the church, the State, the labor union, a literary or scientific association, have "weekly" activities of a periodic nature, occurring once a week and with the same duration, and on the same day and hour of each week.

The same can be said about the existence of specifically *"monthly" periodicities,* taking the duration of the "month" as identical with that of our calendar, with its somewhat unequal (arithmetically) months (of 28, 29, 30, and 31 days). Again, rooms and apartments and many other things are rented by the "month"; a large part of the population is hired and paid "monthly"; there are monthly payments on the installment plan, monthly computed dividends, monthly statements of banks and corporations; monthly magazines, journals, bulletins, and the like; monthly meetings, sessions, conferences; monthly contracts of various types; and so on. Though these "monthly" periodic activities and rhythms are naturally not so numerous as the daily and weekly ones; though they do not occupy such a place in our total activities as the daily and weekly periodic rhythms; nevertheless, they certainly exist, and are certainly periodic — measured by our calendar "month" — as an identical unit of our system of social time.

There is also no doubt that in the life of an individual as well as of

[24] See an example of how the activities differ during this week period on weekdays, on Saturday, and Sunday, *in* Sorokin-Berger, *Time-Budgets of Human Behavior* (Harvard University Press, 1939).

a social group, there are *annual rhythms — again strictly periodic, measured by the "year unit" of our social time.* From year to year, separated by the same "annual interval," we have the caesura of the end of the old and the beginning of the "New Year," with all the recurrent activities of such a date, like feasts, festivities, and ceremonies of ushering in a New Year. The period is strictly timed up to the minute. From year to year we have such "annual" events as "Christmas," "Thanksgiving Day," "Fourth of July," Memorial Day," "Washington's Birthday," "Armistice Day," often our own "Birthday," "Marriage Anniversary," and the like. The "annual period" functions in such events, activities, and relationships, as annual salary, annual contract for employment, insurance, etc., as annual appointment, annual report, account, meeting, festival, ceremony, and similar events and punctuations of the processes. "Year" is a unit for location in time of most of the historical processes (A.D. 321 or the War of 1812); of most of private and public events; of the duration of various relationships; of measurement of the duration of the life of an individual or social institution; and for hundreds of other events and activities. Often this "year" means strictly an exact period up to the minute, as, for instance, in our insurance, or many business contracts and agreements.

Still longer periodic punctuations are not absent in the life of an individual, as well as of society and institutions. We have, for instance, every *two years*, elections of state representatives and some governors; every *four years*, national elections of the President, with all the recurrent paraphernalia of such periodic events. There are centennial, bicentennial, tercentenary and similar periodic punctuations in the life history of various societies and institutions.

In the life of an individual there are "three-year" appointments; "silver and golden wedding jubilees"; twenty-one or twenty-five-year periods, when an individual reaches his civic and political maturity *ex officio*, and the like. Though periodicities of this kind are repeated only once in the life of an individual, they are repeated innumerable times in the lives of various individuals.

The above examples remind us of only a very few of an enormous number of periodic hourly, daily, weekly, monthly, yearly, biennial and so on, events, punctuations, and rhythms that really exist in the life of an individual or of a social institution, or of a group, or in the social processes. Their real number and variety are enormous. All such periodicities are real and exactly periodic, in contrast to a mere

statistical average or similar fictitious and misleading periodicities. Practically, having taken the calendar or time system of a given society, and all the specific divisions, such as a second, minute, hour, day, week, month, year, biennium, decade, and the like in our calendar (and respective time units of the calendars or social time systems of other societies), one can be reasonably certain that in such a society and in the life of its members, there must be and usually are periodicities that correspond to each such time unit. Otherwise, such time units could hardly appear in the calendar or the social time system of the respective society.

Having ascertained the existence of the real periodic rhythms, punctuations, and events in the sociocultural processes, we can see more clearly why the partisans of the cosmic and biological periodicities and, generally, the majority of the hunters for periodicities, have failed in their efforts: *they have been looking for periodicities not where they are really given, but in a wrong field. Real periodicities are only those (in each society) which are reflected in its calendar or time system; and so far as a calendar system of a society is a social convention, the real periodicities are also social — intentional or unintentional — conventions.*

The above makes somewhat clearer the meaning of my statement that the real sociocultural periodicities are and must be social conventions. This needs, however, further elucidation. Let us ask once more, pointedly, why *sociocultural periodicities must be "social conventions"* and cannot be mere expressions of some rhythmic and periodical cosmic or biological process.

The reason for that is quite clear and sufficient. By periodicity of any sociocultural rhythm we mean a recurrence of a certain phenomenon within an identical time interval. *Whether a given time duration is identical with others, or longer or shorter, is determined by the time units that measure these durations.* If, in the terms of these time units of a given time system of the society, two durations are the same (say, "two hours," or "one day," or "one week," or "five years"), then they are identical and equal. If, in these terms of the time units of the society, they are not equal, then a respective recurrence is not periodic. In other words, without the time units of a given society, we do not have any means of ascertaining the absolute and relative durations of the rhythms or punctuations. Therefore we cannot say anything about periodicity or nonperiodicity of the recurrent rhythms or punctuations of the sociocultural processes.

This point established, the next point to prove is that the *time units and time system of any society are first of all and most of all a kind of social convention.* The character of the time system of a given society is determined by the nature of its social life and its pulsations, but not by cosmic or biological processes. The latter, at the best, play only a secondary role in the background of the sociocultural processes. These processes play the decisive role in the determination of the character of the time system of a society. Its time system is always, in a sense, a reflection of the pulsations and beats of its sociocultural life, and is conditioned by it. In this sense, the time system and its units are social conventions. (See on that my forthcoming volume *Sociocultural Causality, Space, Time.*)

If, then, the periodicity or nonperiodicity of any sociocultural process is measured and determined entirely through the time system of a given society and cannot be determined in any other way (first premise); and if any time system is first of all and most of all a kind of social convention, molded by, and reflecting, the real beats and pulsations of the sociocultural processes (second premise); it follows that any periodicity in the sociocultural processes has to be also in the nature of a social convention. It is detected only through the "conventional" tools of the time units used; and by its nature, it is of sociocultural character, as one of the beats or punctuations in the flow of the sociocultural processes. So far the conventional character of the sociocultural periodicities must be clear.

This does not preclude, of course, the next question: why the sociocultural conventions of time and its units have been different in different societies — why, respectively, the periodicities have also been different (as they have been indeed). In the elucidation of these problems some indirect role of some of the cosmic or biological rhythms may be discovered. But even granting this, it remains reasonably certain that these factors are inadequate to explain the time system of a given society and, respectively, the periodic rhythms in its life-process.

In order to see this and also the conventional nature of the time systems of various societies, it is enough to recall a few facts concerning the time systems and units of the same and various societies. Many people still think that the time system of our own and other societies, say, the "calendar" with its time units, is determined by the cosmic processes, such as the revolution of the earth on its axis, or that of the moon around the earth, and similar cosmic factors. As a

matter of fact, the situation is very different, and even our "clock-time system" and its units do not reflect these processes accurately, while the time systems of many other people have little to do with them.

Indeed, our time system and its units, or especially the time systems of past societies, have little to do with either cosmic or biological processes. First of all, the time unit, be it a second, a minute, hour, day, week, month, even year — in all the enormous varieties it has had among different societies — is a purely "artificial" or socially conventional creation. "Natural or mathematical time" flows continuously; as such, it does not have any "cuts," or any "units," into which it is divided "naturally." All such divisions are of a purely social nature and differ with different societies. "Week," for instance, means with us seven days; with other peoples, their "week" meant the unit consisting (in our terminology) of eight, nine, fourteen or other number of days. Natural or cosmic time does not have, *per se*, any such weekly cut. If one thinks that our seven-day week is derived from the phases of the moon (cosmic factors) and coincides with them, he is entirely mistaken. Our week has little to do with such phases, does not coincide with them, and, as a competent investigator says,

> The septenary division has not arisen from the phases of the moon, but on the contrary, the phases of the moon have been arranged in accordance with the septenary scheme.[25]

Still more independent of any cosmic or biological phenomena are the weeks of 8, 9, 10, 12, 14, 16 or more days. *The week unit is a social convention.*

The same is true of other time units, be they "month," "day," "hour," "minute," "second," "year," and the like, not to mention the time-units of the primitive and many past societies, which have been still more independent of any "astronomical" or cosmic, sidereal, or biological phenomena.

The same is true not only of the time units, but generally of the location in time flow of any phenomenon. The time river, as such, does not have any "points of reference," to which the phenomena can be referred and their "place" in time located. Likewise, the revolution of the heavenly bodies and other cosmic and biological processes

[25] Martin P. Nilsson, *Primitive Time Reckoning* (Lund, 1920), pp. 330 ff., chap. xiii; R. H. Colson, *The Week* (Cambridge, 1926), p. 3. See Sorokin-Merton, *Social Time*, quoted.

as such do not give any such "point of reference." Whether two or more phenomena happened simultaneously, or one before the other, and how long ago, and how long was the duration of the phenomenon and the like; all such "locations in time" are made again entirely through references to certain — important — social phenomena taken as the points of such references. Any chronology, beginning with its era point of reference, as B.C. or A.D. with us, starts with, and is based upon, certain social events, like the birth of Christ. Any "timing" and "location in time" is again made similarly, with the reference of one social phenomenon to other(s). Even our "clock-time system," which is nearer to certain cosmic rhythms than many other time systems, is social through and through, and even its utilization of a clock as a tool is also a social convention.

Even if it were entirely coincident with the cosmic solar process and the revolution of the earth on its axis (which coincidence is only remote) such a time system is also a social convention. (See Sorokin and Merton, *Social Time*, quoted.) For the present, these remarks are sufficient to show the validity of the above assertion that *any time system of any society is first of all and most of all a social convention that reflects the character, the relationships, and the pulsations of the social and cultural processes of a given society.* For this reason only, the above claim that practically all sociocultural periodicities are of a social nature, being a kind of social convention, must be clear and indisputable. General conclusions follow from this.

1 *If the rhythms and beats and relationships of sociocultural processes are different in different societies, their time systems and periodicities must be and usually are also different.*

2. *If the same society changes considerably and some of its processes undergo a transformation, its time system and periodicities are apt to change also.* The Soviet change of a "week" from the seven to the five-day "week" is a conspicuous contemporary example of that. (Or a recent change by President Roosevelt of the date of Thanksgiving Day.) Shift and substitution of the beginning of an era, and the attempts of almost all the revolutions (that is, the phenomena of a sudden and sharp change of many sociocultural processes) to introduce a new "calendar" with new time units and time system are a further corroboration of the social character of the time system and periodicities. Our "Eastern standard time," "Daylight-saving time," and similar artificial "standardizations" and "determinations" of time, by a mere law or decree, are further illustrations of the claim.

3. Even more than that: if the *time system of a given society considers as equal, durations that, in the terms of clock time, are unequal* (for instance, "from Easter to Easter," "from lunch to lunch") *such time intervals will be equal in the time system of the society and the respective rhythms will be periodical.*

4. Vice versa: *if the time system of a given society considers as unequal the time intervals that are equal in the terms of clock time, such social rhythms will be nonperiodic in such a society.* All this sounds somewhat strange, and yet it is an accurate statement.

5. *If the time systems of different societies are different, we can hardly expect similar periodicities in such societies.* The cosmic and biological processes may be, and in fact are, often identical for such societies; the earth makes its revolution on its axis and around the sun within the same interval of clock or astronomical time; generations may flow equally fast in both; and yet their sociocultural rhythms and periodicities may be, and factually are, quite different. For this reason only, the futility of the cosmic and biological theories of the sociocultural periodicities must be evident. Not only do their supporters look for the periodicities in the fields where they do not exist and cannot exist; but they overlook entirely this fundamental fact of the social nature of the rhythms and periodicities and the time systems, and therefore assume that the same cosmic and biological factors must produce the same rhythms and periodicities in societies with quite different time systems and different beats of their sociocultural life. No wonder that their efforts, and all efforts [26] that overlook these most fundamental facts, have failed to discover any real periodicity whatsoever. All that they have given are but purely statistical averages, and even these happened to be of varying, shifting, and contradictory nature, with a different — or even the same — author. Such averages are not a real periodicity in any sense of the term. Besides, even these cannot be expected to be constant in various societies and in the same society at different phases of its existence.

6. *The conclusions Nos. 3 and 4 permit us to consider as periodic many rhythms in the social life of the society, where the interval of time between the rhythms is considered equal by a given social time though it is not so in the terms of the mathematical time system.*

7. *Since the time system and, respectively, the sociocultural periodicities are different in different societies, and often change in the*

[26] Very numerous, as we have seen, in historical, sociological, biological, political, and economic theories.

course of time in the same society, there can hardly be periodicities that are eternal for all time or universal for all societies. Sociocultural periodicities must be variable and, in fact, have been relative in time and space — each periodicity given only in certain societies, and existing only for a certain length of time, until it is replaced by a new time system and a new conventional periodicity.

8. *Only if and when all social systems adopt the same time system and have the same beats and pulsations of their sociocultural processes can the "conventional periodicities" become uniform in all societies.* Though things are drifting in that direction, due to the intensification of the interaction between all societies of this planet and due therefore to a diffusion of the same sociocultural processes with similar rhythms among all the societies,[27] nevertheless, we are, as yet, very far from such a situation, in spite of a progressive diffusion of the standardized "clock time." It is useful, like a universal Esperanto, for translation of various time systems and periodicities into one another; but the societies still live with and talk mainly "their native language" (their own time system and periodicities). They still live and pulsate mainly according to their own time system.

These considerations clear up the essential nature of the complex problem of periodicities in the sociocultural rhythms. They indicate their social conventional nature; their dependence upon an equally conventional time system; their varieties and existence; their relative character in time and space; the realm where they must be sought. They indicate further the futility of the predominant tendency to consider them as a mere impregnation of the cosmic and biological rhythms in the realm of the sociocultural phenomena, and therefore all the uselessness of trying to find them through the study of those rhythms, together with the fallacy of the three main premises which such theories assume and which, after the slight test made above, are found to be very fragile assumptions.

III. Periodicities and Averages

The foregoing shows the profound difference between the real periodicity of the sociocultural rhythms and their purely statistical averages, which are in no sense real periodicities. It demonstrates also that only in the field of the sociocultural rhythms that are socially

[27] Hence, an ever-increasing universal standardization of the time system and of its units, and an ever-increasing pressure of time, computed in the units of minutes, upon our behavior. See W. F Cottrell's study, quoted.

made periodic, do the real periodicities exist. Outside of that, there may be only some averages that attempt to give the mean, or modal, or "typical" duration of the rhythmic processes. This raises the question about the cognitive value of such averages. If they are not the real periodic durations of the rhythms involved (say, business cycle, the cycle of war-peace, order-disorder, classic-romantic style, materialism-idealism, and so on) but mere averages, can they have any cognitive value? Potentially, the answer is "Yes." A knowledge of the typical duration of various social processes, even when such a duration is only more or less typical, temporary, and local, certainly adds something to our theoretical and practical cognition of a respective process. However, this potential value depends upon several conditions.

First, the typical averages should not be confused with the periodicity, and lead in this way to a great mistake of identification of two different things: typical average and real periodicity duration. Second, an average can be typical only if the respective series is not too much spread and does not consist of too different values. Other conditions being equal, if the actual durations of the series fluctuate, say between the values five to ten, the typical average will be much more typical for all the actual values than when the values of the series are scattered, say, between one and one thousand. In that case, neither average, nor mean, nor mode are typical. If 95 per cent of the values between one and one hundred are, say, twenty-five, the typicality of the average is much higher than in the case when the values and their percentages are scattered. In such a case the average becomes quite unrepresentative. Its only value is negative, namely, that respective processes have most varying durations. Third, the theories of the "averages" must explicitly state that their averages are not regarded either as eternal or universal, and that they are temporary and "provincial" phenomena, representative only of the societies and cultures studied. With a serious change of the type of society and culture, they are apt to be profoundly different.

With those qualifications, it is of some cognitive value that the average, or, rather, typical duration of the business fluctuations in the Western society of the nineteenth century (but not of all societies and at all times) was about 7 to 11 years; that from 1876 up to 1930 there was a periodicity of 8 and 4 years in the alternating domination of the Republican and Democratic parties in the United States; that the minor waves of domination of materialism and idealism in Greece

and Rome had a duration of mainly between 60 and 100 years,[28] but that the next rising tide of idealism had a duration of some 500 years and an almost monopolistic domination during some 750 years, while during the subsequent 450 years materialism was on the rising side. That the average per cent of the years in which war occurred in the total number of years of the history of a given nation is 57 in Greece, 41 in Rome, 67 in Spain, 28 in Germany and so on,[29] with an indication that even so the wars were not distributed evenly in time in the history of each nation and did not show any periodicity; that similarly, the average ratio of the years without an important internal disturbance to the years with such disturbances in the total history of Greece was 2.7, in Rome 3.5, in Byzantium 8.6, in France 4.7, and so on,[30] again with an explicit indication that the disturbances were not evenly distributed in time and history — gives us the comparatively long and short periods of order, or disorder.[31]

Likewise, it is of some value also to know the durations of the most fundamental and long-time fluctuations, like the domination of Ideational, Idealistic or Sensate cultures; like the durations of existence of various empires, nations, business organizations, and the like, providing the durations given are roughly accurate. Such data convey to us an approximate idea of the considerable length necessary for these basic "mutations" and prevent us from hopeless efforts to perform such a transformation or to expect it to happen in the short period of a few years.

On the other hand, it follows from this that it is rather unwise to try to find out the "averages" valid for all societies and times, as many representatives of various theories of periodicity have tried to do factually. When they assure us that there are periods (more exactly really averages) valid for all times and societies, of 15, 20, 30, 35, 100, 300, or 600 years, as many "Cosmicists" and "Generationists" do; or that the average duration of price or business fluctuations is generally 3, 5, 7, 10, 22, 30, or 48 years, without the above limitations, as investigators of business cycles often do; or that in every 30 years there is a change of style in art or in the form of government irrespective of society and period — these and similar theories cannot be taken seriously, so far as they imply the validity of these average durations

[28] See *Dynamics*, Vol II, pp. 191 ff.
[29] *Ibid*, Vol III, pp 351–52
[30] *Ibid.*, Vol III, pp 473–75.
[31] See the durations of all the different waves studied in *Dynamics*

for all societies and times. If periodicities change with the change of the time system and the tempo [32] of beats and pulsations of the sociocultural processes, and are neither eternal nor uniform for all societies and times, still truer is this in regard to the "typical averages" for durations of various sociocultural rhythms. If for a certain type of society and culture a certain typical average of a certain rhythm may indeed be representative for a certain period; for a different type of society, or the same society and culture changed, such typical averages cease to be typical at all. Therefore, it is rather fruitless to seek such universal and eternal typical averages. Any claim along such lines is hardly sound in its very nature; therefore, it is quite comprehensible that almost all such claims have been failures, unable to stand the first factual verification.

To sum up: a deeper knowledge of the social and cultural dynamics is served well, first by a serious study of all the important rhythms given in the sociocultural processes, regardless of their periodical or nonperiodical character. These rhythms can be studied in their types and morphology (as to how many phases they have), in their durations, and especially in their relationships to one another (embracing and embraced, synchronous and nonsynchronous, related or not related to one another causally and logico-meaningfully, etc.). Second, by the study of the periodical rhythms as such, with their real periodic durations and the sociocultural conditions in which they are given and in which they are absent. Third, by the study of the average or typical durations of various nonperiodic rhythmical processes, with the reservations mentioned above. To go beyond that, and to try to formulate eternal and universal durations for various processes means to enter a path of jugglery with fantastic figures that represent nothing but the phantasmagoria of the juggler.

[32] See about tempo of change in Chapter Eleven

Chapter Eleven

TEMPO AND TEMPO UNIFORMITIES IN SOCIOCULTURAL CHANGE

I. The Problem of Tempo, Its Application to, and Measurement in, Sociocultural Processes

In Chapter Eight it was indicated that rhythm, periodicity, and tempo mean different things. Having studied rhythm and periodicity in sociocultural processes, we turn now to a concise analysis of their tempo or the speed at which they change. If the concept of tempo (speed, velocity, celerity) is comparatively simple, meaning the rate of change in a given unit of time, its application and measurement are very difficult, so far as sociocultural processes are concerned. The problems to be coped with now are: 1, When and under what conditions can we talk meaningfully about the tempo of sociocultural processes? 2, How can it be measured? 3, What, if any, tempo uniformities are given in the sociocultural change?

1. *One of the great difficulties of the application of tempo to various* sociocultural processes was indicated in Chapter Six (pp. 309 ff.). As most of the sociocultural changes are qualitative, and as, in contradistinction to mechanics, we do not have any unit of velocity of sociocultural change equally applicable to different processes, a fruitful application of the tempo concept meets enormous difficulties here.

There is no sense in saying that in a change from the Gothic to the Baroque style, or from Christianity to Buddhism, or from the horse and wagon to the automobile, so many units of distance are traversed in so many units of time; or that the tempo of the change in one of these processes is faster than in the others. They are simply incommensurable and irreducible to any quantitative common denominator.[1] When this is understood, it follows that the concept of tempo or its equivalent is inapplicable to all cases when we compare the qualitative changes or rhythms of different sociocultural processes or systems. If, within the same time unit, say, ten years, capitalism is

[1] See above, chap. vi, pp. 309 ff for a development of this point.

replaced by communism, a republican régime by a monarchy and then again by a republic, skirts become three inches shorter and fuller, Protestantism is supplanted by Catholicism or by atheism, classical music by jazz, the material standard of living is increased by 50 per cent — of all these changes within the same period we are unable to say which had a faster, which a slower tempo of change. "The distance" or the magnitude of change within the same ten astronomical years from capitalism to communism is incommensurable with that from a republic to a monarchy; and this with the magnitude of change from Protestantism to Catholicism or atheism, and so on. Hence the conclusion: *the tempi of the qualitative changes of qualitatively different sociocultural systems are incommensurable, not comparable; therefore, in all such cases the very idea of tempo is inapplicable.* For this reason, it is impossible to say which of these processes or systems changes with faster, which with slower tempo — the mistake regularly made by many theorists, especially by various dichotomists, as we saw before. Such is the main limitation of the applicability of the notion of tempo to sociocultural changes.

2. Now when and where is it applicable? The general answer is: only where the *magnitude of the changes is, at least, roughly comparable, one with another.* Comparison of the magnitudes of change means the presence of a unit of change in these magnitudes. The more units of change occur within the same unit of time, the faster is the tempo of the change or the greater the velocity. Dividing these comparable magnitudes of change by the units of astronomical time, we can form a rough idea of the tempo of the change in the processes or in the systems. In that case, we have a formula of tempo or velocity of change:

$$\text{V (velocity, tempo)} = \frac{\text{M (magnitude of change)}}{\text{T (time)}}$$

Specifying this general proposition, we can say: *the tempo is applicable* (at least potentially) (*a*) *in the cases of purely quantitative change;* (*b*) *purely spatial quantitative change;* (*c*) then, with much greater difficulty, *within a qualitative change of the same kind or within the same system.* Let us comment a little on these propositions.

A. A purely quantitative change means that there is a quantitative unit of change that measures its magnitude in the terms of this unit. For this reason, the magnitudes of the change are comparable; therefore, the tempi are commensurable. If within ten subsequent

months the amount of coal production increased by 25 per cent each subsequent month, we can say that the tempo of coal production (or of the quantitative change in coal production) progressively increased by 25 per cent each month. We have a definite accelerating tempo of production of coal. If, other conditions being equal, in the first month of war ten thousand men were killed; in the next month, twenty thousand; in the next month, forty thousand, we can say the tempo of the killing power of the war has been increasing or accelerating in arithmetical progression. The same can be said of any quantitative change, be it the *number* of persons converted to Christianity or communism within the same units of time; the number of the statutes enacted by legislature (so far as we pay attention only to the number and not to the character of the statutes); the number of inventions and discoveries made every year; the number of partisans of idealism-materialism, classicism-romanticism, of Republicans-Democrats from year to year, decade to decade, century to century; and so on. In brief, *any sociocultural process which has a quantitative change (increase-decrease-constancy), and so far as this change has a quantitative unit, has a quantitative tempo of change.* The tempi of such changes for different periods are commensurable and measurable. Therefore we can talk in such cases of either unchangeable, or progressively accelerating, or slowing, or varying tempo of the quantitative change (providing we explicitly eliminate the qualitative changes involved).

In this purely quantitative aspect, the tempi of two or more processes can also be compared in many cases. If from month to month the production of automobiles increases by 10 per cent, production of radios by 25 per cent, and that of cigars by 50 per cent; while during the same months the number of converts to communism increases by 75 per cent a month; the number of visitors to a world's fair decreases by 5 per cent, and the circulation of a magazine drops by 20 per cent; we have an accelerating tempo of production with 10, 25, 50 per cent; of conversion with 75; a slower tempo of fair attendance by 5 per cent; and a decreasing tempo of the circulation of a magazine by 20 per cent.

Even with such tempi given, however, it is impossible to conclude from these data that generally one of these tempi, for instance, that of radio production, is faster or slower compared with another — for instance, of the conversion to communism — because the units of the quantitative changes in these cases are different: the unit of radios produced in one, and the unit of persons converted to communism in the other. These two units are quite incommensurable; therefore no com-

parison of these two tempi with one another, no statement that one is faster than the other, is possible. If made, as is often done, it becomes meaningless. *Only those tempi of quantitative changes are comparable and commensurable where the units of the change are identical or, at least, roughly comparable.*

In the light of these statements, the emptiness of the claims that "material culture" changes faster than "immaterial," that the tempo of change in technology proceeds at much greater speed than in religion, and so on, must be evident.

B. What is said of the tempo of the quantitative change can be said of that of *spatial quantitative change.* A car covering 200 miles in one day of driving, 300 miles the next, 400 the next, has an accelerating tempo or velocity. The same can be said of the movement of a train or any cultural object moving in space. Of two persons, the one climbing the socioeconomic ladder each year, from the income class of $5,000 to that of $10,000, then to $15,000, is moving in the social space faster than a person who climbs each year from $5,000 to $7,500, then to $10,000, and so on. However, here again these quantitative spatial tempi can be compared with one another only when the units of the spatial quantitative change are homogeneous or identical. Otherwise, the comparison becomes meaningless, as, for instance, the comparison of the tempi of the movement of the car and of the social climbing of the individuals in the above cases.

C. Finally, *with much greater difficulty we can talk of the tempo of the qualitative change, but only of the same kind or within the same sociocultural system.* This mainly means the cases when a given system runs its rhythm (the same rhythm with the same phases) in varying units of time. Suppose that the rhythm Ideational-Idealistic-Sensate is completed by the same cultural system during 1000 years; then within 500 years, then within 250 years. The change is qualitative, but as it concerns the same kind of change, the same rhythm, we can claim here that we have an accelerating tempo of the qualitative change.

In Volume One of *Dynamics* (pp. 306–308; 352–355; 528–529; 684–686) it was shown that various art schools and imitative waves in art — imitative "archaistic," "classic," "idealistic," "naturalistic," and other styles — were supplanting one another with an increasing tempo in the late Hellenistic and Roman art, and in Western art after the fourteenth century; the period of domination of each style (say "classic," "neo-classic," "neo-neo-classic") becoming shorter and

shorter in each subsequent recurrence. Such changes are qualitative, but as they concern the same system (art in this case) and a recurrence of the same rhythm, we can contend that the tempo of these changes is accelerating, and even say, roughly, accelerating to such and such a proportion. The same can be said of any other qualitative change when it concerns the same system, or the same process, or the same rhythm and its phases. If the same change or cycle or rhythm now requires for its completion 10 years, now 20, now 40, its tempo is twice as slow. Such cases are similar to the case of playing the same record on a phonograph, now at 50 revolutions a minute, now 100, now 200. The rhythm and music remain the same and undergo all the qualitative changes with every revolution of the record, but the tempo is different.

From the above, it also follows that when the qualitative changes are different, concern different systems, different processes, different and unrelated rhythms, we cannot compare the tempi of such qualitative changes; therefore, the very concept of tempo becomes inapplicable to and incommensurable with all such different processes, systems, rhythms. If the rhythm in "classic-romantic" art has been run, during the last two centuries, say, with doubly accelerating tempo, while the rhythm of "monarchy-republic" has been periodically recurring, without any acceleration or retardation, or has been accelerating only, say, by 5 per cent, in each subsequent recurrence, we cannot say that the tempo of art change is generally faster than that of the political régimes. All that we can state is that in one case the tempo was doubly accelerating, in another either constant or increasing in speed only by 5 per cent. The reason is that the magnitudes of the changes in the two cases and the units of the changes are incommensurable and concern different systems.

Of course, we can compare the tempo of change of various systems, and their rhythms, saying that the rhythm of Ideational-Idealistic-Sensate culture requires generally several centuries or a much longer time than the rhythm of business depression and prosperity; that the fashions of dress fluctuate within a shorter period of time, say, 10 years, than the fundamental forms of religion in a given society; that the average duration of the "classic-romantic" rhythm is (purely hypothetically) 25 years; of the "monarchy-republic" 50 years; of short-long skirts 5 years; of business depression-prosperity 3 years. However, such propositions state only ***what is the average duration of each rhythm***, but they do not imply that the tempo of change in each of

these rhythms is greater or slower than in the others. They do not mean that the magnitude of the change (or "the distance traversed") from "classic to romantic" is the same as that from short to long skirts, or from depression to prosperity. Since these magnitudes are incommensurable, we cannot say anything of the comparative tempo of the change in these different systems or processes. All that we can compute is the average time necessary to run through each of these rhythms — and such a knowledge has its own and important value — but not a comparative velocity of change in each of these processes. Otherwise we would make an absurd assumption that the magnitude of all changes that require the same time is identical and the magnitude of change is the greater, the longer the time necessary for its accomplishment. Such an assumption is evidently senseless.

The magnitude of change in playing the same record remains the same, while the time required may vary, now five minutes, now (with slower tempo) ten minutes. Within the same time, say five minutes, one can play a record of Beethoven and of the St. Louis Blues. The time is the same, but the change in the different records is different; and it is especially great if, after Beethoven's record, we play the St. Louis Blues. Within five minutes most diverse changes in various fields of social life occur: murder, sacrifice, automobile accident, cereal cooked, merchandise sold, newspaper read, fire extinguished, and so on. But from the fact that all these changes took five minutes and occurred within the same five minutes, it does not follow that the magnitude of the change (or "distance traversed") from being alive to being killed, from cereal uncooked to cooked, from the unread to the read newspaper, and so on, is the same.

Thus, summing up, we can say: 1. The concept of comparative and commensurable tempo is inapplicable to all heterogeneous qualitative changes of different processes, rhythms, systems. In all such changes, there is no possibility of claiming that the tempo of change in one of such processes, rhythms, systems is faster than in the others. 2. Only quantitative and spatial quantitative changes with identical or roughly comparable units of change admit an application of comparative tempi. 3. Of the qualitative changes, a comparative tempo can be applied only to a recurrence of the same event or rhythm within the same system or process. 4. In regard to all other changes, we can state only what is the typical length of time necessary for this or that change or rhythm or phase to run. Such typical averages may be longer or shorter for various processes or rhythms, but they do not

mean or imply that these averages measure the comparative tempo of change in these systems or processes.

After these elucidations, we can turn to a survey of the tempo uniformities claimed by various investigators.

II. Survey of Tempo Uniformities Claimed

Tempo uniformities in sociocultural processes may evidently be of three main types: *uniform acceleration, uniform deceleration, or uniform constancy of tempo.* In addition, *tempo uniformity may be discovered in the relationship of the tempi of two or more processes, when one of the tempi is uniformly faster or slower than, or equal to, the tempi of other processes.* These types of possible tempo uniformities cover indeed all the theories that claim a uniformity in this field.

A. *Theories of Tempo Acceleration.* The most numerous and especially popular among the theories concerned are those that claim the "law of acceleration" of the tempo of the sociocultural processes in the course of time. Such a uniformity of acceleration of the tempo of various sociocultural processes in the course of time is almost taken for granted, and therefore is stated by many as something axiomatic, without any evidence or any specification of the meaning of the statement. Examples:

> Material culture grows increasingly complex all the time (?) . . . Furthermore the rate of increase accelerates.[2]
>
> Acceleration. There are other trends. . . . Such is the trend in the direction of the greater speed of life.[3]
>
> The tempo (of change) is always more rapid.[4]
>
> The tempo of social life is speeded.[5]

Put in this form, the statements are unsatisfactory through their unspecified nature and vagueness; and in reading such "uniformities" we do not know whether their authors mean that such a uniformity is eternal, existing since the beginning of human or even of animal history, or only valid for some later period; if so, for which periods and since

[2] R. L. Sutherland and J. L. Woodward, *Introductory Sociology* (Chicago-Philadelphia; New York, 1937), p 61.

[3] W. F Ogburn and S. C. Gilfillan, "The Influence of Invention and Discovery," *Recent Social Trends* (New York, 1933), pp. 127–128.

[4] N. L Sims, *The Problem of Social Change* (New York, 1939), p 243.

[5] M. M Willey and S A Rice, "The Agencies of Communication," *Recent Social Trends* (New York, 1933), p. 217. See also H. Adams, *The Degradation of the Democratic Dogma* (New York, 1919), pp. 302–311.

when; and whether it is a uniformity of acceleration that will go on forever in the future. In addition, they do not specify clearly the process or rhythm or sociocultural system which supposedly has the tempo of acceleration. To say just that "the tempo of change is always more rapid," or "the tempo of social life is speeded," or "the rate of increase [assumed to be going all the time] accelerates," practically is to say something very vague and hollow, and, if applied to all times, something very wrong. After the Sensate period of Graeco-Roman culture, the tempo of increase of discoveries and inventions, or of tools, or of many other things, including many aspects of "social life" throughout the Middle Ages, did not increase but decreased. Likewise, in "social life" there easily can be found many periods in which no acceleration of tempo has been taking place, even during the last centuries or decades. In brief, the "law of acceleration" formulated in the above vague terms is neither law, nor "uniformity," nor even a clear, meaningful proposition.

Let us turn therefore to other — more definite and substantial — formulations of "the law of tempo acceleration" given by a few other authors, especially by J. Novicow and Hornell Hart.

Novicow conceives *la loi d'accélération* as a perennial and universal uniformity, applicable to the inorganic, organic, and sociocultural evolution. In the field of inorganic "evolution" he can, however, mention only that "when a star, being attracted by another star, moves four meters in the first second, it moves sixteen meters in the second one." Such a substantiation of the law of acceleration is obviously irrelevant and can be ignored. It merely gives a paraphrase of the law of gravitation which in no way implies that in the course of time the real motion of all bodies in the universe accelerates, necessarily. In biological evolution the law manifests itself in the fact that "the most ancient species underwent the slowest evolution," as well as in the increasing tempo of adaptation of the species to their environment. In the sociocultural field, it shows itself in an accelerating tempo of social evolution: while the duration of the Stone Age was 228,000 years, that of the Metal Age (bronze and iron) was only 18,000 years. While for civilization to pass from the warm zone to the temperate zone some 6,000 years were necessary, for a passage from the temperate to the cold zone only 2,000 years were needed. The most barbaric peoples change the most slowly while the most civilized alter the most rapidly. Egyptian art did not change much during 3,000 years; Greek art

ran a whole cycle of change during some 700 years; Italian, in four centuries (from Cimabue to the Bologna school). Science has made more progress during the last fifty years than during all the centuries from Thales to the nineteenth century.

These and a few other facts demonstrate the law of acceleration, according to Novicow. Generally, as time goes on, mankind adapts itself more and more quickly to its milieu. Increase of intelligence means the same thing, because a better intelligence means a faster working mind. Hence his formula of progress: "Progress is nothing but acceleration of adaptation."[6]

Along somewhat similar lines, but with greater reservation and specification, runs the theory of accelerating tempo of change advanced by H. Hart. He gives a series of sociocultural processes where the accelerating tempo appears clearly. Such are: the accelerating tempo of increase of brain power from *Propliopithecus,* through anthropoids, *Pithecanthropus,* and other early varieties of *homo sapiens* up to the modern man. Ranging the indices of brain power from zero to one hundred and the duration of the period from each species and variety of anthropoids up to the present man, he gives a series of figures, such as: 20,000,000 years for the earliest period and only 25,000 years for the recent epoch, which show clearly the law of acceleration in this series. Similarly, taking the series of the efficiency of cutting tools, he shows that for an increase from index 3 to 4 some 450,000 years were necessary, from 4 to 6 some 250,000; from 6 to 10 some 400,000 years, at the earliest stages; while for the increase of efficiency from 58 to 100 only some 2,000 years were necessary (from 500 B.C. to A.D. 1915). Similar results are obtained when we take the progress of bridge spans, or the velocity of man's locomotion, or increase of communication, or progress of musical harmony, or improvement of social positions of women, or size and length of a ship, or the increase of real income; or several other processes. In all such series the reality of the accelerating tempo of progress is unquestionable, according to Hart. Generally,

> Man's power to control his physical environment has been increasing with accelerating speed, and with only temporary and local setbacks and stagnations. The indexes of technological progress all tend to follow rather closely the upward-sweeping curve. . . . But progress in social and ethical relations has been much more sporadic, fitful, and subject to catastrophic relapses. . . .

[6] J. Novicow, *Les luttes entre sociétés humaines* (Paris, 1896), pp. 187–196, 48, *et passim.*

In these social and ethical aspects of culture, the basic trend has been acceleratingly progressive, but the relapses have been more marked than in technological developments.[7]

Along somewhat similar lines, other investigators have claimed a uniformity of acceleration in various processes. G. Tarde contended that in the course of time the war periods tend to become shorter and shorter between ever-expanding peace periods.[8] A. Niceforo, W. Willcox, F. Tönnies, Henry Adams and others have given several statistical series showing an accelerating tempo of their quantitative (and partly qualitative) change.[9] C. Lalo claims likewise a progressive decrease of the span of life of great musical systems or an acceleration of their change in the course of time; the Greek musical system existed about twelve hundred years; Gregorian music about six centuries; the polyphonic style reigned no more than seven or eight centuries; finally, the modern harmony seems to be approaching its end after three centuries of the most feverish life.[10] These samples give a sufficient idea of the current theories of the uniformity of acceleration of the tempo of change of either all or specific sociocultural processes.

B. *Theories of Constant Tempo.* All the theories of periodic rhythms considered in the preceding chapter are examples of the theories maintaining that there is a constant, unchanging tempo of the sociocultural processes, rhythms, or periodic changes in the sociocultural systems. Since periodicity means the same rhythm, change, or event lasting for the same duration, *eo ipso,* it means an unchanging tempo of these rhythms, events, processes, or change. This makes it unnecessary to repeat here these theories.

C. *Theories of Tempo Retardation.* There is hardly any recent theory which seriously sets forth a retardation of the tempo of sociocultural processes as a more or less general uniformity. Slowing of the speed of change has been decidedly unpopular among recent social scientists. The only form in which they admit it, is that of purely temporary setbacks and temporary slowing of the change for a short

[7] H Hart, *The Technique of Social Progress* (New York, 1931), pp. 666; 27 ff.; 36–37; 53–62, 73–78, 138–145, 166–167, 356–358, 438 ff.; 680, *et passim.*

[8] G Tarde, *Social Laws* (New York, 1899), pp 109 ff, 132 ff.

[9] See A. Niceforo, *Les indices numériques de la civilisation et du progrès* (Paris, 1921); W. Willcox, "A Statistician's Idea of Progress," *International Journal of Ethics* (1913); F. Tönnies, "Richtlinien für das Studien des Fortschritts unter der soziale Entwicklung," *Jahrbuch für Sosiologie,* Vol I (1925), pp. 166–221; H. Adams, *The Degradation of the Democratic Dogma,* quoted, pp. 267–311.

[10] C. Lalo, *L'Esquisse,* quoted, p. 320.

period, before it again resumes its main trend of acceleration. Theories that assume the tempo acceleration as a universal uniformity, like the above theories of Novicow and, partly, that of Hart, admit that once in a while, now and then, the trend of acceleration is punctuated by short periods of stagnation and slowing, but just before a new leap of acceleration and resumption of the main trend. Theories that claim acceleration only for the recent centuries or decades also admit such temporary slackening of the course of "progress." That practically is all we find in the recent theories about the uniformity of tempo retardation.

D. *Theories of Tempo Uniformities in the Relationship of the Tempi of Various Sociocultural Processes.* We have already seen the samples of such theories in the dichotomic theories discussed above (see Chapter Six). They assume that the tempo of change of the material-technological-civilizational sector of sociocultural phenomena is uniformly faster than that of the nonmaterial-ideological-cultural phenomena. The same idea is sponsored by the above theory of H. Hart. Another example of the uniformities of this class is given by the theories of the embracing and embraced sociocultural rhythms. The tempo of the tidal waves (rhythms) is slower uniformly than that of the embraced wave rhythms, and of the small ripples (sub-rhythms).

In the field of business-cycle theories, the tempo of the daily variation of business conditions is supposed to be faster than that of "seasonal fluctuations"; the tempo of these is obviously faster than that of normal (three or four or seven or eleven or fifteen-year) business fluctuations from prosperity to depression, and vice versa. The tempo of these fluctuations is faster than that of the "secular trends" in business conditions. The same can be said of any other — daily, seasonal, annual — secular rhythms in the field of any sociocultural process, if the process has such daily, weekly, seasonal, or still longer waves. A further variety of this type of uniformity is given by the theories that the rate of change of small organizations — for instance, of small religious denominations, of small states, of small business firms, of small cultural associations — is uniformly faster than the tempo of change, particularly of emergence and dissolution, of the larger religious, state, political, economic, cultural associations and organizations.

These types of tempo uniformities cover practically all the types of uniformities claimed by various theories in the field of the tempo of change of sociocultural processes.

III. Criticism and Constructive Hypothesis

There is hardly any doubt that in terms of the clock-time units, the tempi of the quantitative, spatial, and qualitative changes of various sociocultural phenomena give us now constant, now accelerating, now retarding uniformities. We have seen in the preceding chapter that there are constant (unchangeable) tempi in some of the processes in the form of the existence of the periodic rhythms. That there are also quantitative tempi of acceleration or, as we shall see, retardation, is also reasonably certain. That the tempi of comparable processes (when they are comparable) may be uniformly faster in one, compared with the tempi of the other, can hardly be denied either. The weakness of most of the above theories lies not in the assertion that such tempo uniformities exist. Their shortcomings consist of different defects; namely: (*a*) in vague delineation of the uniformity they claim and often in its doubtful character; (*b*) in a failure to specify the limits of its validity; (*c*) finally, in a somewhat incidental outline of the tempo uniformity without a distinction of the tempo uniformity in the change of a sociocultural system and of congeries, and without an analysis of the interrelationship of the tempi of various processes.

A. Novicow's *"loi de l'accélération,"* with its illustrative cases, gives an example of these defects. The law of acceleration itself is formulated by him with exceeding vagueness. Its meaning seems to consist in the statement that everything in the universe tends to change faster as time goes on. Such a statement is obviously meaningless. It is inapplicable to the "evolution" of the inorganic phenomena because there is hardly any evolution of the physicochemical phenomena at all;[11] still less is there an eternally accelerating evolution; there is no possibility of proving that "since the beginning of time" and the universe (if there is any beginning of either) the world has tended to change faster and faster. Unless we enter the realm of purely superempirical speculation, all such statements are irrelevant and cannot be either proved or disproved.

Not much better is the situation in application to biological evolution. *Here the generalization that the more ancient the species the slower its evolution is but a speculation, based upon a dozen other*

[11] F. Soddy, for instance, denies that the concept of evolution is applicable to the physicochemical phenomena. "It may be said that very little of this view [of evolution, growth, development] is strictly applicable to the inanimate world." F. Soddy, "Physics and Chemistry," *Evolution in Light of Modern Knowledge* (London, 1925), p. 355. See also J. Joly, *Radioactivity and Geology* (London, 1909).

speculative assumptions. Another vague speculation is also that with each succeeding species, adaptation to environment becomes faster. As such it can be dismissed. When we turn to his "factual evidences" of the law of acceleration in sociocultural phenomena, they all are either very doubtful or entirely fallacious. Granted that the Stone Age lasted longer than the Iron and Bronze ages. Does it prove an accelerating tempo of change? Hardly. It means only that stone implements were used a long time before the utilization of bronze and iron implements; that use of these, so far, has been of shorter duration. But neither has stone ceased to be used, nor are we at the end of the use of bronze or iron. They all are and will continue to be used, side by side, each in many fields of human activity and culture (see above, Chapters Four and Six). We do not have an end of the use of stone, bronze, or iron. What we have is varying ways in which they are used and varying needs for which they are utilized. It is not known that a variation of these ways and needs, in regard to the use of stone, proceeds slower than in regard to the use of bronze or iron. Even if it does, it only means a slower tempo of variation of use of stone *qua* stone, and a faster tempo of variation of the usage of bronze and iron *qua* bronze and iron. And that is all. It does not give any law of acceleration in Novicow's sense, as there is no law of acceleration in the fact that vibration of either proceeds faster than that of air. In other words, his case may mean, at best, a *uniformity in the comparative tempi of change of use of stone and of bronze and of iron* but not a continuously accelerating tempo of the same series or class of sociocultural phenomena. Whether such a uniformity exists remains unknown; Novicow does not give any evidence to prove it.

His second evidence about the length of time that was necessary for "civilization" to pass from warm to moderate, and from moderate to cold zones, is perfectly irrelevant, because the very fact of such a course of civilization has never been proved; and still less has it been proved that the first passage required 6,000, and the second 2,000 years. His assumption regarding Egyptian art is also all wrong. From the sixth to the twenty-sixth dynasty, Egyptian art remained not only unchanged but had, as a matter of fact, several cycles of change. Italian art did not begin with Cimabue and did not finish its existence with the Bologna school. The Greek art, again, did not disappear with the Pergamon phase: what disappeared was the independent Greek States, but not the patterns, style, and content of Greek art; it continued its existence in the form of various "classic" arts and exists up to the

present time. All respective figures of 3,000, 700, and 400 years of existence of each of these arts are perfectly arbitrary figures based upon factual blunders, misinformation, and poor definition of the law of acceleration, as well as the phenomena which supposedly are acceleratingly changing.

Even if his contentions were valid, it would mean only that some arts change more slowly and live longer (Egyptian, or, I may add, Hindu, Chinese), while some others (in his case, Greek or Italian) changed faster and lived a shorter span of time. No acceleration in time is demonstrated even in that case. In addition, his claims entirely ignore the qualitative character of the change: he does not say anything about it. If Egyptian art changed in a way different from the changes of Greek or Italian art, the changes being qualitatively different, they became incommensurable and not comparable. Being such, no application of the comparative tempo and no measurement of the comparative speed of the tempi themselves become possible, as was indicated in the first part of this chapter.

For these reasons, all the laws of acceleration of this type and all the uniformities claimed in that way, are really neither laws nor uniformities. They are rather vague pseudo generalizations.

In different degrees, these criticisms are applicable to many other theories of tempo uniformities. Instead of wasting time on their further criticism, let us turn to an outline of a constructive theory in this field. The following tentative propositions of uniformities unfold it.

1. *When a supersystem of culture passes from the Ideational to Idealistic and then to Sensate phases of its life career, the tempi of quantitative, qualitative, and spatial changes of the supersystem and of all its main systems and subsystems tend to become faster. And vice versa, when the supersystem passes from its Sensate to its Ideational phase, the tempo of change tends to become slower.*

2. *Within the Sensate phase, the tempo of change tends to become particularly fast in the later — super-ripe — stage of that phase.*

The logical reasons for the validity of these propositions follow from the nature of the Ideational and Sensate phases. The mentality of Ideational culture is rooted in the supersensory realm of everlasting and unchangeable Being (God). It is Eternalistic culture, in the sense that it regards the true reality as ever equal to itself — to Everlasting Being — and all the empirical change as mainly a mirage. It pays little attention to the empirical world and to its reconstruction or in-

cessant remodeling. It does not try to study it very carefully, or to make as many technological inventions as possible for its reconstruction; or to invest all its power, ethos, pathos, and ambition in it and its change. It regards itself in possession of absolute reality, absolute value, and absolute — perfectly certain — Godhead. Therefore, it does strive mainly for as close as possible union with, participation in, and realization of, this absolute reality and value, which is supersensory. For this reason also, its energy, its mind, its time, and activities are little centered around the empirical reality, its modification, and diversification. For all these and other reasons unfolded before, Ideational culture cares little to change, and changes very slightly and slowly in its empirical sociocultural reality (see preceding volumes of *Dynamics* for a detailed characterization of these and similar properties of Ideational culture).

Sensate culture is opposite. It invests its mind, aspirations, energies mainly or exclusively in the empirical reality. It is the reality, and often the only reality, for this culture. Such a reality is, by its very nature, the world of Becoming, an incessant change. Its mentality is temporalistic *par excellence*. It cannot help changing and striving to change as much as possible, and as fast as possible. Its ethos and pathos are directed entirely to a study of this reality, and then to a transformation and modification of it. *Savoir pour prévoir; prévoir pour pouvoir*. Such is its motto. Since any empirical reality and value are relative and are in no way regarded as the Absolute, there is no limit to the incessant striving to reconstruct them in order to make them better, more suited to our needs, more comfortable. Hence, evolution, change, progress, as the inalienable characteristics of such a culture. For all these and similar reasons, Sensate culture is the culture of an incessant change, as great as possible and as fast as possible. For the same reasons, it must be changing feverishly in its superripe stage.

Finally, Idealistic culture occupies, as we know, an intermediary position between these extreme types.

Such are the logical reasons for the validity of the above propositions. Are these propositions corroborated factually? Certainly. Let the reader take all the tables and diagrams given in this and preceding volumes of this work. Let him go over these tables, keeping in mind the centuries that were Ideational, Idealistic, and Sensate in Graeco-Roman and Western culture. When he does this, he will see from these tables an invariable uniformity:

(*a*) As to the tempi of the *quantitative* changes in all the systems and subsystems of our supersystem in its Ideational, Idealistic, and Sensate phases: be they fine arts, systems of truths, scientific discoveries, technological inventions, ethical systems, movements of material well-being and others. In all these systems and subsystems, the period before the fifth century B.C. (Ideational) is marked by few famous names, few creations, few discoveries and inventions, a fairly uniform and little-changing style in arts, principles in ethics, an almost stationary standard of living, and so on. In brief, quantitatively, the figures and curves remain almost stationary and change very little. With the end of the sixth century B.C. and then in the fifth century B.C. (Idealistic phase), all the figures and curves begin to move upward; the rate of change begins to accelerate and continues to do so during the subsequent centuries with the passage of the Graeco-Roman supersystem of culture into a dominantly Sensate phase. At the later stage of this phase — super-ripe stage — the tempo of change in art and other systems tends to become more and more feverish. Then, after the third century A.D., when the supersystem begins to pass into the Ideational phase again, the curves and figures turn down and remain again almost stationary throughout all the centuries of domination of the Ideational phase, up to roughly the end of the twelfth century. Beginning with this period, when the supersystem enters the Idealistic phase, the curves and figures again start upward; during the subsequent centuries, when culture passes into a predominantly Sensate phase, the tempo of the quantitative change begins to accelerate more and more: the curves move upwards more and more steeply, the figures (for scientific discoveries, technological inventions, scientists, artists, philosophers, statesmen, businessmen, indices of material well-being, and so on) multiply faster and faster, until for the last two centuries they all increase until the curves "go into the stratosphere."

In brief, practically whatever subsystem and system of our supersystem we take, they all follow the uniformity formulated in our propositions. Purely minor movements excluded, the major movements of our quantitative curves and figures all follow the uniformity.[12] Thus, both deductively and inductively, the propositions are well corroborated, so far as the tempo of quantitative change is concerned.

[12] The proposition concerns only those sociocultural phenomena which are a system, subsystem, or element of our supersystem The tempo of change of congeries generally and congeries to our supersystem are excluded from the proposition.

(*b*) The same is true of the tempo of the *spatial quantitative* change of the supersystem, with its embraced systems and elements, in the sense of the rapidity of the spatial movement and circulation and multiplication of its values, vehicles, and agents in the social space. Since the Sensate phase in a given culture is marked by a greater number of technological inventions generally, and among these, by more numerous inventions of means of communication, transportation, and their multiplications — the meanings, their vehicles, and agents can and do circulate in the area of such a culture (in the social space) faster, across greater distances, with greater velocity. Furthermore they diffuse more rapidly (within the area of the supersystem and even outside of it, if the culture of these outside areas is not inimical) with a much faster tempo of spatial diffusion (see about that in Chapter Five). This equally concerns so-called material values (circulation of money,[13] material wealth, banknotes, bathtubs, lipsticks, dress, automobiles, etc.) and immaterial values, whether education and all that it confers, Beethoven's music, a political credo, the latest fad, a religious movement, scientific theory, and so on. This also concerns the spatial mobility and circulation of the human agents of such a culture. Sensate society is mobile society *par excellence,* with individuals and groups moving to and fro, up and down in social space with a much faster tempo than in a society with a dominant Ideational culture. Such a society, be it Hindu caste society or medieval "order" and guild society, is marked by a comparative immobility of the individuals and groups that compose it. They move less and for a much shorter social distance in social space (cannot cross the boundary of caste or of medieval order, or rank, or can do it only with much greater difficulty and much more rarely than in the mobile Sensate society).[14] In these and similar senses the propositions are valid also for the tempo of the spatial quantitative changes.

(*c*) Finally, the propositions are also applicable to the *qualitative* changes of the supersystem, with its systems, in each of the three phases. Ideational culture tends to be static, not only quantitatively but also, and perhaps especially, qualitatively. Since the moment of its crystallized grounding in the empirical reality it does not want to change and changes slowly and imperceptibly. Having found its absolute reality and value, it clings to it and does not want to deviate from it in any significant, and especially in any radical form. Throughout its exist-

[13] See J Schumpeter, *Business Cycles* (New York, 1939), pp. 545-546, 886 ff.

[14] See the evidences in my *Social Mobility* (New York, 1927).

ence in its main systems and values, it does not seek for any diversity, for any novelty, for any radical transformation. Being hieratic, like any religious and hieratic phenomenon, it regards as sacrilege, heresy, schism, any serious innovation and modification of itself. Therefore, it stays "frozen" almost throughout the entire duration of its phase, without any waves of new rhythms, or new transformations. As has been shown in the preceding volumes, its religious mentality remains almost intact for centuries; its patterns of art also, its various "credos" remain unchanged; even its textbooks do not alter and function for centuries, as did the texts in the Middle Ages, or the *Vedas* in India. Unchangeableness, but not fashion, is its nature. Hence, an exceedingly slow (comparatively) tempo of the qualitative changes in all its systems and subsystems.

In Sensate culture, the situation is opposite. Its spirit is "the newer and better." "The Modern," but not "the Ancient" is its ideal. Hence, an incessant qualitative change of all its systems and subsystems is the rule, with a much faster tempo than that of an unwelcomed, and undesired change in the Ideational phase. In the Sensate phase there is nothing "sacrosanctus," nothing exempted from change. On the contrary, everything, beginning with today's religious credo or scientific theory, and ending with the forms of government, family, and art, is in transition. Scientific, religious, ethical, philosophical theories come and go; so also styles and patterns of art — classic, romantic, archaic, modernistic, and what not — follow in rapid procession, like the patterns of the fashionable dress. While the culture of the Ideational phase stays practically unchanged throughout the whole period of its domination, the culture of the Sensate phase consists of many subrhythms succeeding one another with ever increasing rapidity. The rhythms of "classic-romantic" and its equivalents repeated themselves several times in Graeco-Roman art and in European art, during their Sensate phases, and each succeeding recurrence lasted a shorter period. So also with "fashions" in other fields of culture. To sum up, the proposition seems to be valid in regard to the tempi of quantitative, spatial, and even qualitative changes in each main phase of the supersystem.

Qualifications. A few words of qualification and limitation of the given formula of tempo uniformity are advisable.

(*a*) First, it does not cover congeries as such, and all the systems that are congeries to this supersystem. Therefore, if somebody brings up the fact that some process changed differently from the uni-

formity formulated, if such a change concerns a congeries, it does not contradict or repudiate the uniformity.

(*b*) It is valid in application to these phases of the *same* supersystem of culture, but not of different and unrelated cultures. If, for instance, somebody should say that the Dobu culture is predominantly Sensate, and that in spite of this, it changes more slowly than even the medieval Ideational culture of Europe, such an objection is not an objection to the formulated uniformity at all. The reason is that the Dobu culture is entirely unrelated to and separate from the Graeco-Roman or Western cultures of Europe. They hardly ever have been even in contact; there has not been any causal interdependence between them. In a word, they are not the same or an interdependent system, but separate systems. Our proposition concerns Sensate-Idealistic-Ideational phases of the *same* supersystem, but not the phases of separate and different supersystems. For this reason, for verification of the validity of our propositions, one should take the same Dobu culture and compare the tempi of change of *its* Ideational, Idealistic and Sensate phases (if it had them). Comparing them, he probably would find that the above propositions apply to it and that the tempo of the change in its Ideational phase has been slower than that in its Sensate phase. For the same reason, if a Sensate phase of ancient Egyptian or Chinese culture happened to change more slowly than European culture in its Ideational phase, such a fact (hardly probable, factually) in no way would present a contradiction to our uniformity: it is meant to be applied to the same culture in its supersystem but not to the unrelated cultures.

(*c*) The proposition neither claims nor denies that in the same culture, each succeeding phase of the same kind — for instance, a second or third recurrence of the Sensate phase — may have tempi of change faster than the first or the preceding Sensate phase. Factually, the tempi of change in the European Sensate phase seem to have been notably faster than, for instance, in the Graeco-Roman Sensate phase. Likewise, the tempi of change of the medieval Ideational phase may be faster or slower than in the Graeco-Roman Ideational phase. Such acceleration or retardation of the tempi of change in earlier and later recurrences of the same phase in the same culture may happen. Whatever they are — acceleration or retardation — they do not contradict our formula. It claims only that when the same culture passes from one phase to another, the tempi would be increasing in the Sensate phase, in comparison with the immediately preceding Ideational phase;

and slowing in the Ideational phase, in comparison with the tempi of the immediately preceding Sensate phase. Whether there is any uniformity of acceleration or retardation of the tempi of the successive recurrences of the same phase remains unknown. It is not covered by the proposition, and needs a serious investigation before any serious claim for its existence can be set forth.

(*d*) The second proposition concerns only the later stages of the Sensate phase, it is borne out by deductive as well as factual considerations. But when the Sensate phase begins to decline, the tempi of change begin to decline also.

(*e*) The propositions concern only those systems, subsystems, and their processes which in each phase are part of the respective supersystem phase. When the propositions state that in the Sensate phase there is an acceleration of the processes in the systems and subsystems, only those processes are meant which belong to the Sensate supersystem and not necessarily those which belong to the Ideational phase and continue to coexist, as a minor stream, side by side with the Sensate dominant phase. Likewise the retardation in the Ideational phase concerns only those processes which belong to the Ideational process and occur in the systems and subsystems of the Ideational supersystem. The processes that belong to the coexisting Sensate phase may continue unabated and unretarded in this case.

(*f*) The propositions concern the tempi of the main movements in each phase. Secondary and slight fluctuations, due to the combination of incidental — mainly external — circumstances are not covered by the formulated uniformity.

Significance of the Propositions. Of the existing generalizations concerning the uniformities of the tempo of the sociocultural change, the above propositions are possibly the most inclusive, the most general, specific, and accurate. To that extent, they may represent the most valuable generalization in the field. Indeed, knowing the above formulas, it is unnecessary to specially formulate the accelerating tempo of change, for instance, of the movement of scientific discoveries and technological inventions during the last five centuries; or of means of communication, transportation, and multiplication of the copies of a cultural value; or the accelerating tempo of an enlargement of the bridge span; or of the increasing number of philosophers-empiricists, materialists, behaviorists, operationalists; or of an increase of musical instruments in an orchestra; or of the faster tempo of various rhythms in the field of art: classic-romantic, archaic-modern, idealistic-muck-

raking, and the like; or in the field of ethics and law; or of political constitutions; or of the social mobility of individuals; and in all the fields which are a part of the Sensate supersystem of a given culture. It is unnecessary to do so because the propositions, like an algebraic formula, cover all these specific arithmetic values. As soon as we know that Western culture entered its Idealistic phase about the end of the twelfth century, and then passed into its Sensate phase around the sixteenth century, all such accelerations should be expected and all are covered by the formulas. Just as it is superfluous to demonstrate that Lucky Strike cigarettes gravitate to one another in direct ratio of the mass, and in inverse ratio of the square of distance, because the Newtonian formula covers all material bodies, including Lucky Strike cigarettes; similarly, it is superfluous to demonstrate specifically that this or that Sensate variable would be accelerating during the centuries of the domination of the Sensate phase. Viewed in this light, the propositions embrace all specific generalizations like the above, made by Novicow, Hart, Tarde, Ogburn, and others, so far as they are valid. As the general formula of gravitation makes unnecessary a special law of gravitation for Lucky Strike cigarettes, so our formula makes superfluous all the theories of acceleration of cutting instruments' efficiency, of bridge spans, of the increasing number of inventions, and so on, formulated by various investigators. All that is valid in their claim is well covered by our formula. Such is its first value.

Its second value is that it points out not only the uniformity of acceleration of the tempi, but also the opposite uniformity of the tempi retardation, and defines precisely under which conditions both uniformities occur. We have seen that the current theories see factually only acceleration and either do not see retardation at all, or see it as something perfectly superfluous and incidental and purely momentary. Our propositions indicate, on the contrary, that the uniformity of retardation of the tempi of the change is not something incidental, or short-lived, but is as fundamental and long-lived as the trend of tempi acceleration: retardation occurs each time when the Ideational phase becomes dominant and lasts as long as it dominates. Such a situation is very different from that which the current theories depict and claim. In a word, our formula states the situation much more accurately, accounts for acceleration as well as for retardation, and connects both uniformities with the basic conditions in which they appear. The current theories do not give such an account at all.

Its third virtue is its definiteness, in contradistinction to the indefinite vagueness and fallacious overextension of the pseudo uniformities of the current theories. We have seen before that most of them leave untouched the problem as to whether their "law of acceleration" is valid only for definite periods of a given culture and its processes, or whether it is a universal and perennial uniformity in operation since the beginning of the world. When the latter is assumed, the theories turn into purely speculative conjectures incapable of being tested, and mainly meaningless. When the limits of time are left undefined, the claimed uniformity is left hanging in the air. Neither its authors nor readers can, in such case, state when and where it is valid, and where and when it is not. We have seen that most of the current theories suffer from one of these weaknesses. Our propositions are quite definite in this respect. They do not go back to the beginning of the world; they do not leave the period and the field of culture where they are valid undefined. Each time — and anywhere — when and where a supersystem is given and when it passes from one of the specified phases into another, the respective acceleration or retardation of the tempo of the change occurs. In this respect, nothing more definite can be desired.

Its fourth value is that it does not mix together the tempi of changes in sociocultural systems and in congeries, as the current theories do. Doing so, they make a mess of themselves and their pseudo uniformity.

Its fifth value consists in tying together a large bunch of sociocultural processes in the uniformity of their tempi, which current theories do not do. They pull out now the accelerating tempo of efficiency of cutting tools; now that of increase of inventions; now that of expansion of musical harmony; now the rhythm and succession of various art styles; now a change of ladies' fashion of dress; and so on. Each process is taken as something isolated and unrelated to the others. As such, it pops out as *deus ex machina*.

Other current theories sin in the opposite way: they throw into the heap of acceleration the whole sociocultural world and all its processes, and apply their formula to this whole universe, without any distinction of the processes that go on with an acceleration and those that remain constant, or retard the tempo of their change.

In contradistinction to these shortcomings, our propositions tie together an enormous number of processes — all the main processes that go on within the supersystem — and state that all of these are accelerating when the Sensate phase becomes dominant, and slowing

down when the Ideational phase is to the front. By this means, an enormous number of processes are interrelated, interconnected, and shown in their interdependence. On the other hand, so far as the supersystem does not embrace the total given culture, all the processes that are not part of the supersystem and of its processes, are excluded from this uniformity, and separated from the interconnected processes. By doing this, our propositions are free from both shortcomings of the current theories.

The totality of these considerations is enough to illustrate the value of the propositions, compared especially with the current theories in the field.

Additional Propositions.

3. Side by side with the uniformities of accelerating and retarding tempi, a *series of sociocultural rhythms have constant or periodic tempi in the sense defined in the preceding chapter.* As indicated there, such constant tempi are neither eternal nor uniformly universal for all cultures and all times. They are local, though often they extend over an enormous cultural area; they are temporary, though they exist sometimes for centuries. Examples of such constant tempi were given in the preceding chapter, as well as their connection with the system of time and other conditions of a given society. Most of the current theories usually overlook such uniformity, or look for it in the wrong place, and often substitute statistical averages or medians or modes which in no way are substitutes for constant real tempi and should not be confused with them.

4. As to the character of the processes having such constant tempi, in their reference to the supersystem, it may be pointed out that in the *Ideational culture they occur mainly in religious processes and as derivatives of these. In the Sensate culture they appear mainly in economic, political, scientific, and generally secular processes and are derivatives of these.*

The calendar and time system of Ideational culture is first of all and most of all religious, as has been shown in Volume Two (Chapter Eleven). Its beginning of era is religious (before Christ or after Christ); its periodic punctuations are also mainly religious: Christmas, Easter, St. Patrick's day, Ascension, Lent, Sunday, weekdays, all the Holy Days, or wedding days, birthdays, death days (as the days of the respective religious sacraments and ceremonies). Therefore, the greater part of the periodically recurrent events are religious events rooted in the religious calendar and time punctuation.

From this, they are extended over most of the sociocultural processes — economic, political, aesthetic, judicial, educational, and others. Economic activities are respectively punctuated periodically by weekdays, when such activities go on, and Sunday when they stop or subside; so also with other activities. The Christmas or Easter caesura marks not only religious activities, but becomes a caesura for practically all the sociocultural activities. And so with each holiday in a given society.

In Sensate culture, especially of the conspicuously irreligious type, as in Soviet Russia, the calendar and time system become secular, determined by various utilitarian and other considerations, in which the religious character is obliterated entirely or in greater part. Instead of weekday and Sunday, there is just a five-day week with one day of vacation, unrelated in any way to the Christian or other religion. Religious holidays are eliminated and do not punctuate the life at all. Instead, the days of October Revolution, Marx-Lenin-Stalin days, and others related to the Revolution, become punctuating periodic caesurae. Christmas or Easter are either eliminated or given a meaning quite different from a religious meaning. In other Sensate societies the change is not so radical, but is of the same character. Among American holidays only a small portion have religious origins and roots. Most, like Washington-Lincoln-Memorial-Fourth of July days, have secular origins and connotations. The number of holidays that existed in earlier centuries, and were of a religious character, is reduced enormously in all the Western societies, and they are replaced by periodically recurrent days commemorating political, economic, or other nonreligious events. Even those which, like Christmas, remain, have lost the greater part of their religious connotation. In addition, when the calendar and time system is conscientiously and scientifically organized, it is organized and reformed on the basis of a series of scientific considerations of the movement of the sun, of other utilitarian, political and convenient considerations, free from religious reasons. The calendar and time system becoming secular, secular also become the periodic rhythms, with their constant (periodic) tempi within such a Sensate culture. Hence, the above proposition. It explains why periodic rhythms in our society are shown mainly in the processes of work and labor, of meals, of office hours, of secular festivals, of production, transportation, communication; and especially in economic activities, like weekly, monthly, annual dividends, rents, employments, appointments, and so on.

5. As to the *uniformities of the tempi of change of congeries, no generalization is possible except, perhaps, that all in all, even congeries tend to change somewhat more rapidly in the Sensate phase than in the Idealistic, and especially than in the Ideational phase.* Since a change of congeries depends mainly upon external factors, no uniformity can be claimed as to what combination of the external factors occurs, and what would be their effects upon the tempo of change of congeries. However, in a rapidly changing Sensate culture, with all its systems and subsystems, they serve as rapidly moving external factors to the congeries. These are continually bumped, pulled, pushed about by the changing Sensate phenomena. For this reason, the congeries must seem to change in such a culture faster than in an Ideational culture. But the proposition needs to be tested further, and it hardly can be extended to all congeries in a given culture.

6. *As to the tempi of change in the transitional periods from one main phase of culture to another, they can hardly be described as accelerating or constant or retarding. If anything, they are chaotic, showing no uniformity and no order* Exemplified by the tempi of revolution or war — and we have seen that in the periods of transition of the supersystem from one phase to another these chaotic movements uniformly flare up — the transitional periods are like an enormous noise, in which it is impossible to discern any more or less regular tempo. Instead we have crash, bang, and a chaos of noises. They are loud and for this reason often appear to be very fast, but such fastness is rather illusory. It is loudness of noise but not swiftness of tempo. This is due to several conditions. First, by their very nature, the transitory periods are the times of discontinuity: many previous processes abruptly end and many new ones start. As the notion of tempo is applicable only to continuous processes, such a discontinuity makes it impossible to apply the idea of tempo to such discontinuities. If applied, it means only an exceedingly varying, capriciously and incessantly changing tempo, with many sudden caesurae and abrupt beginnings. Another reason for such chaotic tempi of these periods is that many processes have in them different and discordant — often opposite — changes of their tempi. Some accelerate; some retard; some, possibly, remain constant. When all of them are listened to, the net impression is a chaotic noise. Such seems to be the most prominent characteristic of the tempi of the transitional periods. They have not a music but a noisy Bedlam. In other words, they have the uniformity of having no uniform tempi,

except the most varying, capricious, and unexpectedly changing flow of noises.

7. Finally, comparing the tempi of various processes, it is possible to indicate a few approximate uniformities of their relationships in the sense of which of them are uniformly faster and which slower or equal. Such uniformities give, however, *not so much comparative tempi of change of these processes as the typical and comparative duration of the analogous rhythm — from its beginning to its end* — in the processes compared. The most general uniformity in this field can be formulated as follows. Normally, (*a*) *an embracing rhythm or phase requires a longer time for its run than the embraced rhythms or phase;* (*b*) *the embracing social organization or cultural system tends to have a longer duration of life* (*between its beginning and dissolution*) *than the embraced organization or system.* These rules have possible exceptions, but they remain fairly general rules. In part, these propositions have been touched upon before, in Chapter Eight, on rhythms. Here a few additional remarks are in order. To begin with, concerning the second variant: of such social organizations as a state, large states, like China, Japan, Russia, England, France, Germany, or, in the past, like Egypt, Babylonia, Sumeria, Persia, Rome, — existed or still do exist for several centuries, a thousand and several thousands of years.[15] On the other hand, most of the small states exist or existed for only a comparatively short period, much shorter than the typical duration of life of the large states. Albania, independent since 1912, is already gone; so also is Czechoslovakia (reborn in 1918); so also Poland (resurrected in 1920); so also Norway, Latvia, Estonia, Lithuania; so too, the Netherlands, Luxembourg, Belgium. These small states were resurrected, or established as independent states: Greece in 1830; Rumania in 1878; Belgium in 1831; Luxembourg in 1867; Hungary in 1920; Norway in 1905; Estonia and Lithuania in 1920; Latvia in 1918; Yugoslavia in 1920 (before, Serbia, in 1880). Add to these Chile, Bolivia, Peru, Ecuador, Colombia, Venezuela, Paraguay, Uruguay, Argentina, Guatemala, Salvador, Panama, Nicaragua, Honduras, Costa Rica — all made independent in the nineteenth century.[16] Likewise, in the past an enormous number of small states were short-lived also.

[15] Providing they were well established and did not represent a momentary creation, like the ephemeral empires of Genghis Khan, Tamerlane and the like

[16] See the details in my quoted article: "Life-Span, Age-Composition, and Mortality of Social Organizations."

While the vast religious systems and their organizations have lived for more than a thousand or several thousands of years — Hinduism, Buddhism, Confucianism, Taoism, Shintoism, Jainism, Judaism, Christianity, Mohammedanism — the small religious denominations have a much shorter life: they appear and disappear. For instance, in Christianity, the main religious divisions — the Roman Catholic and the Eastern Christianity — have endured for about 1900 years; the small Christian denominations — in the past and in the present — had a much shorter duration of life. Most of the small medieval sects and denominations do not exist any more; and most of them existed for hardly more than a century. At the present, the situation is depicted by the following few typical cases. In the United States between 1890 and 1906, 68 new denominations appeared (46.9 per cent of 196 existing denominations), and 20 (13.8 per cent) of the existing denominations ceased to exist; between 1906 and 1916 again a number of new small denominations (21.2 per cent of the existing denominations) appeared, and 8.8 per cent of the existing denominations disappeared.[17] This typifies the situation.

The same seems to be true of business organizations. For instance, while the average length of life of the small business systems, like drug, hardware, shoe stores, in the United States have an average duration of life of about three years, bigger economic organizations, like the large automobile corporations, live longer: 66 per cent of these remain in business above ten years, while only from 5 to 28 per cent of the smaller firms reach the age of ten years. Still longer is the span of life of the totality of big corporations listed on the stock market. In Italy, in Switzerland, in England their average duration was about 28 years.[18]

The same seems to be true of the big cultural associations of various kinds. The average duration of small and local cultural organizations, like "Parent-Teacher Associations," "Better Business," "Better Farming," recreational clubs, students' organizations in Harvard and other universities, live from two to seven, and rarely for more than fifteen years; bigger cultural organizations, like universities, national cultural organizations, exist for notably longer periods; many for several centuries. For instance, more than 20 per cent of the existing institutions of higher learning were founded before 1800.[19] And so on. There are exceptions to the rule but they hardly annul it as a rule.

[17] *Ibid.*, pp. 80–81. [18] *Ibid*, pp 70–73. [19] See the data, *op. cit.*, p. 75.

The same is true of the embraced and embracing rhythms. The Sensate phase of cultural rhythm is longer than several subrhythms embraced by it: for instance, "classic-romantic," "linear-malerisch," Neoclassic-neoromantic subrhythms in Sensate art, and so on. These subrhythms recurred several times during the existence of the Sensate phase in European and Graeco-Roman cultures. The same can be said of many subrhythms in the systems of truth, scientific theories, succession and alternation of various philosophic, religious, political movements, — all Sensate but displaying different variations of Sensate mentality. Minor oscillations in business occur in a much shorter span of time than deeper business "cycles"; and these in shorter periods than still deeper "secular trends" in business. Slight and secondary changes of a political constitution occur more frequently and within a shorter period than a fundamental transformation of the constitution itself, and especially the substitution of one constitution by another, fundamentally different. The same is true, as we have seen, of the deep and superficial changes in religion, in ethical and juridical codes, or even in science and philosophy. In this respect, there is a close analogy to the ocean tides, waves, and surface ripples: embracing tidal waves run their cycle for longer periods than waves, and these last longer than the ripples.

The above seven propositions seem to sum up the main tentative uniformities given in the field of the tempo of change of sociocultural processes, in the systems as well as in congeries. As with practically all the sociocultural uniformities, they are very approximate and admit of exceptions; they are temporary and in a sense local; nevertheless, they typify the prevailing course and relationship of the processes involved. In this sense they are rules and types.

Conclusion. The above analysis, criticism of the current theories, and finally constructive propositions, somewhat clarify the problem of the tempo of change of sociocultural processes and suggest the main uniformities given in this field. They show that the problem is much more complex than it is usually considered to be. Here, as in all the preceding problems of sociocultural dynamics, our basic theory of the supersystem in its three main phases is not only necessary for an understanding of the problem, but becomes a cornerstone in grasping and formulating all the main uniformities given in the field of the tempi of sociocultural processes. This demonstrates once more its importance and its vitality.

IV. Conclusion to Part Two

In this part, we have examined the cardinal problems of how sociocultural change proceeds. First, does the total culture of a given area change all together as one system, or do its various elements change atomistically, independently from one another? Or do only the components of a system, and systems of supersystems change together, while congeries change independently? Second, does a change together mean a synchronous or nonsynchronous change; and what is the relationship between togetherness and synchronicity? Third, does the total culture change synchronously or nonsynchronously; and if so, is there any uniformity of lead and lag in the changes of various parts of culture? Fourth, how does culture change in space and what uniformities in the spatial shift of cultural phenomena are given? Fifth, are there some rhythms in the change and what are their types, their interrelationships, and respective uniformities? Sixth, are there periodic rhythms, and if there are, what is their nature, their source and uniformities? Seventh, what are the tempi of the changes, and, again, what are the uniformities in that field?

In this way, the main problems of sociocultural change in the aspect of their "How" have been studied and a number of conclusions reached. There remains unexamined only one aspect of these "How's"; namely, the aspect of the direction of sociocultural processes from the standpoint of their pattern. Is it linear or cyclical or creatively recurrent? This aspect is to be analyzed in the next part, dealing with the problem of the *Why* of the change, because the analysis of these patterns of direction is closely interwoven with the *Why* problems. For this reason we terminate our analysis of the "How" of sociocultural change here and pass to its "Why."

PART THREE

Why and How of Sociocultural Change

Chapter Twelve

PRINCIPLE OF IMMANENT CHANGE OF SOCIOCULTURAL SYSTEMS AND CONGERIES

> Since we never reckon that we understand a thing till we can give an account of its "how and why," it is clear that we must look into the "how and why" of things coming into existence and passing out of it.
>
> — Aristotle *The Physics*, 194*b*.[1]

I. Three Hypotheses on the "Why" of Sociocultural Change

We know that viewed in their empirical aspect, all sociocultural phenomena change incessantly, without any exception whatsoever. The question arises: Why do they change but do not remain unchangeable? Why this relentless becoming instead of everlasting permanency?

The general answer to this question is easy: not only sociocultural phenomena but all empirical phenomena — inorganic, organic, and sociocultural — are subject to change in the course of their empirical existence. To be in an incessant flux, as Heraclitus said, is their destiny. Therefore a mere reference to this universal uniformity of empirical reality is sufficient to answer the above question in its general form.

Granting this, the question arises: Where shall we look for the roots of change of sociocultural phenomena and how shall we interpret it? Shall we look for the "causes" of the change of a given sociocultural phenomenon in the phenomenon itself, or in some "forces" or "factors" external to it?

The question may sound "metaphysical," and yet it is not. We shall see that it is of primary methodological and scientific importance. The character of the answer to it determines the very character of

[1] Translated by P H Wicksteed and F M Cornford (London-New York, 1929).

almost all "causal," "factorial" and many other analyses of the social science.

Logically, three answers are possible to the question and all three have been used in social science. The first solution of it is the *"externalistic theory of change."* Such a theory looks for the reasons ("causes," "factors," or "forces") of change of any sociocultural system in some "variables" that lie outside of the sociocultural system itself. Explicitly or implicitly, this standpoint is the predominant theory at the present time.

Take almost any historical, sociological, economic or other work dealing with a study of the change of any social and cultural phenomenon.[2] When the investigators set forth the problem of what are the "factors," "reasons," "variables" responsible for the change, they almost invariably take variables or factors *external* to the phenomenon studied, and through the change of this external factor(s) explain the change of the phenomenon under investigation. If an author sets forth a problem of why the *family* has changed during, say, the last hundred years, he turns for the explanation to such variables as the change of industrial conditions, or density of the population, or the state laws, or the biological factors, up to sun spots and climatic conditions. The family itself is assumed to be something purely passive, devoid of any capacity of change by itself, and pushed by this or that external force along the line of change. Without such a "factor" it seemingly is destined to remain changeless and "stationary." The same method is followed when an investigator deals with the factors of change of the State, of economic, political, and social institutions, of art, science, philosophy, law and ethics, and of practically any social and cultural phenomenon. The predominant mode of explanation of change is externalistic. In quantitative and statistical studies, the factor, "the independent variable," is in most cases a variable external to the dependent variable. Exceptions certainly exist, and we shall see them, but the dominant procedure is externalistic. This concerns practically all the social, and, in a considerable degree, the biological sciences. Its general manifestation is the triumph of the so-called *"environmental" theory,* especially in explanation and interpretation of human affairs.

Broadly viewed, "environmentalism" is a theory and method of externalistic explanations of any change through "environmental

[2] The procedure is so common that there is no need to mention specifically this or that work.

forces" that lie outside, but not within, the unit studied. These external — environmental — forces are assumed to be shaping, controlling, modifying, changing, pushing, pulling, creating and destroying the phenomenon studied. The unit itself is assumed to be a merely passive focal point of the application of these forces and factors. It is supposed to have no forces of change of its own. This externalistic environmentalism now pervades social sciences. Almost everything and every change is explained environmentally, from crime and religion up to the business cycle and pure genius.

Another variety of this externalism is given in widely spread *mechanistic and behavioristic interpretations of mental and sociocultural phenomena.* The very nature of the mechanistic theory of sociocultural change consists in an extreme form of the externalistic interpretation. What is curious — but typical of the contemporary mentality — is that the second part of the Descartian and Newtonian law of inertia, namely, that if a material body is in the state of motion it has to move rectilinearly and uniformly (just because it *is* in the state of motion), has been neglected: the mechanistic interpretation of sociocultural change usually assumes that any sociocultural phenomenon is in a state of rest or static equilibrium, and remains in the state of rest until some "external force" thrusts it out of its place and keeps it moving and changing. Otherwise, the phenomenon is assumed to have no *proprium motum* and must be in a state of inertia, or "being at rest." [8] Somewhat similar is the externalism of the behavioristic theories of any psycho-sociocultural change; and not only of the behavioristic but also of the predominant psychological theories of the present time. Their fundamental principle is *"stimulus response."* Without a stimulus — and the stimulus is almost invariably something external to man or organism or any sociocultural phenomenon — man or any sociocultural system is assumed to be incapable of giving any "response," exerting any activity, or experiencing any change or transformation. Implicitly, this formula of *stimulus response* is to a considerable degree externalistic, and in the work of many a psychologist and social scientist it is such explicitly.

A further variety of this externalism is a wide current of "reform" and "reconstructive" movements, which look for the "roots of evil" and for "the patented cure" of any social and cultural phenomenon in "the environment and factors" external to the person or social institution or cultural unit under consideration. The wrongdoing and cure

[8] See these theories in my *Contemporary Sociological Theories*, Chapter One.

of a criminal are widely regarded as due to his milieu and not inherent in the criminal himself. A root of defectiveness in a social institution — be it the family, the political or economic organization — is again looked for, not in the institution itself but in its environmental forces. A modification of these conditions is expected to produce automatically the desirable change of the system itself. This latter is again regarded as something passive, wholly dependent in its change upon external forces, from sun spots up to any other "variable."

This concise characterization shows the nature of the externalistic theory of change, its varieties, and its contemporary popularity. It demonstrates also that the question raised is not merely "academic." We see how the externalistic postulate determines the essential character of all the "causal and factorial" research in all the fields of the social sciences; how it shapes the "techniques and procedures" of the research; how it pervades the practical policies and activities in the field of reformistic and reconstructive social movements; how it influences the theoretical and practical mentality and activity of its partisans in their daily affairs, as well as in special sociocultural conditions. The externalistic postulate in the problem of change leads all consistent minds to externalistic research, theories, techniques, and procedures in all — even the minutest — studies; to externalistic *Weltanschauung;* to externalistic ethics, politics, religion, and behavior.[4]

The second solution of the problem is opposite: it may be styled the *immanent theory of sociocultural change.* In regard to any sociocultural system, it claims that it changes by virtue of its own forces and properties. *It cannot help changing, even if all its external conditions are constant.* The change is thus immanent in any sociocultural system, inherent in it, and inalienable from it. It bears in itself the seeds of its change. If the external conditions of family, State, economic organization, political party, or any social system are assumed to be constant; if the same is assumed for any integrated system of art or science, philosophy, religion, or law, each of these social and cultural systems does not remain the same, but is immanently destined to change by virtue of its own existence and functioning. Some of its properties will disappear; some new ones will emerge; certain traits will be growing; certain others decreasing. Rapidly or slowly, the system will undergo a transformation. Such, in brief, is the essential nature of this theory.

[4] The reader of the preceding volumes of *Dynamics* knows that such an externalism is one of the typical traits of the Sensate mentality and culture.

One can easily see that it is opposite to the externalistic hypothesis. Once assumed, it leads (for a consistent mind) to a series of conclusions in the study of almost all social and cultural problems quite different from those of the externalistic postulate. In a study of a transformation of any sociocultural system, the partisan of the immanent theory of change will look for the reasons or factors of the change first of all in the internal properties (actual and potential) of the system itself, and not in merely its external conditions. He will not try to find some external factor through whose "pushing," "pulling," or "pressing," he could explain the change. He may consider any such factor as subsidiary; but in most cases he will not ascribe to it the whole of the change and its essential forms. Respectively, most of the studies where some "independent external variable" is taken for the cause of the change of the investigated system will be superfluous to him. In many cases they will also seem foolish, no matter whether the causal correlation between the two variables is given verbally or statistically. He can admit in a series of cases such a correlation; but it will be valid for him only when the claimed correlation appears to him immanent also: namely, that both variables are a part of the larger system and stand in an immanent or meaningful-causal relationship to one another, as the parts of one system, which, as such, also changes immanently. Likewise, in reformistic and reconstructive schemes for the "improvement" of this or that sociocultural evil, he would not rely exclusively or even mainly upon a mere rearrangement of the external conditions. Like a doctor, he would study first of all the system itself and its immanent properties, and this study would give him a real basis for his diagnosis. If he sees that the system is, speaking figuratively, similar to the organism of an eighty-year-old man, he will declare all the attempts to turn it into an organism of a twenty-year-old youth futile, no matter what rearrangement of external conditions is made. His reason will be that, on the basis of valid experience, an eighty-year-old organism cannot be changed into a youthful system. If the immanent properties of the system have potentialities of a more cheerful nature, he will expect that, in some way, when the time comes, they will be manifested. And his prescription — which does not neglect the external conditions — will, as a rule, put an emphasis on the inner potentiality and efforts of the system itself. He would not invest much hope in a purely mechanical rearrangement of the external circumstances. To sum up, once assumed, the principle of immanent change of socio-

cultural systems leads to an immense amount of research and practical activity in procedures, techniques, and policies profoundly different from the principle of the externalistic theory of change. Such is the second theory in the field.

Finally, there has been the third — *intermediary or integral — answer to the problem.* It attempts to view a change of any sociocultural phenomenon as the result of the combined external and internal forces. Often it assumes an eclectic character, putting both factors side by side without any serious attempts to indicate what is the specific role of the immanent and of the external forces. Not infrequently, it gives mere lip-service to one of the forces, not using it in actual explanation or activity. In such cases, the principle practically becomes either the externalistic or the immanent principle, in spite of the verbal recognition of both. In few instances, however, is the synthetic or integral character of the principle carried through and put into actual operation. In such cases — and only in these — the integral character of the principle is realized and its nature is not disfigured. Such are the three main answers to the problem put. Which of these principles is most valid?

My answer is in favor of the *principle of immanent change of each sociocultural system supported by the externalistic principle, within certain conditions and limits.* The main reasons for such a standpoint are as follows:

First, the principle of immanent change of a sociocultural system is supported by empirical observation. We do not know any empirical sociocultural system or phenomenon which does not change in the course of its existence or in the course of time. In the whole empirical sociocultural world there has existed hardly any system which has remained unchanged. This observation is incontestable. The objection possible is that though change is unquestionable, it remains unknown to what it is due: to purely immanent forces of the system or to an incessant influencing of it by a set of external factors. The objection is valid. Therefore, for the solution of the problem, we must turn to other empirical and logical evidences.

Such a combined — logico-empirical — evidence can be formulated in the following proposition: *Any system which is, during its existence, a going concern, which works and acts and does not remain in a state of rest, in the literary sense of the word, cannot help changing just because it performs some activity, some work, as long as it exists.* Only a system which is in an absolute vacuum at the state of rest and

is not functioning can escape change under these conditions. One can take the best automobile engine, put in it the best oil, and keep other conditions constant; and yet, if it runs and works, sooner or later it will change, and after a due time it would be worn out. In our case, we agreed to keep it in the constant but best possible external milieu. Its change, therefore, is due to the fact that it runs, works, operates, acts.

The change is an immanent consequence of the system's being a going concern. Its functioning makes change inevitable. The same can be said of any other mechanical system, if it is a going concern. Still more valid is the proposition for organic systems. One of the most fundamental properties of a living organism is its activity — external or internal — its motility, its work, its dynamic nature. In other words, an organic system is a going concern by its very nature. As such, as long as it lives, it works, acts, operates. As long as it does that, it cannot help changing. "Life can never be in equilibrium." [5] "Complete equilibrium is never attained (by an organism) and would be fatal if it were attained, as it would mean stagnation, atrophy, and death." [6] We may hypothetically imagine an absolutely constant milieu of a human or any other organism. And yet, if the organism lives and therefore acts and works, it will be changing, no matter what the milieu and how constant it is.[7] Regardless of any milieu, man cannot help undergoing an incessant change during his existence, in passing from childhood to maturity and then to old age and death. No environment and scientific device can stop the change or can prevent the above course from childhood to senility. Even in the future it is hardly imaginable that changelessness and eternal youthfulness of man can be achieved. Only perhaps freezing or putting man into semi-dead anabiotic conditions can greatly slow up the tempo of the change. But such conditions mean turning the man from a

[5] J. S Huxley, *The Individual in the Animal Kingdom* (Cambridge University Press, 1912), p 114

[6] J. C. Smuts, *Holism and Evolution* (London, 1927), p 223. See also C. E. Guye, *L'évolution physico-chimique* (Paris, 1922). L. du Noüy, *Biological Time* (London, 1936), pp 24 ff.

[7] "We can create for our experiments (in a study of the reflexes and reactions of the infusoria) the most ideal conditions; we can repeat them as many times as we like, in the same conditions of milieu, of temperature, of pressure; and yet, we never can obtain a complete identity of the reactions." The very reaction to the same stimulus A (an activity) changes the organism and makes it react the second and subsequent times to it in a different way. S. Metalnikov, *La lutte contre la mort* (Paris, 1937), p. 74. See there chaps. i–vii.

living and going concern into a kind of mummy. Such a possibility corroborates and does not disprove the proposition.

Since any sociocultural system is composed of human beings as one of its components, and since any organism, so long as it exists, cannot help changing, the sociocultural system is a "going concern" and cannot help changing so long as it exists, regardless of its external conditions, even when they are absolutely constant. The very performance of any activity, any reaction or response, to a given environment A, changes the system and makes it react differently a second time, and then a third time, and subsequent times. Gradually or abruptly, rapidly or slowly, the system has to change, just because it exists as a going concern. Change thus is immanent in it and rooted in its very nature. For these reasons, change needs much less explanation than any case not of unchangeableness (which has hardly ever occurred in the whole history of the sociocultural life) but of even a comparatively slow and gradual change of the family, State, or any social organization, or art or science, or any cultural system and its configurations. Other components of any sociocultural system are meanings and vehicles. As has been shown in Chapter Two of this volume, and as we shall see further, these components also bear in themselves the seeds of their, and of the system's, change All the meanings that contain in themselves some potential contradiction — and according to Hegel, all meanings have it (see further) — sooner or later make it explicit and germinate their own change for elimination of it. In this sense, they also change immanently, as meanings grounded in empirical reality, as thought of by empirical human beings. All the vehicles *qua* vehicles are also going concerns: functioning as vehicles they work, are used, operated with, often worn out in their functioning. Therefore, they cannot help changing too.

These logico-experiential considerations are sufficient in order to make the principle of immanent change of the sociocultural phenomena valid. If a partisan of an externalistic principle protests that any such system or organism does not exist in a vacuum, but in a certain environment to which it incessantly reacts, and through which, therefore, it is changed, the answer is that the *existence of the environment of a given system is one thing, and imputation to that environment of the whole or the main part of the change of the system is quite another thing. If of two variables — no matter what they are — one is changing while the other remains constant, no logician or statistician would ascribe the change of the first variable to the other — the constant one.*

If A varies, while B remains constant (except if B is God or Prime Mover), elementary inductive logic forbids us to see in B the cause of the variation of A. If the milieu of any system that is a going concern remains constant, while the system changes, the milieu cannot be regarded as the cause or the source of the change of the system. If the simplest microörganism (for instance, *paramecium caudalum*) in Metalnikov's and Jenning's experiments reacts to a stimulus A, in a certain way for the first time, and if it reacts to the same stimulus in the same conditions differently the second time, the change evidently is due neither exclusively nor mainly to the environment nor to A, but to the immanent property of the organism to change by virtue of its very existence and therefore its activity. Even the very capacity to *react* or *respond* to the stimulus is a capacity immanent in the organism.

All this *means that the problem of why a sociocultural system changes is falsely set forth.* Its change is neither a mystery nor a problem difficult to explain. Much more difficult would it be to understand a case of unchangeableness of any sociocultural system — if such a case had ever occurred.

It means, futher, that *any extreme externalistic theory of change of any living system is superfluous.* It is superfluous because it overlooks the source of change where it is given — in the system itself; because it implies it where it is either not given or is merely subsidiary; because it often violates the elementary inductive principle, seeing a constant B as a cause of the variation of A.

In view of a wide popularity of the externalistic theories nowadays, it is advisable to go deeper in the examination of their shortcomings. Their first defect is that they are useless, because, at the best, *any consistent externalistic theory of change does not solve the problem but merely postpones the solution, and then comes either to a mystery, in a bad sense of this term, or to the logical absurdity of pulling the proverbial rabbit out of mere nothing.* Suppose we assume that change is not immanent in sociocultural systems. For an example, let us take the family (A). According to the externalistic theory for an explanation of why the American family has changed during the last fifty years, we have to take some factor external to it: say, change of industrial conditions (B). When such an explanation is given, we may ask: But why have the industrial conditions changed? According to the consistent externalism, we have to take some external factor to explain the change of B. Let it be (C), say, a change in the density

and mass of the population, or in the climatic conditions, or in the sun spots or what not. Being given C, we can put the same question in regard to it: why has C changed? And so on, *ad infinitum*. This is what I mean by the postponement of the solution.

Second, if a consistent externalist continues to claim that in the process of this regression he somehow can find a solution, we shall drive him into one of the four blind alleys. A. Either to the endless regression, from A to B, B to C, C to N and so on endlessly, none of which can change itself or can be a source of change for the others. The whole regression is endless and fruitless and cannot give either change or an end in this hopeless hunt for a self-starting agent in the endless regressive movement from factor to factor.[8] Or, B, to the ultimate Prime Mover, be it God, or any other ultimate principle, itself either unmoved (as in Plato-Aristotle's theory) [9] or self-moving (as in some other theories). If, in the search for the ultimate source of change in metaphysics, such a solution may or may not be adequate; in the study of the empirical and sociocultural phenomena such a solution does not solve the problem at all. For the externalistic theories of change do not invoke here the ultimate Prime Mover which itself is not and cannot be empirical, but take one of the empirical "variables" as the factor of change. Respectively such a procedure resolves itself into the preceding case: an infinite series of regressions, because in regard to any empirical variable posited as the factor of change, we can ask: Why is it capable of changing itself and of starting the others? And there is no answer to the question, except the same blind alley of infinite regression of the previous case.

Or, C, to an ascription of immanent change to some of the sociocultural or generally empirical systems; for instance, to climate, to "means and modes of production" of Marxianism, to a "demographic factor," and so on. But such a solution means an abandonment of the externalistic theory and self-contradiction, for it signifies that, contrary to the externalistic thesis, some of the sociocultural or empirical systems bear in themselves the reason of their change and can be self-starters and movers of other systems or variables. Such a thesis is but a variety of an immanent principle of change. In addition, such an escape is burdened with several other sins. It has to demonstrate

[8] Aristotle well demonstrated the futility of such an infinite regression "For it is impossible to run back to infinity through movers that are themselves moved by something else, for there is no beginning at all of such an unlimited series" *Physics*, 256a, translated by P. H. Wicksteed and F. M. Cornford (London-Cambridge, 1929).

[9] *Ibid.*, Bk. viii, *passim*.

why some of the sociocultural systems, for instance, the family, religion, or science, cannot change themselves, while some others, for instance, means and instruments of production, density of the population, mores, art, or sun spots, can do that. Such a demonstration has never been given and can hardly be given, for empirically all these phenomena do change; likewise, there is no logical evidence that some of them can change themselves and change others, while others can neither be self-movers nor can influence others. Farther on, most of the externalistic factorial theories in their "explanations" of the why of change usually move from the sociocultural to the biological (demographic and other biological) factors, and from these to the inorganic (climatic, geographic, atomic, etc.) factors. They regard such a regression as particularly scientific because it "explains" sociocultural phenomena by biological, and the biological phenomena by the physicochemical. Whatever is the validity of such an assumption in the study of other problems, in this problem the procedure and respective dogma are certainly wrong. The reason is that observationally and logically, the most dynamic or changeable phenomena are exactly the sociocultural; then come the biological; then the physicochemical. These latter, like climate, geographic and geological features of the habitat and so on, are the least changing and the slowest in the tempo of change. For this reason, the assumption mounts to an absurd dogma of explanation of the most changeable and dynamic phenomena by the least changing and most static. The dogma regards the most changing (quantitatively, qualitatively, and in the tempo of change) sociocultural phenomenon as devoid of an immanent change, while it ascribes it to the least variable (inorganic and organic) class of phenomena. While within some hundred or even ten years the changes in the field of the sociocultural phenomena are enormous (in art, science, philosophy, religion, law, forms and processes of the social, economic, political organization) no new species emerge or have emerged within the same period; no important change of the basic biological phenomena occurs. As to the physicochemical phenomena, they know, generally, hardly any "evolution."[10] Whatever basic

[10] F. Soddy, inquiring as to whether any evolution is given in the physicochemical world, sums up. "It may be said at once that very little of this view [of evolution, growth, development] is strictly applicable to the inanimate world" "It is the merest obsession to extend such ideas to the inanimate world Growth, reproduction, orderly progressive evolution are absent here. . . ." F. Soddy, "Physics and Chemistry," in *Evolution in the Light of Modern Knowledge* (London, 1925), p. 355. See also J. Joly, *Radioactivity and Geology* (London, 1909).

change occurs there is "measured" by hundreds of thousands, millions, billions, and trillions of mortal years (such processes as the so-called "evolution" of stars from low density to high, and from high luminosity to low and the like)." The whole, more or less known, human sociocultural history hardly extends beyond some five to ten thousands of years. And yet, what an infinity of change, what a multitude of endless "new species" in all fields of sociocultural life; what an indefatigable and infinitely greater and faster incessant change of everything there! Compared with the change in the field of biological phenomena, and especially in that of the physicochemical world, it is a hurricane or lightning, in comparison with "the state of rest" and almost static conditions.

More than that. Already Aristotle and his predecessors well noted:

> Of the proper subjects of motion, some are moved by themselves and others by something not themselves. . . . Take, for instance, any animal: the animal moves itself, and we call every movement natural, the principle of which is *internal* to the body in motion. . . . Things that are not animate do not move themselves. . . . We cannot say that such bodies "move themselves" for this is proper for animals that have life.[12] The man is not moved by anything other than himself.[13]

The criticized procedure thus amounts to an "explanation" of the most "self-moving" sociocultural phenomena by the less dynamic biological, and by the least "self-moving" physicochemical variables.

Finally, D, the fourth blind alley, into which such an externalist may try to run for salvation, is the logical absurdity of producing something (change) out of nothing (from the systems which are devoid of immanent change, according to the externalistic theories). If the sociocultural systems are devoid of change; if the same is true of the biological and inorganic phenomena; if neither the line of infinite regression, nor a postulating of the ultimate Prime Mover, nor an arbitrary ascription of immanent change to something is assumed, then the only source of change that is left to the externalist is "nothing." But a long time ago Melissus said: "For if it [change] comes into being, before it came into being, it must have been nothing; if, then, it was nothing, nothing could ever come out of nothing." [14]

[11] See for instance, J. J Jeans, "Cosmogony," in *Evolution in the Light of Modern Knowledge;* A. S. Eddington, *The Nature of the Physical World* (New York, 1929), and their other works; C. E Guye, *L'évolution physico-chimique* (Paris, 1922).

[12] Aristotle, *Physics*, 254b, 255a

[13] *Ibid.*, 256a; see also 252b, 259b. See next chapter on Aristotle's theory of change.

[14] Melissus, *Frag.* 1.

Such, then, are the four blind alleys into which the consistent externalistic principle leads. None of them solves or can solve the problem.

The third basic fallacy of such an externalistic theory is that it does not see that even the most mechanical principles and theories of the physicochemical — and still more, the biological — disciplines cannot avoid admitting, in spite of their claim to the contrary, and recognizing implicitly or explicitly, the immanent principle of change (motion) in regard even to their ultimate units. If this be so, then an externalist tries to find a refuge from the principle of immanent change in the realm where, in fact, it is implied, has to be reckoned with, and recognized.

For all these reasons, the principle of an exclusive and consistent externalism is untenable. In contrast to it, the principle of immanent change of a sociocultural system is free from these logical and factual errors. Therefore, with an adequate limitation and subsidiary admission of the externalistic principle, it is much more valid than the externalistic hypothesis. The contemporary prevalence of a one-sided externalism is but a regrettable error.

The endorsement of the immanent principle of change does not hinder a recognition of the role of the external forces in the change of the sociocultural system. Any sociocultural system lives and functions amidst other sociocultural systems. If each of these bears in itself the seeds of its own change, their interaction leads to this change still more. If a system A contains in itself the reason for its change and so do the systems B and C and N, then the interaction of A with B or C or many of these systems, facilitates the change of A and B and of each interacting system still more. In this sense, the influence of B and C and any such system upon A and vice versa is an extension and development of, but not a denial or contradiction to, the principle of immanent change. The family or any other social system changes first of all immanently; second, being in interaction with the State, the business organization, the church, the labor union and other social systems, each of which also changes immanently, the family's change is reinforced by the "influences," "shocks," "pressures," and "activities" of all these systems. Taken together, they make a constellation of the immanently changing systems in which each one facilitates the change of the other members of the constellation.

With a slight modification, the same can be said about the external biological or cosmic forces. Each of such forces, say, diffusion of

plague germs amidst a given social system, or earthquake, or inundation certainly influences the system and calls forth some change in it. But again it does so because the respective biological or cosmic force is itself dynamic and is changing.

Thus the principle of immanent change embraces easily the role of the external factors in a change. But in almost all the cases these forces external to a given system can play such a role because they also are the systems immanently changing in the course of their existence. Quite different would be the situation if we assume that none of these systems bear in themselves the seeds and reason of their change. In that case, a constellation of the unchangeable and unchanging units can never produce a change; therefore the change will be unexplainable.

The above is sufficient to answer the problem of Dynamics: why a whole integrated culture as a constellation of many cultural subsystems changes and passes from one state to another. The answer is: it and its subsystems — be they painting, sculpture, architecture, music, science, philosophy, law, religion, mores, forms of social, political, and economic organizations — change because each of these is a going concern, and bears in itself the reason of its change.

This answer solves only this general problem and in no way further problems involved, such as: What are the factors that determine the direction and character of the change? Why the rhythms and periodicities? Why does the change assume either a trendlessly fluctuating or cyclical or linear direction? Why have the cultures studied oscillated between the Sensate and Ideational forms? and many other problems. Farther on, we shall come to their systematic analysis. For the present, we had to raise and answer the "Why" change that lies beneath all these problems. The principle of immanent change established, we can move farther, and with its help attack all the above and other problems involved. Before moving to such an attack, we shall, however, linger a great deal longer upon the principle of immanent change. The above gives only an essential outline of the principle. Its important implications are not touched at all in the preceding analysis. Let us go over some of these now.

II. Some Implications of the Principle of Immanent Change

A. *Principle of Immanent Generation of Consequences.* The first implication of the principle of immanent change may be formulated as follows: *As long as it exists and functions, any sociocultural*

system incessantly generates consequences which are not the results of the external factors to the system, but the consequences of the existence of the system and of its activities. As such, they must be imputed to it, regardless of whether they are good or bad, desirable or not, intended or not by the system. One of the specific forms of this immanent generation of consequences is an incessant change of the system itself, due to its existence and activity. Let us have a sociocultural system X (individual, family, State, any social organization, any cultural system). Since it exists, it incessantly works or acts. Let it, at a given moment, in a milieu B, perform act A (the performance of some act, as explained, is inevitable to any going concern or system as long as it exists). The very performance of the act — inevitable in some form — generates a series of infinitesimal or great changes in the milieu, as well as in the system itself. After its performance, and due to it, the system ceases to be what it was before: it greatly or infinitesimally changes. Thus, among other consequences of the discharge of the act, there is the consequence of a modification of the system itself.

Since the system is changed, it will react in the same milieu B (identical with the first) in a somewhat different way compared with the first reaction. Thus, the milieu (theoretically) remains the same; meanwhile the system changes and its reactions change. For the same reason, its third reaction in the same milieu B will again be different from the first and second reactions. And so on. Thus the milieu or the stimuli remaining constant, the system and its reactions to the milieu incessantly change. As some actions have to be performed incessantly by any sociocultural system so long as it exists, the incessant generation of the change of the system itself becomes immanent in it.

In the preceding case I took the milieu B as constant (which, in many experiments with the biological or sociocultural systems, we can have, with some approximation). Factually, the situation is somewhat different and the principle of the immanent generation of the consequences becomes still more important. The point is that outside the experimental laboratory conditions, the discharge of the act A by the system changes not only the system but also the milieu, infinitesimally or greatly. The changes in the milieu produced by the act of the system now begin to react upon the system in a different way than before. Therefore, the system now has to act differently, not only because it is changed itself, but also because by its act it has changed the milieu, and these changes force the system to act differently than did the pressure of the milieu B, before it was changed by

the act of the system. A given state declares war against another state. The act of warfare changes not only the first state but introduces a series of important consequences in the world external to it. Among these changes, the other state is forced to enter the warfare. In the process of war, the second state becomes victorious, invades and subjugates the first state. Thus the act of the first state immanently generated a series of changes in itself; a series of changes in the external world; internal and external changes in their turn have reacted forcibly upon the state and have led to its profound transformation, up to the loss of its sovereignty and independence. In this sense, any system not only bears in itself the seeds of its change, but generates the change incessantly, with every act, every reaction, every activity it discharges.

B. *Principle of Immanent Self-Determination of the System's Destiny* (Existence Career). The second fundamental implication of the principle of immanent change is the principle of immanent self-determination of the potentially given course of the existence of a sociocultural system. It may be formulated as follows: *As soon as a sociocultural system emerges, its essential and "normal" course of existence, the forms, the phases, the activities of its life career or destiny are determined mainly by the system itself, by its potential nature and the totality of its properties. The totality of the external circumstances is relevant, but mainly in the way of retarding or accelerating the unfolding of the immanent destiny; weakening or reinforcing some of the traits of the system; hindering or facilitating a realization of the immanent potentialities of the system; finally, in catastrophic changes, destroying the system; but these external circumstances cannot force the system to manifest what it potentially does not have; to become what it immanently cannot become; to do what it immanently is incapable of doing. Likewise, the external conditions can crush the system or terminate an unfolding of its immanent destiny at one of the earliest phases of its development (its immanent life career), depriving it of a realization of its complete life career; but they cannot fundamentally change the character and the quality of each phase of the development; nor can they, in many cases, reverse or fundamentally change the sequence of the phases of the immanent destiny of the system.*[18]

[18] A. Comte, in spite of his externalistic tendencies, well understood this. "The human being cannot be modified indefinitely by exterior circumstances; such modifications can affect only the degrees of phenomena, without at all changing their nature; and again,

This proposition is a mere result of the principle of immanent change and immanent generation of the consequences. With all the traits at a given moment (T^1), the system acts in the form of A; A introduces changes in the milieu and in the system itself. Therefore, for the next moment, T^1, the system's total situation is determined by the external and internal consequences of the act A. This situation at T^1 is thus determined by the system's properties and activities at the moment T^1. The same is true for the moment T^2, T^3 . . . T^n, up to the end of the existence of the system. This means that any sociocultural system, as soon as it emerges as a system, bears in itself its future destiny. To use Aristotle's example, an acorn as soon as it emerges bears in itself its destiny, namely the unfolding destiny of an oak and of nothing else. So with the initial system of any plant or animal organism. The same is still truer of a sociocultural system: a moronic family cannot unfold itself into the Great Christian Church or develop the properties of the Royal Scientific Society; from an emerged contractual business concern one cannot expect the properties, functions, and life career of the early Christian monastery; from a Sensate "Society of Connoisseurs of Wines and Women" the characteristics and destiny of an ascetic society; from the State, the functions and destiny of a sentimental philanthropic society; from a real university, the functions, behavior and life career of a criminal gang; and so on. As soon as a sociocultural system emerges, with all its properties and *modus vivendi* and *modus agendi*, it contains in itself its "normal" future. At any moment of its existence and activity it creates it, controls it, determines it, and molds it. In this sense, to use the proverb, any sociocultural system is the molder of its own future.[16]

This does not deny the role of the external circumstances. But as mentioned, it specifies their functions. The external agencies may crush the system and in this way prevent it from a realization of its immanent destiny. Earthquake, fire, plague, inundation, war, and

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when the disturbing influences exceed their general limits, the organism is no longer modified, but destroyed. All this is . . . more eminently true of the social than of the individual organism, on account of its higher complexity and position." A. Comte, *The Positive Philosophy*, translated by M. Martineau (New York, 1853), Vol. II, p 117.

[16] Compare Aristotle's "Natural things are exactly those which do move continuously, by virtue of a principle inherent in themselves, towards a determined goal" "The final development reached from any one principle (*e.g.*, human seed) is neither exactly the same for every individual (for no two men are exactly alike) nor yet is it any random result (*e.g.*, dog or horse). There is, however, in each species always a tendency towards an identical result if nothing interferes." Aristotle, *The Physics*, Bk. ii, 199b, pp. 176–77, quoted edition.

other agencies external to a given system — the family, the artistic society, the religious or political sect — can kill all or a part of its members; can destroy its property and other instrumentalities of its activities; can disperse the members; can destroy the scientific libraries and laboratories, art museums and churches, means of transportation and communication, food supply; and in hundreds of forms may put an end to the existence of the system. Still more frequently, the external circumstances may accelerate or retard, facilitate or hinder, reinforce or weaken a realization of the immanent potentialities of the system and therefore of its destiny. All this is granted as self-evident. And yet, all this does not determine fundamentally the "normal" career and phases of the development of the system. All this does not and cannot force the system A (oak, man, criminal gang), destined to have a life career B to have a life career fundamentally different, for which A does not have any potentiality: for instance, for a female to become a male; for a criminal gang to change into a society of the real saints; for the State to become a night club; and so on. This "normal" career or destiny is an unfolding of the immanent potentialities of the system given at the moment of its emergence.

C. *Immanent Self-Determinism as Synthesis of Determinism and Indeterminism.* The preceding analysis raises the question: *What is the relationship of the immanent principle to the problem of determinism-indeterminism?* Is the immanent principle of change a variety of determinism or is it that of indeterminism? *The answer is: neither or both.* So far as the immanent principle implies that the normal course and the essential traits of the system are greatly determined by the potentialities of the system at the moment of its emergence, it is deterministic. It is also deterministic so far as the influence of external factors is concerned, when it reaches beyond the margin of the system's autonomy. Considering, however, that the determining potentialities of the system are *the system itself* and are its immanent properties, *the determinism of the system turns into self-determinism. Self-determinism is the equivalent of freedom.* When we ourselves determine something, we feel ourselves free; and especially when this self-determination flows spontaneously from us as something quite natural to us and emanating from our very nature. The self-determination of a system is exactly this: it is rooted in the system; it expresses its very nature and its most essential potentialities; it flows spontaneously from the system and cannot do otherwise. For all these reasons the principle of immanent self-determination is equiva-

lent to indeterminism. It is indeterministic also in the sense that the very notion of the potentialities of the system, as we shall see in the next paragraph, contains an element of indeterminacy on its fringes and in no way means a rigid necessity, as has been shown above. In all these aspects, the principle of immanent change of a system is indeterministic and implies a considerable margin of autonomy from all the agencies that are external to the system; and also some amount of indeterminacy within the system itself, so far as realization of its potentialities is concerned.

Such is the definite and precise answer to the question raised. The answer appears to be more adequate and sound than the half-truths of pure determinism and indeterminism.[17] The stated principle organically and logically unites in itself the valid parts of either of these principles and is free from the fallacies of either. It clearly indicates in what sense and to what degree the sociocultural system is indeterministic or free, and in what respects it is deterministic. In application to man and man's sociocultural world it synthesizes the doctrine of "free will" with the doctrine of determinism and "predestination." The next paragraph will specify still more fully the conclusion reached.

D. *Principle of Differential Degrees of Self-Determination and Dependence for Various Sociocultural Systems.* If any sociocultural system bears in itself the reason of its change and determination of its destiny, three questions arise: 1. In the unfolding of the potentialities of the system in its life career, is there only one quite rigid and definite course for the system, or are there several possibilities or routes to be traveled? 2. Is the margin of self-determination of the system and its dependence upon the external conditions the same for all sociocultural systems or is it different for different systems? 3. If so, upon what conditions does the relative portion of self-determination and dependence upon external agencies in the systems depend?

[17] It seems also more consistent and less self-contradictory than some theories of the modern physicists, like Sir Arthur Eddington, who extends the law of chance or indeterminacy over the inorganic world but exempts from it the realm of life, consciousness and spirit, as governed in a considerable part by the "objective law of direction"; or like Max Planck, who extends the "dynamic and statistical" determinism over the inorganic phenomena but exempts from it the region of "Ego" and "free will." Such a mechanical division can hardly be satisfactory and consistent, not to mention the conspicuous contradiction of the theories of Eddington and Planck, confronted with each other. See Sir Arthur Eddington, *The Philosophy of Physical Science* (New York, 1939), pp. 61, 89–90, 180–181, 184, 220–221; Max Planck, *Where Science Is Going* (New York, 1932), pp. 145–169.

These are the three questions to be answered. Turn to the first problem. Put in a more definite way, the first problem asks whether the destiny or the future life career of any sociocultural system is quite rigidly predetermined in one definite course, from the moment of the emergence of the system. If the question is answered positively, this would mean that any system is devoid of any possibility of deviating from its predetermined course, and becomes what it shall become. Such an answer cannot be accepted in this rigid form. First, because it entirely ignores the role of the external conditions of the system. We have seen that though the external circumstances cannot fundamentally modify the "normal" destiny of any system, nevertheless, they can crush it, can accelerate and retard, favor and disfavor the development of the "native potentialities" of the system, and in this way can exert a considerable influence upon its life career. In some respects they play a role similar to the row of tracks at the railroad station: the train (the system) remains the same, but where it will go and what will be its destination depends upon what track it follows. Sometimes when it is shifted on to a wrong track, the result is a collision and catastrophe. *In other words, the very existence of the external conditions of a system makes its life career not absolutely predetermined at the moment of the emergence of the system.* The immanent potentialities of the system (at the moment of its emergence) can actualize in somewhat different life careers if the external conditions are different (for the same system) or when they change differently during the life career of the system. Second, the very conception of the immanent potentialities of a system (at the moment of its emergence) hardly entitles us to interpret their totality as something absolutely rigid, devoid of any elasticity. "Potentiality" is only an approximately marked course of career or direction of development. It implies some leeway of variation in most of its detailed "curves" and "turns" and "by-ways." It is not one highway which a driver has to follow (though even on such a highway the actual trajectories of the cars passing upon it are also somewhat different and never absolutely the same), but reminds us rather of several different routes to the point of destination, which the drivers can take and do take indeed: 3, 3A, 3B, 3C, each leading in the same direction, but each being a different route from the others. *Potentiality has always a margin for variations, especially on its fringes.* These variations are never rigidly determined or excluded. They are always the given datum. Otherwise, "potentiality" would not be "potentiality" but absolutely determined actuality or necessity, which conception

contradicts that of potentiality.[18] In empirical sociocultural reality, the leeway of variations of potentiality is rather considerable for most of the sociocultural systems. Even when we are reasonably certain that a given child is gifted, we never can tell exactly what his accomplishments will be. The same is still truer of a given family, state, business corporation, religious current, literary movement, or a fighting army, or what not. Considering the potentialities of each of these systems, we can expect roughly, that their course, under given conditions, would be approximately such and such, but only a fool or a charlatan can forecast all the details of this course.

Even in regard to the biological systems this leeway of a given potentiality is considerable. Having an acorn, we can reasonably expect the growth of an oak from it. But, how long actually the oak will live, what will be its shape, strength, height, size, the exact patterns of its branches, number of its leaves, and hundreds of other detailed characteristics, we cannot foresee.

Thus, the role of the external milieu and the nature of the immanent potentialities of any sociocultural system force us to admit a margin of indetermined possibilities in the development of the life career of the system. I say a "margin," not the complete indeterminacy. Such a margin means the rejection of a fatalistic and absolutely determined course of development of the system. Put in symbolic form, this thesis means that a given system A has an immanent potentiality B, which has to be unfolded in the course of its existence. But, granting even similar external circumstances, this B in one case will actualize into Ba, in another into Bb, in the third into Bc, and so on, up to Bn. In different external milieus, the difference between the actualizations of this B will be still greater.

Turn now to the second question: *Is the margin of self-determination of the future career of the system the same for all sociocultural systems?* Phrased in different form this question means: Are all the social and cultural systems equally dependent upon or independent of the external conditions in shaping their own destiny?

This destiny is shaped, as we have seen, by the immanent forces of the system itself and by the milieu in which it exists. Are the shares of both "molders" constant for any system?

[18] Compare Aristotle's "There are different stages of potentiality. The learner is a potential thinker in any given science, in a different sense from that in which he is a potential thinker in it, when he has learned its principles but is not thinking about it." *Physics*, 255b; also 199c.

It seems almost axiomatic that the share of the immanent factor of self-determination and that of the external circumstances is different for different systems. Some social and cultural systems seem to be conditioned by external circumstances much more than others. In our daily observation we notice the individuals who are the playthings of circumstances and the individuals who are to a much greater degree the builders of their own destiny, often contrary to the most inimical conditions. There are "soft and weak" persons and the persons with "an iron will power and determination." Likewise, we all know strong and weak families, unions, associations, states, governments. The strong weather many storms and stand firmly against many attacks, misfortunes, perturbations, while the weak fundamentally change or go to pieces after a slight inimical pressure of circumstances. The same is true about many systems of culture mentality (in religion, science, philosophy, art, law, literature, etc.). Some systems rise quickly, carried on by the wave of favorable circumstances, and as quickly decline when the luck of the circumstances changes; or rapidly change their character and individuality, adapting themselves to the external milieu and soon lose their identity, turning into a kind of formless and skeletonless protoplasma. Other systems persist and hold their identity, regardless of external circumstances. They remain equal to themselves under both adverse and favorable conditions; they display much less elasticity and versatility than the former; they ride the same ship in all weathers. Thus they show themselves much more immune to and independent from, the external conditions than the former. Facts of this kind are daily observations. They mean that the amount of self-determination of their own destiny or the amount of the dependence upon the external conditions is not constant for various sociocultural systems.

Logically, such a conclusion is also comprehensible. In order that all sociocultural systems shall be equally dependent on or independent of the external conditions in molding their own destiny, we should require: first, that all the systems be identical in all their potential nature, and therefore in their capacity to resist the influence of the external circumstances, or that all systems have the same immunity in this respect. To accept such an assumption would be a logical as well as a factual fallacy. A logical fallacy, because we here ascribe an identity to the systems which otherwise we recognize as different from one another. Since they are different in other respects they can hardly be equally immune to or dependent upon, the external conditions. Observationally,

we know that various mechanical (*e.g.*, automobile), organic (different organisms), psychosocial (human individuals), and sociocultural systems have a different amount of "immunity" in regard to many external conditions. A good automobile can continue to function on a poor road without difficulty, while an old and poor automobile would break down or have trouble. Some organisms are more immune to several kinds of germs, or weather or food conditions than many others. Many minds are influenced by the current fads and fashions much less than many others. Likewise, as mentioned, some married couples get divorced after some slight quarrel or "incompatibility," while some others remain married up to their death. Some societies and unions persist for decades and even centuries, amidst most different environmental circumstances: while others quickly die, after meeting the first adverse outside conditions.[19] Thus logically and observationally, the degree of self-determination (or dependence upon the external conditions) in molding their own destiny is different for different systems.

Is it possible to indicate a few more or less general conditions upon which depends the amount of self-determination of its destiny by the system?

First of all, it depends upon the *kind of social or cultural system.* Different social and cultural systems, like different mechanical or organic systems, are likely to have different degrees of dependence upon external conditions in unfolding their immanent potentialities. However, this does not get us far: the proposition does not answer exactly which traits and properties make the systems differently immune to the forces of the environment. Until these properties are pointed out, the answer is useless.

Second, the amount of self-determination of various systems depends also upon the *kind of milieu.* We have seen that the milieu may be favorable or unfavorable to the unfolding of the potentialities of the system. Sometimes it may even crush it and end its existence. This again does not lead us far: to be a real answer, the proposition must indicate what properties of the milieu are favorable or unfavorable.

Third, we must distinguish farther between *the total and the specific immunity* of the system from its environment, in the molding of its own destiny. An organism, for instance, may possess a specific immunity in regard to typhus or diphtheria forces of the environment; and yet, as a whole, be more dependent upon the milieu than another

[19] See the data about the duration of various associations and organizations in my "Life-Span," quoted.

organism which does not have this specific immunity, but, as a whole, stands better all the shocks of the environment, lives longer, and unfolds its potentialities better than the first. Farther on, different organisms may have different specific immunities: one in regard to diphtheria, another in regard to tuberculosis, a third in regard to venereal disease. A similar situation is thinkable in regard to the social and cultural systems. Some of them may have a high specific immunity and low total immunity; some others may have a high total immunity and a low specific immunity. Some of them may be immune in regard to one set of specific forces of the environment, while others are immune in regard to different agencies of the milieu. For instance, a business firm may be very sensitive towards the economic conditions of its environment (have a low immunity) and quite insensitive towards the artistic or philosophical or family agencies of its milieu. An art association or a philosophical society may, on the contrary, be very immune towards the economic forces of the environment, and greatly dependent upon the nature of its artistic or philosophical atmosphere.

These preliminary remarks show all the complexity of the problem discussed and warn against its simplification. Before laying down the propositions answering the question, we must specify as exactly as possible under what conditions they can be valid and what kind of self-determination — general or special — they mean.

Let us assume, first, that we have social and cultural systems *of the same kind:* say, the family, or the State, or the business firm; or a philosophical school or an art system.

E. *Other conditions being equal* (*including the milieu*), *in the social and cultural systems of the same kind, the greater and better is their integration, the greater is their self-determination* (*and autonomy from the environment*) *in molding their own destiny.* By the greater and better integration of a social and cultural system or group is meant first, the existence and the degree of the causal and meaningful interdependence between its components; second, and this is very important, the solidary (familistic, or at least, contractual) character of the relationship between the members or human agents; third, consistency between other components of the system.[20]

Such is probably the most important condition of the amount of self-determination of the system, in unfolding its potentiality during its life career.

[20] See for definition of organized and solidary group, *Dynamics*, Vol. III, chap. i; for integration of a system, chaps. i–iv of this volume.

Unfolded, the proposition implies:

(1) *Other conditions being equal, of the social and cultural complexes, the least amount of self-determination is found in unorganized social groups and in cultural congeries.*[21] An unorganized group of individuals (unintegrated social congeries) or an unintegrated cultural congeries is a mere collection of the elements of the social and cultural system. As such, it does not have any causal and meaningful cohesion and unity; any unified direction of its activities; any unified efforts towards a fuller unfolding of its potentialities; any unified end; and respectively, any unified system of forces directed towards the preservation of its identity and a realization of its destiny. Therefore, it cannot successfully oppose the adverse pressure of environmental forces, cannot press unifiedly against the agencies of the milieu and overcome their resistance. It is like a collection of individuals not organized into a disciplined army and therefore incapable of resisting the attack of the same number of individuals unified into a well-integrated military body. Such social and cultural congeries have only the atomized and divergent self-determination of each of its elements, but no unified and therefore more powerful system of self-determination. Respectively, it is much more a plaything in the hands of the environmental forces than an integrated system of the same elements.

(2) Other conditions being equal, *the highest amount of self-determination belongs to those social and cultural systems which are most perfectly integrated, causally and meaningfully,* where the causal interdependence of the components and elements of the system is the greatest; and their relationship is the most solidary (among human agents) and most consistent among the components, where, neither actually nor potentially, is there any contradiction, any *Spannung,* any inner tension, antagonism or conflict.[22] Out of similar families or states — the family or state which is perfectly integrated, where the relationships are solidary, where all members spontaneously and deliberately strive towards the same ends; have the same mentality and objectives; have a unified system of aims, efforts, and activities — such a family or state is a builder of its own future much more than the family or state with lower causal and meaningful integration, where the causal interdependence of the members is loose, relationships less solidary, and where heterogeneous aims, conflicts, and antagonisms exist.

[21] For definition of unorganized group, see *Dynamics,* Vol III, chap. i.

[22] See Chapter Two for further elaboration of the perfection of integration.

Finally, *between these types stand the intermediate systems, which are neither congeries nor perfectly integrated systems.* Such are the social systems where only the causal interdependence is found but where relationships are not quite solidary; or the cultural systems where relationships of the elements of the system are somewhat eclectic, not quite consistent, and actually or latently conflicting between and in each of its components. In such systems there always is found what Max Weber, M. Scheler and E. Barthel [23] style, *Spannung*, a kind of tension or latent antagonism; a hidden split or crack, which flares into an open split of the system as soon as the respective adverse interference of the external conditions takes place. For this reason, it is less capable of standing the modifying and breaking influence of the environmental forces, and depends upon them more than the systems with perfect integration. This again concerns a person, a social and cultural system. Fanatics, Don Quixotes, persons with deep convictions and consistent systems of mentality, are examples of strongly integrated personalities. We all know that they are much more immune towards all the currents of fashions and fads in art and science, philosophy and religion, ideology and so forth, than the persons whose mentality is a kind of elastic attic, where side by side lie traditional religion and progressive diluted atheism; enthusiasm for American democracy and the Soviet paradise; parrot-like eulogy of Bach, and enjoyment of crooning and jazz; admiration of each succeeding best-seller, be it Papini's *Life of Christ*, Strachey's psychoanalytic biography, *Trader Horn, Anthony Adverse*, Thurman Arnold's *Folklore of Capitalism*, or what not. They follow any fad and fashion and are continually being passively molded — in their mentality and behavior — by the passing currents of their environment. They have little selective function: within their capacity they ingest all that environment gives to them, and therefore are playthings of the external forces.

The same, with a proper variation, can be said of the social and cultural systems. Any eclectic pseudo system of philosophy, art, religion, or law is similar to the above "eclectic" and "open-minded" persons. They seem to accept almost anything. As a result, they are always being changed by the passing currents of thought of their en-

[23] See M. Weber, *Religionssoziologie* (quoted), Vol. I, pp. 435 ff., 513 ff.; Vol. II, pp. 178 ff., *et passim* See, for further analysis of the Weberian-Scheler's *Spannung*, R. Williams' unpublished thesis, *The Expression of Common Value Attitudes toward Suffering in the Symbolism of Mediaeval Art* (Harvard University, 1938), pp. 118 ff., *et passim*. Especially see E Barthel, *Die Welt als Spannung und Rhythmus* (Leipzig, 1928), *passim*. See next chapters of this volume of *Dynamics*.

vironment. As such, they seldom have any real individuality and remind us of something formless and shapeless, passively plastic, molded principally by their milieu and little by their own potentialities. This is the reason why the eclectic pseudo systems of culture mentality — in all the compartments of culture — do not last long, as an eclectic system of a *definite* sort (as endlessly varying complexes the eclecticism, like other congeries, is a perennial phenomenon). They leave faint traces in the annals of history. They come and go, while any consistent cultural systems, such as idealism and materialism, eternalism and temporalism, realism and nominalism, in philosophy; the visual and ideational styles in art; the classic, the Gothic, the baroque and other styles in architecture; the unified systems of religious beliefs or ethical teachings, persist for centuries and dominate for centuries. Even when they are on the decline, they still exist and are distinguishable; and — what is more — sooner or later they again ascend and become dominant (see Volumes One and Two). It is not incidental that, whether it be in the history of philosophy, art, ethical systems, scientific theories, religions, or law — in all such histories very little can be found about innumerable eclectic theories which existed, and still exist. The bulk of the histories deal with only the more or less perfectly integrated systems of philosophy of the great "integrating minds," or with the integrated systems of art, ethics, science, or religion. The greater the integration of the system, the more space is given to it, and the longer it persists, and often the greater the influence it exerts upon the destiny not only of its own but other cultural systems of mankind.

The same is true of the social systems. Unintegrated armies have always been beaten by integrated ones. Unintegrated states have always been short-lived compared with the integrated ones. A poorly integrated family, or business organization, or any "eclectic social organization" has always been more dependent upon external forces and external "good or bad luck," and, as a rule, more quickly and frequently has come to an end (divorce, separation, disorganization and loss of independence, bankruptcy or dissolution) than similar but better integrated social systems.

One word of caution: *integration and lack of it should not be mixed with fashionable terms like "plasticity," "capacity of adjustment to environment," "progressiveness," and the like.* These terms are not equivalent to good or poor integration. A system may be well integrated, and yet may possess a high plasticity and versatility in its functioning activities and "adjustment of the environment" to itself

(in contradistinction to the contemporary passive: "adjustment to the environment"). And vice versa, a system may be poorly integrated and yet be very rigid and unchangeable; for instance, in its vehicles, agents, and activities, in the perennial presence of antagonisms among its members, in its use of antiquated ways and means for a discharge of its functions, in the ossification of its activities and so on.

Well-integrated systems may be both elastic and rigid in their structure and tactics, according to the conditions; the same is true of the poorly integrated systems.[24] In passing, it is to be noted that nowadays what is so widely extolled as the virtue of plasticity and "capacity of adjustment" is often, in fact, a cult of a lack, or of a poor integration in a system, be it an individual or social body. If we are to believe the partisans of this theory, we all, it seems, should ingest all the best-sellers; follow all the fashions and fads; praise simultaneously democracy and fascism and communism, religion and atheism, capitalism and communism; if others become obsessed with cross-word puzzles, or bridge, or "Information, Please," we should "adjust" ourselves by sharing the obsession; open widely all the organizations to everybody who wants to join them; follow simultaneously quite opposite and conflicting policies in our organizations; join quite unrelated movements; in brief, be spineless, skeletonless, unintegrated eclectics, passively "adjusting ourselves" to everything from the last-minute conception of God, to the last-minute current fad of the artistic, scientific, philosophical, political, culinary, and what-not movement or organization.[25] Such a triumph of unintegrated eclecticism and unintegrated passivity is in accordance with our super-ripe Sensate culture and society. But, as has been shown above, it is not the way of self-determination and control of one's own or the nation's or mankind's future destiny, as the

[24] See above, Chapter Two.

[25] See P. Sorokin, "Tragic Dualism of Sensate Culture," *Science, Philosophy and Religion Symposium* (New York, 1941) K. Horney accurately sees in such self-contradictory eclecticisms the tensions of our culture, in such tensions the source of many contemporary neuroses, and in such persons the neurotics of our time Among many tensions of our culture he emphasizes such contradictions as the ideal of competition and success, on the one hand; on the other, the ideal of brotherly love and humility, the stimulation of needs, and their frustrations in hundreds of ways; the freedom of the individual (in Sensate meaning) and his progressive limitation. Such eclecticisms and contradictory tensions breed poorly integrated neurotics. See K Horney, *The Neurotic Personality of Our Time* (New York, 1937). And their number is far greater than the official statistics of the *Patients in Hospitals for Mental Diseases* give Factually, all the enormous masses of the eclectics of the type described are potential neurotics. Their name is millions. *Cf.* A. J. Toynbee's theory of "Syncretism" and "Promiscuity" in the periods of disintegration of civilizations. *A Study of History*, quoted, Vol. V, pp 376–569.

partisans of this backboneless eclecticism and passive environmentalism often claim. It is the most hopeless road to that end.

Of other conditions relevant to the amount of self-direction of a system in molding its own destiny, the following ones can be mentioned:

(3) *Other conditions being equal (including the identical environment and the perfection of integration), the greater the power of the system, the greater its autonomy from the social, biological and cosmic environment, and the greater its self-control and self-direction.* Put in that form, the proposition is almost axiomatic. The more powerful system naturally has the greater chance to resist, overcome, and therefore to carry on its aims and potentialities, in its environment, than a less powerful system. The weakness of the proposition consists in the indeterminacy of the term "power." Left at that, it is valid, but fairly indefinite. What is the power of a sociocultural system? How can it be measured? And measured it must be, in order that we can say which system is more powerful.

I do not know any satisfactory device for a measurement as well as for a clear definition of the power of a social or cultural system. All that one can do is to indicate a few rough criteria which are somewhat measurable, and which can give at least a very rough, but nevertheless hardly misleading, "index" of the power of the system.

Other conditions being equal, (*a*) *the greater the membership of a social system;* (*b*) *the better their biological and mental and social qualities;* (*c*) *the greater the sum total of real knowledge, experience, and wisdom at its disposal;* (*d*) *the more efficient its organization in the sense of the distribution of rights-duties-functions among its members* (including the distribution to everybody according to his talent and ability); (*e*) *the greater the sum total of the means and instruments of influencing human conduct as well as of modifying biological and cosmic nature; and finally,* (*f*) *the better its solidary integration (discussed above); the greater is the power of the group — the more independent it is from the external conditions in the realization of its potentialities.*

A few comments will make each of these conditions clear.

(*a*) That the power and influence of any social system depends upon its membership is self-evident: an army of one hundred soldiers will be beaten by one of ten thousand soldiers of similar quality. A labor union with a membership of one hundred can exert much less pressure upon the employers and other groups than a union with one million members. And so in regard to any social group.

The mere number of the members of a system is always a relevant component of its influence and power.

(*b*) Besides the quantity, the quality of the members plays an important role in the influence, power, and realization of the system's ends. It is also evident that of the groups of equal size, the group consisting of the mentally talented, morally integrated, biologically healthy persons can do much more than a group whose members are either morons, or biologically weak, or morally disintegrated persons.

(*c*) Likewise, the important role of knowledge, experience, and wisdom that are in the possession of the system or group also needs no lengthy comment. This condition is specifically mentioned, because a group may be composed of good human material but, due to various conditions, may be deprived of an actual possession of knowledge, experience, and wisdom at a given moment. In such a case, for a given moment, the influence of the group would be less than that of another similar group in actual possession of the knowledge and experience. Military history furnishes many cases of this kind: the invaders (in the past or in the present) often have been little, if at all, superior to the nation invaded. But they had in their actual possession the knowledge of the military technique and the perfect military weapons which were lacking among the invaded people. As a result, even though not being superior either morally, mentally, or biologically, the invaders have often been able to subjugate the people of the invaded country and become victorious over them. It is not enough to be potentially talented; it is no less important actually to have the necessary knowledge and experience.

(*d*) The next important condition is the technical organization of the system; its social differentiation and stratification; the manner of distribution of rights, duties, functions among its members; and the kind of persons to whom these rights, duties, and functions are given. It must be evident, to begin with the simplest case, that, of two groups, the one where military command is given to an inborn Napoleon or Caesar; where moral and religious leadership is likewise entrusted to inborn moral and religious leaders; and where the governmental and other, including the humblest, functions are given to those who are most fitted for them — such a group will evidently be more efficient and powerful than a similar one where a potential Beethoven is made a captain of finances; an idiotic strategist, the commander-in-chief; an inborn slave, a ruler; a stupid person, a captain of science.

No less important, however, is the existence or nonexistence of the

social stratification and differentiation, with their division of labor; and what kind of social organization is found in all these respects. Generally, division of functions of the members of the system increases the system's efficiency and power. Likewise, these greatly depend upon what kind of division of functions, or social organization, is carried through in the system: for instance, whether it is "democratic," or "fascist," or "monarchical"; a system with masters and slaves; highly hierarchical or equalitarian; "capitalistic" or "communistic," and so on. There is hardly any definite form of social organization which is most efficient for all the systems, at all times, and in all conditions and circumstances. On the contrary, the difference in the nature of the systems and their objectives makes certain that for widely different systems widely different forms of social organization are most efficient and best: the form of social organization of an army is little suited to a monastery of ascetics or a university or even a business corporation. And vice versa, the best form of organization of a preparatory school will be disastrous for an army. But for the same systems of the same kind, there are more and less fit, more and less perfect forms of organization. What they are for different groups is out of place to discuss here. The important fact is that the power and efficiency of the group depends greatly upon how fitted is its social organization to its nature and to its environment. Hence, its mention among other conditions.

(*e*) By means of influencing human behavior and of controlling the social, biological, and cosmic milieu in conformity with the ends of the system, is meant any instrumentality that serves the purpose: the total sum of the technical instruments and tools; machines, arms, weapons, factories, mills; wealth and money; means of communication and contact; army; police; prisons; electric chairs; and finally, the total sum of the talents mentioned above: preachers; teachers; orators; inventors; researchers; in brief, anything and anybody that helps to influence the human behavior of the members and outsiders to overcome the obstacles of the social, biological, and cosmic external world.

(*f*) Finally, the important role of perfect solidary integration of the system has been already discussed.[26]

[26] On the power of social systems and its criteria see further details in P. Sorokin, *Sistema Soziologii* (Petrograd, 1920), Vol. II, pp. 45 ff., 83 ff. The problem of the comparative powerfulness of social systems has been studied very little. Of the previous attempts to roughly elucidate it and even to give the definite index of powerfulness, the theory of A. Coste is probably most notable, but entirely unsatisfactory. (See P. Sorokin, *Contemporary Sociological Theories*, pp. 364 ff.)

The recent attempt of Bertrand Russell according to whom, "The power of a com-

With a slight modification, the same criteria are applicable to the comparative power of cultural systems.[27] *The greater the number of the human agents of the system (of art, religion, philosophy, science, etc.); the better their biological, mental, moral, and social qualities; the greater the wisdom, knowledge, and value it incorporates* (value or system of meanings: religious, scientific, artistic, ethical, etc.); *the better it fits the social organization of its followers; the greater is its logico-causal integration* (within the system of meanings and between all its components); *the greater the sum total of means or vehicles for its unfolding, broadcasting, and maintenance at its disposal; the greater the power of the cultural system — the more independent it is from its environmental forces.*

Here, however, a greater emphasis is to be put upon the value (the system of meanings) the system incorporates and the consistency of the integration of its elements and components (see above, Chapter Two) than in the social system.

The rest of the conditions are in a sense derivative from these properties of the system. If the value it incarnates is great; and if this value is integrated perfectly into a system, the system is likely to have a large number of followers; be fitted to their social organization (because it incorporates a great value); and get an abundance of vehicles — means for its objectification, broadcasting, maintenance, and functioning.

Each of these conditions is unquestionably a basic constituent of the power of a social or cultural system. Taken separately, each condition cannot be an index of the power of the system. Taken together, they give a very approximate, but hardly misleading, indicator of that power.

This proposition then sums up, if not all, then probably the most essential uniform conditions of the comparative autonomy of the system (in building its destiny) from the external conditions, and explains the relative share of the system's self-control and self-regulation in molding its own destiny.

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munity depends not only upon its numbers and its economic resources and its technical capacity, but also upon its beliefs," plus upon a kind of organization, practically repeats (independently), in a vaguer and less systematic and complete way, the above criteria of mine, set forth in my Russian work. In other respects, the analysis of power given by Russell is rather patchy, superficial, and far from being "A New Social Analysis" as the book claims to be. Bertrand Russell, *Power, A New Social Analysis* (New York, 1938), pp. 145, 158 *et passim.*

[27] See the details in chap. ii, on the optimum integration of the cultural system.

III. Summary

1. The reason or cause of a change of any sociocultural system is in the system itself, and need not be looked for anywhere else.

2. Additional reason for change of a system is its milieu, which is again composed mostly of the immanently changing systems.

3. Any sociocultural system changing immanently, incessantly generates a series of immanent consequences, which change not only the milieu of the system but also the system itself.

4. Bearing the seeds of its change in itself, any sociocultural system bears also in itself the power of molding its own destiny or life career. Beginning with the moment of emergence, each sociocultural system is the main factor of its own destiny. This destiny, or the system's subsequent life career, represents mainly an unfolding of the immanent potentialities of the system in the course of its existence.

5. The environmental forces are not negligible, but their role consists essentially in retardation or acceleration; facilitation or hindrance; reinforcement or weakening, of the realization of the immanent potentialities of the system. Sometimes they can crush the system and put an end to its existence; or stop the process of unfolding the immanent potentialities at one of the early phases. They cannot, however, change fundamentally the immanent potentialities of the system and its normal destiny in the sense of making the life career of an unfolding acorn that of a cow, or vice versa.

6. So far as the system, since the moment of its emergence, bears in itself its future career, it is a determinate system and in this sense deterministic. So far as the future of the system is determined mainly not by external agents, but by the system itself, such a determinism is indeterministic or free, as flowing spontaneously, in accordance with its nature, from the system itself.

7. The process of unfolding the immanent potentialities of the emerged system is somewhat predetermined by the system, but this predetermination leaves a considerable margin for variations. In this sense it is not absolutely and narrowly preconditioned. Only the main direction and the main phases of the unfolding are predetermined; the rest, including most of the details, are "free" and become an unforeseen and unpredictable matter of chance, environment, and free choice of the system.

8. Since the destiny or life career of any system is the result of the system's self-control and of the influence of the environmental forces,

the relative share of each of these two factors in molding the system's career is not constant for all sociocultural systems. The share of the self-control of the system is the greater, the more perfectly the system is integrated and the more powerful it is.

9. As a rough indicator of the elusive concept of the power of a sociocultural system, the following less elusive combination of the criteria is offered: the greater the membership of the system; the better the members biologically, mentally, morally and socially; the greater the actual wisdom, knowledge and experience the system has at its disposal; the better it is organized; the greater the total sum of means of influencing human behavior and forces of nature at its disposal; the more solidarily (or consistently) the system is integrated; the more powerful it is; the more independent from the forces of the environment, — the greater is the share of its own control in molding its destiny.

Chapter Thirteen

THE PRINCIPLE OF IMMANENT CHANGE IN THE HISTORY OF SOCIAL THOUGHT AND IN CONTEMPORARY RESEARCH

I. Predecessors of the Theory of Immanent Change

In our age of popularity of the externalistic interpretation of change, the theory of immanent change may appear as something peculiar, having no roots in the past. The real situation is rather opposite: its past is honorable and goes far back. A large number of thinkers in the past set forth many theories of immanent change generally, and that of sociocultural phenomena particularly. The purpose of this chapter is to give an outline of the main types of the past theories of immanent change, and, through that, to clarify several implications untouched in the preceding chapter.

In a sense, any theory that does not deny the reality of empirical [1] change must be and in fact is a theory of immanent change in some form and to some degree. The reason for it is that empirically "Becoming" or change cannot be derived either from an unchangeable Being or from nothing. That which does not change empirically cannot, evidently, be the source of change for something else. From empirical nothing can come only empirical nothing, and no change. Therefore, the theories of empirical change can derive change only from something that changes immanently, from some "self-starter," and from no other source. In this sense they all must be, and are in fact, immanent theories of change, including the externalistic theories. The main difference between such empirical theories is not that some are and some are not immanent, but in what they seek the source of immanent change, and in how far they regress in their quest

[1] Theories that deny it, as well as those that are superempirical in their nature, can either declare any change nonexisting, or derive it from a superempirical Prime Mover. By doing so, they either cease to be theories of change generally, or become metaphysical theories of change. Here I deal with the empirical theories of change. Hence the reasoning and the stress on the term "empirical."

for the self-starter and the starter of the change of the other phenomena.

Being theories of immanent change generally, *all such theories can be divided into immanent and externalistic, relatively, from the standpoint of their explanation of sociocultural change.* If a theory views sociocultural phenomena as immanently changing, conceives them as self-starters, the theory is an immanent theory of sociocultural change. If it denies that and looks for the source of their changes in the phenomena external to the sociocultural class, it is an externalistic theory of sociocultural change, though otherwise it is immanent: ascribing immanency of change to stars or to biological or other phenomena outside of the sociocultural world. In this outline we concentrate our attention naturally on those theories which directly or indirectly impute immanency of change to sociocultural phenomena. Externalistic theories, with few exceptions, will be omitted.

II. Main Types of Theories of Immanent Change of Sociocultural Phenomena

First Type. The first type of the immanent theories of sociocultural change is that of all theories which view change or Becoming as the very essence of reality generally. Since everything existing is in an incessant flux and cannot help changing, the sociocultural phenomena are also immanently changing and cannot do otherwise. Change becomes thus the primary essence of anything and everything that exists or is real.

Herakleitos' famous formula: "All things are born through opposition and all are in flux, like a river. . . . Reality is a condition of unrest . . ."[2] Man cannot enter twice the same stream, neither can he touch twice the same substance with the same properties"; is one sample of this universal immanent philosophy of Becoming. Lucretius' "All things must pass from one condition to another and nothing remains like itself; all things are in process";[3] is another formula of such a philosophy. Asclepius' "All things being subject to alteration, there is nothing that stands fast, nothing fixed, nothing free from change among the things which come into being, neither among those in heaven nor among those on earth. . . . Coming into being is the beginning of destruction, and destruction is the be-

[2] H. Diehls, *Die Fragmente der Vorsokratiker*, quoted, Vol. II, Herakleitos, Fragments 30, 52, and others, pp 84–101.

[3] Lucretius, *De Rerum Natura*, V, 828 ff.

ginning of coming into being"; is the third sample of such a universal philosophy of Becoming.[4] "The Kosmos . . . exists in process of becoming; it is ever becoming."[5]

Similar formulas have been given by hundreds of thinkers, of the past and of the present.[6]

However, we must leave such theories out of further consideration because they do not deal specifically with the change of the sociocultural systems with which we are concerned. Their general philosophies of Becoming are too broad to be specifically helpful for our purpose. In addition, a consistent philosophy of Becoming is hardly tenable logically, so far as it tries to dispense entirely with an unchangeable Being.[7] I mention here this broad and perennial stream of thought exclusively for the purpose of showing that it belongs to the class of immanent change. Its antiquity and persistency of existence is the first evidence of the deep roots in the past of the theory discussed.

Second Type. The second type of theories of immanent change is represented by *all those "philosophies" which claim the existence of an immanent rhythm or cycle in the life process of either universe, or in the sociocultural systems, or any phenomenon involved.* The very fact that these theories interpret such a change and its cycles as something inherently belonging to the respective systems, without introducing any external force for explanation of the change, makes the theories immanent and opposed to the externalistic change. Some of such theories give the reasons for such rhythms. Most of them do not say why the cycle of the change is such as they claim. They are similar in that respect to the natural sciences, because the natural sciences do not explain either why, for instance, according to the Newtonian formula, material bodies gravitate in direct ratio to the mass and in inverse ratio to the square of the distance. In the past there was a great abundance of theories of this type.[8] Of these, all the cyclical theories that ascribe the eternal recurrence of the phenomena to their inherent nature, without invoking any agent external to the system in change, belong to this second type of immanent theory of change.

[4] Asclepius, III, 30, in *Hermetica*, translated by Sir Walter Scott (Oxford, 1924), Vol. I.

[5] *Hermetica*, quoted, Bk. iii, 1.

[6] See the list of the thinkers of this philosophy of Becoming and a more substantial analysis of it in *Dynamics*, Vol. II, chaps. v, x, and the Appendix to chap. v.

[7] See Vol. II, chap. v.

[8] See *Dynamics*, Vol. II, chap. x; chaps. viii-xi of this volume.

Such is the Chinese theory of the eternal alternation of Yin and Yang, representing respectively the eternal rhythm of contraction and expansion, of order and disorder, of movement and rest in the whole universe, the sociocultural world included. It is immanent change, in which Yin engenders and produces Yang, and Yang immanently produces Yin.[9]

For instance, any dynasty and respective sociopolitical system, by virtue of their immanent nature, are destined to change and to pass a cycle in their existence "through a time of fullness, then decline, and after an ephemeral resurrection become exhausted and are extinguished." The traditional Chinese history "is engaged in noting in the successive cycles the infallible repetitions." [10]

In the ancient Hindu thought in regard to the whole universe, there are many conceptions of immanent change, beginning with the eternal rhythm of materialization and dematerialization of the true reality or Brahma and ending with a great number of more specific processes of change of more limited units. Why this true reality, or Brahma, now assumes material forms, now dematerializes; why it eternally alternates its appearance has, as yet, found no answer. It is the immanent mode of change of the world, or Brahma system.[11]

So far as this universal rhythm lies at the foundation of sociocultural change, such a theory will be externalistic in regard to such a change. However, Hindu thought gives examples of immanent change also within the sociocultural phenomena.[12]

In regard to the whole cosmos, ancient Babylonian and other theories of the periodic conflagration-destruction and then emergence and construction of the whole universe are also immanent in their nature. On the other hand, these theories are externalistic, so far as a change in human affairs is concerned; their change is explained by that of the cosmic forces, and especially by the changes in the heavenly bodies and their constellations.[13]

[9] See the quotations and references in Vol. II, pp. 357 ff. Later philosophical, logical, and sociocultural analysis and development of this Yin-Yang rhythm was given particularly by Shao Yung (1011–77, A D) and by Chu Hsi (1131–1200 A D.). See H. Hackmann, *Chinesische Philosophie* (Munich, 1927), 337–38

[10] See *Dynamics*, Vol. II, pp. 358–59; M. Granet, *Chinese Civilization* (New York, 1930), pp. 14, 46–47.

[11] See Vol II, pp. 353–57. See there the examples and the literature

[12] An example of it is given by the Vedanta theory of the peregrination of the soul. "Owing to *the effects of their former actions*, the individual souls are implicated in . . . the endless cycle of birth, action, and death " *The Sacred Books of the East*, Vol 34, p. xxix.

[13] See the details above, in chaps. viii–x.

In Greece, Empedocles' doctrine gives an immanent theory of this type.

I will tell you of twofold [rhythm]. In one a movement of unity generates itself out of plurality into sole existence; in another movement it disintegrates, making plurality out of a unity. . . . This perpetual alternation never ceases. In one movement all things coalesce into a unity in Love; in another movement they all separate apart in the enmity of Strife. Thus . . . in so far as a unity grows out of plurality, and then, through the disintegration of this unity, plurality emerges again, they have a beginning and their existence is not eternal. But, due to this perpetual never-ceasing alternation, they are also everlasting — immovable in their cycle. . . . As it was aforetime, so will infinite Time be emptied of these two.[14]

One can easily see a similarity between his doctrine and the above Chinese Yin-Yang. They also resemble greatly many later formulas of immanent change. It is needless to add that similar conceptions of change were shared by many ancient Greek and Roman thinkers.

Polybius' theory serves as an example of these. Modifying the Platonic-Aristotelian theory of the change of sociopolitical régimes, Polybius claims that they change immanently and in a definite uniform order.

For as rust is the inbred bane of iron and worms of wood; and as these substances, even though they should escape all external violence, at last fall a prey to the evils that are, as it were, congenial with them; in the same manner likewise, every single kind of government breeds within itself some certain vice which is attached by nature to its very form, and which soon causes its destruction. Thus royalty degenerates into tyranny; aristocracy into oligarchy; and democracy into savage violence. . . . Such is the circle in which political societies are revolved and such is the natural order in which the several kinds of government are varied till they are at last brought back to that original form from which the progress was begun.[15]

Such is the cycle of political revolutions, the course appointed by nature in which constitutions change, disappear, and finally return to the point from which they started. . . . It is impossible that each of these should not in course of time change into its vicious form.[16]

[14] H. Diehls, *Fragmente der Vorsokratiker*, Vol. I; Empedocles, Fragment 17; Vol. II, 1–2, 6–13. Aristotle criticizes Empedocles' theory of such rhythms exactly, for Empedocles' principles "do not in themselves determine an alternation of activities" The *Physics*, 252a, b, Vol. II, 283 of the quoted translation.

[15] The *General History of Polybius*, translated by Mr. Hampton (Oxford, 1823), Vol. II, pp. 129–131.

[16] Polybius, *Histories*, translated by W. R. Paton (London-New York, 1923), Vol. III, Bk. iv, 2–10.

The whole relevant text leaves no doubt of the perfectly immanent character of the change, which is, besides, universal and perfectly rhythmical. In his factual description, Polybius analyzes, especially in application to the Roman state, how each of these systems bears in itself the seeds of its change, and generates the consequences that lead to the destruction of each of these forms of political organization, and to its replacement by the next one. As Polybius himself says:

> And especially in the case of the Roman State will this method enable us to arrive at a knowledge of its formation, growth, and greatest perfection, and likewise of the change for the worse which is sure to follow some day.

Similar is the conception of Lucretius,[17] Marcus Aurelius,[18] and of many other Graeco-Roman, especially Stoic, thinkers.

Other examples of this type are given by several immanent uniformities of the great Arabian historian and sociologist, Ibn-Khaldun (1332–1406). According to him, everything incessantly changes and disintegrates in the course of time.

> Sciences, arts, and other things are born in order to disappear. Nobility and fame — mere accidents of human life — are subject to the same fate.[19]
>
> Empires, like the individuals, have their own span of life cycle: they grow, reach the age of maturity, and then decline.[20]

He proceeds to indicate the span of time in the unit of generation time necessary for the life cycle of a noble family or empire. As to the length of the generation period, he says:

> According to the men of medicine and astrologers, the span of the natural life of man is 120 years. . . . For the present race of men, the average duration of human life is sixty or seventy years. The average length of a generation is about forty years.[21]

Having established this, he proceeds to the span of life cycle of a noble family or empire. "Nobility of the family lasts in average four generations."[22]

The same is true of an empire or tribe, with this difference: that the empire's average duration of ascendancy and decline is only three

[17] See Lucretius, *De Rerum Natura*, Bk. iii, 964–971

[18] See Marcus Aurelius, *Meditations*, Bk. vii, chaps 18–23.

[19] Ibn-Khaldun, *Prolégomènes historique*, Notices et extraits des manuscrits de la Bibliothèque Impérial et d'autres bibliothèques publiés par l'Institut Impérial de France, tome XIX (Paris, 1862), pp 286–290

[20] *Ibid.*, pp 348–50 [21] *Ibid*, p 347. [22] *Ibid.*, pp 286–87.

generations, or one hundred and twenty years. The generation of the founders of the empire is usually virile; the next generation is already less virile and less capable; and the third generation has nothing of virility.[23] The reasons for the decay of a tribe or empire or a noble family are the same; they are immanently produced by each system in each generation. The tribe which reaches a domination begins to live in opulence and comfort, and the greater the domination, the greater the comfort; hence its decay. Thus rise contains in itself the elements of decay — through luxury, corruption, effeminacy, etc.

Luxury and its enjoyment extinguish completely the *esprit de corps* and other qualities which led it to the sovereignty.[24]

This cyclically immanent interpretation of life runs throughout the work of Ibn-Khaldun, in regard to almost any social process.

The next example is given by the uniform immanent cycle claimed by Niccolo Machiavelli (1469–1527). In his *Discourse on Livy* and *History of Florence,* Machiavelli many times sets forth his rhythmic concept of social processes (taken from Polybius). Here is a most typical statement of Machiavelli in this respect.

It may be observed that provinces, amidst the vicissitudes to which they are subject, pass from Order into Confusion, and afterwards recur to a state of Order again, for the course of mundane affairs not allowing them to continue in an even course, when they have arrived at their greatest perfection, they soon begin to decline. In the same manner, having been reduced to Disorder, and sunk to their utmost state of Depression, unable to descend lower, they, of necessity reascend, and thus from good they gradually decline to evil; and from evil again return to good. The reason is that Valor produces Peace; Peace, Repose; Repose, Disorder; Disorder, Ruin; so from Disorder, Order springs; from Order, Virtue; from this Glory and Good Fortune.[25]

[23] *Ibid*, pp 348–50

[24] *Ibid*, p 295 See also Ibn-Khaldun, *Histoire des Berbères,* translated by Baron de Slane, nouvelle edition publiée sous la direction de Paul Casanova (Paris, 1925), Vol. I, pp 1–5 Here in detail he shows how luxury and peace bred a series of consequences that changed the "arabes arabisants" into the "arabes barbarisants," enjoying pleasures, taking the delicacies of life, and falling into a long somnolence in the shadow of glory and peace.

[25] N Machiavelli, *History of Florence,* Bk v, chap i, p. 225 (The Colonial Press, n.d), with an introduction by C. W Colby Two special things deserve to be stressed in Machiavelli's theory first, the concept of an absolute limit beyond which either the ascending or the descending processes cannot go, and "of necessity" turn in the opposite direction; the second, the causal chain of stages of passing from one direction to the other. Both are quite immanent.

Further illustrations are given by G. Botero and J. Bodin. Like the majority of the ancient and medieval thinkers, *Giovanni Botero* (1540–1617) is also a partisan of a rhythmical theory of social process. States and cities appear, grow, reach their climax, and decay, by virtue of the *"intrinsic"* causes (sedition, revolt, incompetence of the rulers, vice, licentiousness, loss of virility, energy, etc.), and of the *"extrinsic"* factors (calamity, war, pestilence, etc.).[26] The decay from the intrinsic causes usually is preceded and conditioned by growth of the cities and opulence.

> With the grandeur of the state, wealth grows; with it, vice, luxury, pride, licentiousness, avarice, the root of all evils; and the states whom frugality led to growth are now disorganized through opulence; in addition, grandeur leads to overconfidence in the state's force and security; overconfidence leads to negligence, to arrogance, and to contempt for the people and for enemies. . . . Valor, developed through difficulties, leads to the grandeur of the state; but valor, remaining in peaceful, luxurious conditions, degenerates into criminality and becomes mortified by voluptuousness; under such circumstances there appear a lack of generous ideas, excellent plans, and honorable enterprises; instead the ostentation, arrogance, ambition and avarice of the magistrates grow; the crowd becomes impertinent; the military leaders transform themselves into buffoons; the soldiers become babblers; the truth is replaced by adulation; respect for virtue by that for wealth; justice by bribery; simplicity by deception; and goodness by malice.[27]

Such is the essence of his cyclical theory and the factors of decay. So far as the intrinsic reasons for change are concerned, Botero's theory is immanent in its character. In the admission of "extrinsic" factors of change, it is externalistic.

Very similar is the conception of changes of societies and states of Jean Bodin (1530–1596). For him "all that had a beginning must have an end." . . . "By the reason of the changes of the worldly things, which are so mutable and uncertain"[28] the states (and everything empirical) do change and sooner or later disappear.

States change and perish either through *intrinsic* or *extrinsic* causes. They may die at any moment, from their childhood up to any age of their existence.

[26] Giovanni Botero, *Della ragion de stato, libri dieci Con tre libri delle cause della grandezza e magnificenza della città* (Ferrara, MDXC), pp. 3–5, 328–34.

[27] *Ibid.*, pp. 6–8.

[28] Jean Bodin, *The Six Books of a Commonweale*, translated by R. Knolles, p. 406. See the whole of Bk. vi, chap. i.

Again, in so far as he regards "worldly things" as immanently changeable; and so far as he stresses the intrinsic causes of the change of sociopolitical bodies, his theory is immanent.

To a considerable degree, immanent also is the theory of change of Adam Ferguson. The societies pass through the stages of the "rude," of the barbaric, of the "polished" state, and then decline mainly through the series of consequences generated by each stage "spontaneously." [29]

Omitting many other theories of this kind, and jumping now to the recent theories, O. Spengler's uniform cycle through which, in his claim, all the great cultures pass, namely the stages of childhood, youth, maturity, and old age,[30] is set forth by him as perfectly immanent: as their Destiny. His whole theory is explicitly immanent. Besides

necessity of cause and effect, there is another, organic necessity in life, that of Destiny.". . . "Mathematics and the principle of causality lead to a naturalistic Chronology and the idea of Destiny to a historical ordering of the phenomenal world.[31]

The rhythm, form and duration of every organism's life, and all the expression-details of that life as well, are determined by the properties of the species.[32]

The externalistic causal method in application to culture is ridiculed by Spengler. For an explanation of a social phenomenon externalistically

one man selects this, another that (factor) as *prima causa*, and all fill their works with pretended elucidations of "the course of history" on natural-science lines. . . . Even if we concede them their causal method, the superficiality with which they apply it is an outrage.[33]

Among the recent theories, it is one of the most consistent in its immanent standpoint.

Following in the footsteps of Spengler, A. J. Toynbee repeats in an expanded form this immanent conception of the rise, growth, break-

[29] See A Ferguson, *An Essay on the History of Civil Society* (Edinburgh, 1767), pp. 123 ff., 142 ff., 185, 288, and part iii, *passim; Principles of Moral and Political Science* (Edinburgh, 1792), Vol I, pp 194 ff

[30] O. Spengler, *The Decline of the West* (New York, 1929), Vol. I, p. 107.

[31] *Ibid.*, p. 8.

[32] *Ibid.*, p. 21.

[33] *Ibid.*, pp. 155–56. See Vol. I, *passim* for a grasp of O. Spengler's theory of immanent change.

down, disintegration and dissolution of civilizations, due mainly to the intrinsic qualities of the civilizations themselves, especially in the phase of their decline. After an analysis of the causes of the death of several civilizations, Toynbee comes to the conclusion that the death was due neither to enemies, nor to some cosmic necessity, nor to the decline of the technique of the civilizations (which is always the result of the decline of a civilization, but not its cause); but was due to the intrinsic forces of the civilization itself. They perish not by an act of murder, but by suicide.[34]

Another example is given by K. Jöel's theory of change of the *Weltanschauungen*. Change and its rhythmical form is considered immanent to Life, History, and Thought. Each philosophical system is but an accentuation of the specific aspect of the manifold whole Truth. Each of them emerges, develops, and passes away, preparing a place for its competitor. "Truth is eternal, but it must also somehow be temporary. Truth lives, therefore breathes in the change of thought-systems, in creative fructification of ever new constructions of Spirit." [35]

There are many other theories of this immanent type, comparatively general, and more special. Some of them formulate such immanent uniformities in the economic, some in the political, some in the religious, some in other compartments of culture. In Volume One of *Dynamics*, and in Chapters Eight to Ten of this volume, a number of such theories concerning the immanent change and sequence of art styles and other sociocultural phenomena are given.

The most systematic, most consistent and all-embracing theory of immanent change of this type is given by Hegel. He not only states that change is immanent to any reality, but also gives the reasons for such an immanency. He, more clearly than any other theorist, answers the "How" as well as the "Why" of immanent change. Therefore we turn now to a brief characterization of his theory.

Hegel's Immanent Theory of Change. If it is taken, as it should be, in the context of the whole philosophical system of Hegel (which system is largely the theory of change) it looms as something stupendous, no matter whether we praise or damn, accept or reject it. In

[34] A. J. Toynbee, *op. cit.*, Vol. IV, p. 120 *et passim*. In the genesis and growth phases, A. J. Toynbee gives some role to extrinsic factors particularly to the geographic conditions; but, with this admission, his theory of the civilizational change remains essentially immanent.

[35] K. Jöel, *Wandlungen der Weltanschauung* (Tübingen, 1928–1931), 3 vols., Vol. I, pp. 15–20.

this chapter, only the mere summary of its immanent principle is to be mentioned.

Immanency of change lies at the very heart of Hegel's dialectical method, and Hegel's whole system is in a sense the product of his method. In a simplified form, its nature consists in an assumption that every concept contains in itself implicitly its own opposite, and as soon as it is defined or determined, this opposite becomes explicit; [86] as a result the two statements become contradictory, and lead to the third, more adequate statement, which, for the time being, reconciles this opposition and is more satisfactory. However, in its turn, this also contains in itself its differentia, and has to undergo the same fate of the triad as the preceding statement. So it also calls forth its opposite; the two become again irreconcilable, and lead to a new synthesis, and so on. Suppose we take the category of *Being*. In its pure form, abstracted from any specific determination, any differentia, the category of Being becomes qualityless, quantityless, propertyless, mere "is," or "isness," without any characteristics whatsoever, absolutely indeterminate, featureless, empty. This emptiness is not anything; it is mere absence of anything. But such an absence of everything is simple *Nothing*. *Being* therefore is equivalent to *Nothing*. In its pure form, then, *Being* contains in itself implicitly *Nothing*, as its opposite. The statements that Pure Being is Nothing and Nothing is Pure Being become identical. Being identical, Being passes into Nothing. Thesis becomes anti-thesis, which it contained in itself. They become contradictory, and as such they cannot stay at rest. The contradiction calls forth the necessity for its solution, in the form of a proposition or thought in which the contradiction is removed. It consists in the concept of Becoming as the passage of Being into Nothing. Becoming, then, is a reconciliation (synthesis) of Being (thesis, in popular characterization) and Nothing (antithesis). In a concise statement of Hegel himself, the above triad runs as follows:

> Being is the simple empty immediateness which has its opposite in *pure Naught*, and whose union therewith is the Becoming; as transition from Naught to Being, it is Beginning; the converse is ceasing.

[86] Because all determination is negation (A is B means A is not C, D, or N; A is not B contains negation explicitly). To define, means to limit, to determine, this means to deny. Therefore, "Affirmation is Negation," "All Negation is Determination," "To Negate is equal to Posit" Each of these opposites is thus inseparable from the other and is contained in the other. See Hegel, *Science of Logic*, translated by W. H. Johnston and L. G. Struthers (New York, 1929), Vol I, Introduction and Book I.

He adds contemptuously:

> The "sound common sense," as one-sided abstraction often calls itself, will not admit the union of Being and Naught. "Either it is Being, or it is not. There is no third." "What *is*, does not begin; what is not, is not." It asserts, therefore, the impossibility of Beginning.[87]

Thus, one category contains in itself its opposite, passes into it, and calls the third category a unity of the two. This third category undergoes a similar fate and so up to the ultimate concept or category.[88]

Using the dialectical method, Hegel attempted systematically to deduce and explain dialectically the whole reality, the whole Cosmos, beginning with the Logical Idea, passing to Nature, and ending with Spirit, in his sense of these terms. These three divisions are also a sample of triad. Logic deals with the pure Idea, as it is in itself (thesis). Nature is the Idea in its otherness, opposite to the Idea in itself (antithesis). Spirit is the unity of Idea and Nature, or the Idea in itself and in its otherness. The entire system is thus a single triad: Idea, Nature, Spirit. The Logic which treats of the Idea is again subdivided into a triad: Being, Essence, the Notion. Each of these is again subdivided into smaller triads. And so are the divisions of Nature and Spirit. As a result, the whole system embraces the "whole truth," the entire reality or World. In a sense, his system reminds one of a gigantic fugue.

It is outside the purpose of this work to go into a systematic characterization of this stupendous system and its astounding operation with the dialectical method. It suffices to say that the principle of the identity of opposites, beginning with the basic categories Being-Nothing-Becoming, makes Becoming or Change (though Hegel's specific use of Change differs from Becoming) the fundamental property of reality. Up to the ultimate reality, nothing can be at rest and

[87] G W. F. Hegel, "Outlines of Logic," in *Hegel· Selections*, edited by J Loewenberg (New York, 1929), p 104. For more extensive definitions of Being, Nothing, and Becoming, and logical deduction of one from the other, see Hegel, *Science of Logic*, translated by W H. Johnston and L. G. Struthers (New York, 1929), Vol. I, pp. 94–120. See a good account of the dialectical method in W. T. Stace, *The Philosophy of Hegel* (London, 1924), pp. 88–115.

[88] From this standpoint, it is comprehensible why, according to the dialectical method, and contrary to the purely formal law of identity in logic, every concept or category is the identity of *opposites*. A and non-A are, according to Hegel, identical and at the same time distinct. This explains why Hegel's logic has been often accused of a violation of the logical law of identity. See J. M McTaggart, *Studies in Hegelian Dialectic* (Cambridge, 1922); B. Croce, *What is Living and What is Dead in the Philosophy of Hegel* (London, 1915).

everything contains in itself its own opposite, therefore must pass, and does pass, into it, creates contradiction, and necessarily calls for their union or synthesis, which synthesis also contains in itself its opposite, must pass into it and create a new synthesis, and so on.

This is true of the realm of the Idea, as well as that of Nature and Spirit. This means that such an endless passage, Dialectical Becoming, or, in our sense, Change, is immanent in the whole reality (the Idea, Nature, Spirit), from the most abstract to the most concrete, from the highest to the lowest. For this reason, Hegel's system is possibly the most systematic philosophy of immanent change ever created.

In ontological sense, this change is the process of self-realization of the Idea, from its potentiality to its full actuality. As mentioned, in the system of the objective idealism of Hegel, the ultimate and the whole reality is the Absolute Idea or Reason or Spirit, in its three main aspects: the pure Idea in itself; the Nature, as the Idea in its otherness or for itself; and the Spirit, as the Absolute Reality representing a unity of the Absolute Idea in itself and in its otherness. Since, then, the whole reality is accounted for, the World History becomes nothing but an immanent, self-determined, and self-directed rational process of self-realization of the Idea, from its potentiality to its actuality. Since the reality (the Spirit) is self-determined, and since it immanently realizes itself, there is no need to look for any other mover, for any external agent, for any force outside the reality, the Idea. It contains in itself the dialectical freedom-necessity of self-realization. The whole absolute reality becomes dialectically changeable.

In the light of these general remarks, the subsequent quotations from Hegel must be properly understandable, and at the same time they elucidate the above points. Not only human history but the history of the whole world is, for Hegel,

> the rational necessary course [39] of the World-Spirit, that Spirit whose nature is always one and the same, but which unfolds this, its own nature, in the phenomena of the World's existence.[40]

[39] Though, consistently or not, Hegel's system in the realm of Nature admits some contingency and irrationality in certain detailed phenomena.

[40] G. W. F. Hegel, *The Philosophy of History*, translated by J Sibree (New York-London, 1900), p. 10. This work is not the work of Hegel himself, but an edited digest of Hegel's notes and drafts. Hence, in its logical elegancy it is far inferior to the real works of Hegel. Here we have a parallel to Aristotle's *Politics*, which is also not the finished work of Aristotle, and, therefore, far inferior in its logical cogency, as compared with other genuine works of Aristotle.

[It] is the exhibition of Spirit in the process of working out the knowledge of that which it is potentially. And as the germ bears in itself the whole nature of the tree, and the taste and form of its fruits, so do the first traces of Spirit virtually contain the whole of that history.[41]

Spirit is essentially the result of its own activity: its activity is the transcending of immediate, simple, unreflected existence, the negation of that existence, and the returning into itself. We may compare it with the seed; for with this the plant begins, yet it is also the result of the plant's entire life.[42]

Reason is the Sovereign of the World; the history of the world therefore presents us with a rational process. . . . Reason is the *Substance* of the Universe; viz., that by which and in which all reality has its being and subsistence. On the other hand, it is the *Infinite Energy* of the Universe. . . . It is *infinite complex of things*, their entire Essence and Truth. It is its own material which it commits to its own active energy to work up; not needing, as a finite action does, the conditions of an external material. . . . It supplies its own nourishment, and is the object of its own operations. While it is exclusively its own basis of existence, and absolute final aim; it also is the energizing power realizing this aim; developing it not only in the phenomena of the Natural, but also of the Spiritual Universe — the History of the World.[43]

The life of the ever-present Spirit is a circle of progressive embodiments (in the process of the World History) which, looked at in one aspect, still exist beside each other, and only as looked at from another point of view appear as past. The grades which Spirit seems to have left behind it, it still possesses in the depth of its present.[44]

That the History of the World, with all the changing scenes which its annals present, is this process of development and realization of Spirit, — this is the true *Theodicaea*, the justification of God in History. Only *this* insight can reconcile Spirit with the History of the World, — viz., that what has happened and is happening every day, is not only not "without God," but is essentially His Work.[45]

These quotations give a remote idea [46] of Hegel's immanent self-starting, self-directing, self-realizing conception of change.

[41] *Ibid.*, pp 17–18.
[42] *Ibid.*, p. 78.
[43] *Ibid.*, p 9.
[44] *Ibid.*, p. 79.
[45] *Ibid.*, p 457.
[46] "Remote" because, without knowledge of the essentials of the Hegelian system of philosophy and his dialectic, all this sounds much more "common and superficial" than it is, in reality Just as the usual characterization of Hegelian dialectic as just "thesis, antithesis, and synthesis" only scratches the surface of its infinitely deeper nature, so the usual statement that Hegel regards the process of history as an unfolding of the absolute

To repeat, it is possibly the most consistent and universal conception of immanent change ever created in the history of human thought.

Its dialectic principle, the identity of opposites, is its spring of immanent change; its philosophical realism and universalism logically follow from it and lead to the conception of the Absolute Spirit as the Absolute — and all-embracing — Reality. Since the Spirit is self-cognizant, self-determining, self-changing, and self-directing, every part of the Universe (as an embodiment of the Spirit) bears in itself the reason for its change, and is a participant in this self-directing and self-changing process. Since the Absolute Spirit is the eternal, the completely True and Rational and Good, the whole process of history, or Change, becomes also a rational movement from an unconscious potentiality to an entirely conscious actuality.

From all these standpoints, Hegel's conception of immanent change has never been surpassed.

Third Type. The third type of immanent theories of empirical change generally, and of sociocultural change particularly, is represented by those philosophies which, though they regard the whole *empirical* world, including the sociocultural universe, as changeable immanently, view this immanency of change as derivative from, and imprinted upon it, by the superempirical Prime Mover, or some other superempirical ultimate source of change, that lies outside of itself. As examples of these variations, we shall take Plato's, Aristotle's, and other theories of change of empirical sociocultural phenomena.

Plato, in his metaphysics, in regard to the supersensory reality of Ideas or Forms, was a partisan of the philosophy of unchangeable Being.

> All things which are at their best are also least liable to be altered or discomposed. . . . God and the things of God are in every way perfect. . . . Then it is impossible that God should ever be willing to change; being the fairest and best that is conceivable, every God remains absolutely and forever in his own form. So also with all the other Ideas or Forms.[47]

As to the empirical appearance, including the sociocultural phenomena, he regarded them as immanently changing and considered the change as the most important characteristic of the whole empirical

Idea, with the Prussian State as its final aim, gives only a mere shadow of the Hegelian theory One may or may not agree with it, but one can only marvel at the profound and gigantic character of his system.

[47] *The Works of Plato. The Republic,* translated by B. Jowett, Dial Press edition, Vol. II, pp. 78 ff.

world. In the empirical pseudo reality (an empirical world was not a true reality to Plato), "everything which has a beginning has also an end." [48]

So also in the empirical sociocultural world. All and everything there, beginning with political systems and ending with any other phenomena, are incessantly changing, appearing and disappearing. Each political regime or other system bears in itself the seeds of its change and dissolution. Change is their immanent destiny; and this destiny is determined, even quantitatively in the duration of existence for each species and sociocultural system.[49] Each sociopolitical system generates, during its existence, the consequences that lead to its incessant change and then to its dissolution.

Most ingeniously he describes how timocracy, or the military government of honor and ambition, bears in itself the seeds of its own destruction and replacement by oligarchy, or the rule of the rich; and how this regime also immanently generates the consequences that sooner or later produce its overthrow and its replacement by democracy; and how democracy immanently destroys itself and gives way to tyranny.[50]

Here the whole theory of Plato is that of immanent change, with the immanent self-direction of the course of the system, with an incessant generation of immanent consequences, which, in their turn, change and finally destroy the system itself. With his extraordinary genius, Plato analytically and poetically sketches, in regard to each regime or system, how in fact this immanent change occurs, what forces concretely it generates, and how they change the generating system itself. In all this theory of change, Plato hardly mentions any external factor, and certainly does not give any importance to it in the process of the change.

Aristotle contributes one of the most systematic, complete and all-embracing theories of change generally, and of sociocultural change particularly. In this sense he is unexcelled, and hardly even rivaled, by any other theory of change, except, perhaps, by Hegel's. This is the reason why we shall examine his theory somewhat more carefully than Plato's, though Aristotle's theory is only derivatively immanent, so far as empirical and sociocultural change is concerned.

Aristotle's conception of change is intrinsically connected with his

[48] *Ibid.*, pp 308 ff.

[49] Here comes Plato's mysticism of numbers, mentioned above. See *ibid.*, pp. 308 ff

[50] See *The Republic*, Bk. viii, pp. 310-345, of the edition quoted.

whole philosophical system and its leading principles, such as: his concepts of "matter" (substance) and "form," actuality and potentiality, "Nature," and fourfold classes of causes. In essentials, his theory of change can be outlined as follows.

Any phenomenon of change is complex. It consists of two or three different principles: first, "subject" or "substance," that changes and underlies any change; second, "form," that gives to it individuality; third, "shortage," or absence of form.

By "subject" or "substance" or "matter," Aristotle means "the stuff" of the "underlying substance" that persists in all transformations and modifications.

> In all cases of becoming there must always be subject — the thing which becomes or changes.[51] What I mean by matter is precisely the ultimate underlying subject, common to all the things of Nature, presupposed as their substantive, not incidental constituent. . . . It is imperishable and persists in all changes.[52]

However, this ultimate "stuff" is formless *per se*. It may become everything, but *per se* it is devoid of any individuality. It is something definite, for instance, man, statue, or what not, when it is impregnated by *form*. Form is the identifying essence, the totality of the characteristics which make a given thing what it is — man, animal, statue, art, etc.[53] Bronze, for instance, is the substance. When it is impregnated by the form of Hermes, it becomes a statue of Hermes; when impregnated by the form of candelabra, it becomes candelabra. Here bronze is taken as a material, but it is not, of course, an ultimate matter or substance.

The presence of these two principles, matter and form, is not sufficient, however, to provide the phenomenon of change. In order that it be present, a third principle or element has to be introduced. This third principle Aristotle defines in two or three different ways. First, as a passage between antithetical principles.

"Whenever anything comes into existence or passes out of it, the

[51] Aristotle, *The Physics*, 189b, 187a, translated by P. H. Wicksteed and F. M. Cornford (London-New York, 1929) For the sake of brevity I leave out the references to other works of Aristotle, namely to *Metaphysics*, *De coelo*, and *De generatione et corruptione*

[52] *Ibid*, 192a.

[53] Form is the "identifying essence of things," *ibid*, 194b; "the kind of thing it is by definition," *ibid.*, 193a; "the characteristics of the type, conformity to which brings it within the definition of the thing we say it is," *ibid.*, 194b; "the essential nature of a thing," *ibid.*, 198a.

movement is along the determined lines between the terms of some contrast; or (if we start from some intermediate state) the movement is towards one of the extremes" [54] from cold to hot, wet to dry, "odd and even," "amity and conflict," the rare to dense, white to black, "uncultured to cultured," and so on. Generally, "anything that is articulated must rise out of something from which that particular articulation is absent; and if, in its turn, it falls out of articulation, it must go back again to the absence of the specific articulation it had." [55]

For instance, the process of changing bronze into a statue shows that bronze is present as a material or substance, which persists in the transformation: then there is a statue that "has come into being" in the process of change; and third, the amorphousness of the unformed bronze that has disappeared and been superseded. The form (statue) that has "come into being" and the amorphousness of bronze that has disappeared are the antithetical terms.[56]

A further analysis of this passage between the antithetical terms means, according to Aristotle, that a given material (bronze) passes from the *shortage* of the form (of the statue) to the emergence of it, or the presence of it; from "being without" it, to its presence.[57]

> We assert . . . that nothing can "come to be," in the absolute sense [in the sense that the ultimate substance of all changes perishes or absolutely emerges from nothing] out of the nonexistent, but we declare nevertheless that all things which come to be owe their existence to the incidental [not absolute] nonexistence of something; for they owe it to the "shortage" from which they started, "being no longer there." [58]

Such is the second way to characterize the third constituent of change.[59] It gives the triad — matter, shortage, and form — as the constituents of change. Finally, Aristotle gives and prefers the third way of formulation of this constituent and respectively the phenomenon of change, namely, as a *passage from potentiality to actuality*,[60] or from incomplete and unrealized potentiality to its completion and realization.[61] Bronze has the potentiality of becoming statue; the

[54] *Ibid.*, 188b, 188a.
[55] *Ibid.*, 188b
[56] *Ibid*, Bk. 1, chaps. v, vi, vii. Here, by the way, G. W F. Hegel's thesis-antithesis are given.
[57] *Ibid*, 191a, 192a.
[58] *Ibid.*, 191b
[59] *Ibid.*, 192a.
[60] *Ibid.*, 191b.
[61] *Ibid.*, 201b, 202a

process of such a becoming is a realization of this potentiality into actuality, or completion of the incomplete.[62] This is the final formula of change.

Motion and change cannot exist in themselves apart from what moves and changes [the substance, the matter]. For, wherever anything changes, it always changes either from one thing to another ["comes into being" or "perishes"]; or from one magnitude to another [quantitative change]; or from one quality to another [qualitative change]; or from one place to another [spatial change]. . . . Again, in each of these four cases, there are two poles between which change moves; in substantive existence, for example, form and shortage from form; in quality, white and black; in quantity, the perfectly normal and an achievement short of perfection; and so too, in the case of action, up and down. . . . Reverting, therefore, to the universal distinction already established between "being at-the-goal" in actuality, and being in potentiality "such-as-is-capable-of-attaining-the-goal," we can now define motion or change as the progress of the realizing of a potentiality, *qua* potentiality, *e.g.*, the actual progress of qualitative modification in any modifiable thing *qua* modifiable; the actual growing or shrinking of anything capable of expanding or contracting; the process of coming into existence and passing out of it of that which is capable of so coming and passing; the actual moving of the physical body capable of changing its place. . . . And so too, with other processes — learning, healing, rolling, jumping, maturing, aging.[63]

Such being the general formula of change, the next problem is

to give an account of its "how and why" . . . we must look into the "how and why" of things coming into existence and passing out of it, or more generally into the essential constituents of physical change.[64]

This problem leads Aristotle to his analysis of cause and his famous fourfold causes. In any change, we must distinguish four causes (or four reasons).

The existence of material for the generating process to start from. Such is the bronze for the statue, or silver for the phial (material *aitia* or cause). Then, naturally (2) the thing in question cannot be there unless the material has actually received the *form* of characteristics of the type, conformity with which brings it within the definition of the thing we say it is, whether specifi-

[62] "Given something that is actually *a* and potentially *b*, change is the process which ends in the realization of its capacity of being *b*. Hence, a change is something that is essentially incomplete as long as it lasts; the potential is all the while progressively losing its character, but when it is transformed into complete actuality, the change is over." F. M Cornford, *ibid.*, Vol. I, p. 188.

[63] *Ibid.*, 200b, 201a.

[64] *Ibid.*, 194b.

cally or generically (formal *aitia* or cause). Then again, (3) there must be something to initiate the process of the change, or its cessation when the process is completed, such as the act of the voluntary agent (of the smith, for instance, or the father who begets a child; or more generally the prime, conscious or unconscious, agent that produces the effect and starts the material on its way to the product, changing it from what it was to what it is to be) (efficient *aitia* or cause). And lastly, (4) there is the *end* or purpose, for the sake of which the process is initiated, as when a man takes exercise for the sake of his health. "Why does he take exercise?" we ask. And the answer "Because he thinks it good for his health," satisfies us (final *aitia* or cause). Then there are all the intermediary agents, which are set in motion by the prime agent and make for the goal, as means to the end (media through which the efficient cause reaches the end aimed at).[65]

Such are the essentials of Aristotle's conception of change. Now we can turn to our direct problem; whether it belongs to the immanent or externalistic theory of change.

In application to the whole cosmos it is neither, but a kind of intermediary between these classes. Aristotle regards Nature, or cosmos, as possessing eternal, imperishable change or motion, and this change constitutes possibly the most important characteristic of Nature. It is

> the ultimately underlying principle of all things that have in themselves the principle of movement or change.

(from the standpoint of the material).[66] From the standpoint of Form

> Nature is the distinctive form or quality of such things as have within themselves a principle of motion, such form or characteristic property not being separable from the things themselves, save conceptually.[67]

These definitions give an impression that Aristotle's conception of change is entirely immanent; the more so that Nature is viewed by him to be purposive, and that everything in Nature strives immanently to realize its end, its imprinted form.[68] Such a conclusion, however, will be wrong, because still more emphatically Aristotle stresses that nothing in Nature in the final analysis moves of itself or is self-starting or

[65] *Ibid.*, 194b, 195a. Also *Metaphysics*, Bk. v, chap. ii, translated by W. D. Ross (Oxford, 1908).

[66] *Ibid.*, 193a.

[67] *Ibid.*, 193b.

[68] *Ibid.*, 199 a, b "For natural things are exactly those which do move continuously, by virtue of a principle inherent in themselves, towards a determined goal." "Nature is a goal-directed cause."

self-moving. The whole cosmos, as well as everything in it, including animal organisms and man, is brought into movement or change by some agent external to the system, or to Nature. None of the sublunary things or systems can move of itself, in the final analysis. Though they move and change; and though in some systems, like animal organisms, the reason for the change seems to be in themselves (their end), nevertheless, a deeper analysis shows that the final and real "mover" of all is outside of it, as well as outside of the whole Nature or cosmos. It is "the Prime Mover, or God," that is itself unchanging and is unmoved and is not dimensional.[69]

I shall omit the marvelous chain of reasoning of Aristotle that leads him to this conclusion. (See for that especially Book Eight of *The Physics.*) For my purpose it is enough to register the above main conclusions of the great thinker. Even in regard to the animals and man and social systems respectively, he clearly denies that they are absolute movers of themselves.

> If motion never starts *de novo* in that which was at rest, how are we to interpret what takes place in an animate creature? For a quiescent animal starts walking when there seems to be nothing outside of it to produce the movement. But this is just a mistake. For we observe that motion is always going on in some organ of the living creature, and the movement of such an organ is not determined by the animal itself, but (as I take it) by its environment. For when we say that an animal "moves itself," we are referring to local movement and nothing else; and it may well be, or rather I should say it must be, that many movements within the body are determined by changes in the environment, and some of these movements prompt conceptions or impulses which in their turn stir the whole animal.[70]
>
> . . . For such motion in animals is not self-determined, but due to other natural changes which occur in them not by their own agency: growth, decay and breathing, for instance, go on naturally when they are at rest and not making the movements they themselves determine; and the causes of these later movements are found in the environment or in things that enter into the organism itself.[71]

From all this it follows that Aristotle seems to occupy a peculiar position; he is a partisan of an immanent change, so far as the Prime Mover is concerned, but this Prime Mover is unmoved and unchangeable; he is a partisan of the externalistic principle of change, so far as

[69] *Ibid.*, Bks. vii and viii, *passim.*
[70] *Ibid.*, 253a.
[71] *Ibid.*, 259b.

Nature and everything in it is concerned, because it moves not by itself but by the immaterial Prime Mover who is outside of it. On the other hand, movement and change are the primary characteristic of Nature; it is eternal, without beginning or end, and any form in Nature strives incessantly to realize its end, its potentiality. In this relative sense only Aristotle is a partisan of the immanent principle.

If we turn, however, from this problem of the ultimate source of change and movement to the sensible world of Nature — and this is the direct object of our inquiry — here Aristotle clearly points out the difference between its objects, denying some objects — the inanimate things — any capacity of moving themselves, and ascribing such a capacity to the animate creatures (and their system). In this relative sense, he is therefore a partisan of an immanent change of the animate creatures and their systems.

> Of the proper subjects of motion some are moved by themselves and others by something not themselves; and some have a movement natural to themselves and others have a movement forced upon them which is not natural to them. Thus, the self-moved have a natural motion. Take, for example, any animal: the animal moves itself, and we call every movement natural, the principle of which is *internal* to the body in motion. . . . Things that are not animate do not move themselves. . . . There is no doubt as to there being an active factor in the animal that is causing movement and a passive one that is experiencing it. . . . The whole animal moves itself, because both mover and moved are parts of that whole self. . . .
>
> [Of inanimate bodies] we cannot say that such bodies, when moving naturally, "move themselves," for this is proper to animals that have life.[72]

What is said of animals is naturally said of man: "the man is not moved by anything other than himself." [73]

The above makes the situation clear: in the empirical world there are two classes of "things or objects," according to Aristotle; one, the inanimate world, which does not and cannot move by itself, "for it is always something other than and outside themselves that moves them; but we say that a living thing moves itself"; [74] the other, the animate world, including man, which is destined by the Prime Mover to be capable of moving itself "by virtue of an inherent vital principle, not by impact, but by the impulse of desire," [75] has such a potentiality

[72] *Ibid.*, 254b, 255a.
[73] *Ibid.*, 256a; see also 259b, 252b
[74] *Ibid.*, 252b.
[75] F. M. Cornford, *ibid.*, Vol. I, Introduction, p. lxx.

and is immanently using it. In this sense, in application to the empirical world, Aristotle is clearly a partisan of the immanent principle of change, so far as the animate world, including man's world, is concerned.

This being so, we can hardly wonder that in his analysis and explanation of the change of the sociocultural systems, he, like Plato, stresses the immanent principle of their change, admitting also the role of external conditions. The example is given by his *Politics*, especially by those parts of it where he deals with the change of the sociopolitical regimes and revolutions. Here he shows that all regimes — aristocracies, monarchies, oligarchies, democracies — are "subject to revolutions."

"In short, all governments are liable to be destroyed either from within or from without" (war, etc.).[76]

In his factual analysis of the causes of revolutions and commotions, he deals almost exclusively with the inner causes which each regime — be it aristocracy, democracy, oligarchy, tyranny, or monarchy — immanently generates in the process of its existence, and which make the people seditious.[77] Though farther on he criticizes several points of Plato's theory of the change of political regimes, in this criticism he nowhere denies that "all governments are liable to be destroyed" and his analysis of how each regime generates seditions and revolutions and destroys itself (as well as his characterization of the main regimes) is fairly similar to Plato's analysis of their immanent change and self-destruction.[78] His immanent position comes out still more clearly in his analysis of other sociocultural phenomena, whether friendships or pseudo friendships, or change of mores; and generally, in his theory of social and cultural cycles, with which we dealt in preceding chapters. Beginning with his early treatise *On Philosophy*, where he set forth a theory that "all human truths have their natural [immanent] and necessary cycles," [79] and ending with his later works, he claimed that such immanent cycles through which a chain of change runs, existed in many a sociocultural process.[80]

To sum up: though in the question of the ultimate source of change Aristotle appears to be occupying a very peculiar, but consistent po-

[76] Aristotle's *Politics*, Bk. v, 1307b, Everyman's Library edition.

[77] See *Ibid.*, Bk. v, *passim*.

[78] See Bk. v, *passim*. Here, as in other works, Plato's influence upon Aristotle remains indelible. See about that in W Jaeger, *Aristotle* (Oxford, 1934), *passim*.

[79] W. Jaeger, *op. cit.*, p. 133 ff.

[80] See above, chaps. viii–x.

sition with his premises, seeing the ultimate source in the unmoved Prime Mover which is the external source of change in regard to Nature, in his analysis of sociocultural and biological changes, he holds a systematically developed immanent theory, admitting at the same time the role of external factors in the change of any biological or sociocultural system.

Later variations of this type of theory are well represented by the conception of sociocultural change of G. Vico, of Campanella, and many others. The Prime Mover, God, is the ultimate source of sociocultural change according to these theories; but it granted changeableness and uniformity of change to the sociocultural world. In this derivative sense, it changes immanently. This is exemplified by G. Vico's (1668–1744) cyclical law of the three states through which every society passes in the process of its history, and which continues to repeat itself, *ad infinitum*. As the background of such a uniformity, there is the Providence which established it and ultimately guides its history. But since its establishment, the change and uniformity of the rhythm is immanent in any culture and nation. This immanency of change is stressed by two general principles of Vico.

XIV. The *nature of things* is but their *beginning at certain time and under certain conditions*. Such time and conditions form the nature of a given thing.

XV. The proper and inseparable qualities of subjects must have been produced by the modifications imprinted into matter at the *moment of the formation of the things* or by the *manner* in which the things are born: it is for this reason that we know the *birth* or the *nature* of the things through the *modifications* we see in them; that is, through their *proper and inseparable* qualities.[81]

We explain not a temporary and particular history of Greece and Rome, but the ideal, universal and eternal laws along which proceed all nations in the cycles of their appearance, development, decadence, and end. Through the diversity of the external forms, we grasp the identity of the substance of all particular histories. For this reason, we cannot refuse to give to this work a title "New Science." In spite of infinite variety of the different

[81] G. Vico, *Opere*, Vol. V (Milano, 1854) *Principi di una scienza nuova*, Bk i, chap. ii. In the French edition of *La science nouvelle*, quoted (Paris, 1844), p. 43. Vico's conception of matter was somewhat similar to the Aristotelian conception of it, namely, that matter *per se* is formless and needs to be imprinted into form by Divinity (or by the incorporeal matter intermediary between Divinity and "corporeal matter" This "incorporeal matter" of Vico's is not very different from Erigena's "primal causes" as intermediary between God and the corporeal world.)

concrete mores, history repeats itself eternally in running the circle of the three stages — divine, heroic, and human — and it never goes out of this circle.[82]

In his justly famous work, Vico systematically shows how these stages have been repeated in the history of several nations; and how all the important compartments of culture — language, law, mores, religion, and so on — are bound together and have all the similar characteristics of the stage in which they are.[83] The whole uniformity and recurrence of the rhythm is immanent, though established in its immanency by Providence. Vico does not trouble himself at all with the problems as to what are the factors of such change. They are immanent in the society and culture, and need not be reduced to any agency external to them (except Providence, as absolute creator).

Along similar lines runs Campanella's (1568–1639) conception of sociocultural change and rhythm. He outlines it in regard to the rhythmic change of religion, and that of political regimes correlated with it.

All religions and sects pass through their own cycle, similar to that through which the state passes from monarchy either into tyranny, or aristocracy, or oligarchy, or polity, or mob-rule, and then returns, through the same or another way, to monarchy.

In a like manner, when the sects arrive at Atheism and extreme misfortune, and the culmination of God's wrath falls upon the people, then, through this punishment, they turn back to goodness. When they begin to deny Divine Providence and the immortality of the soul, they have to suffer necessarily the commotion and disorders, because they lose control of the conscience and become a prey of the princes (*principi*) and accept with avidity any — good or bad — legislator.[84]

In an expanded form this immanent cycle (with God's guidance as the background) means that disorganization of a society begins invariably with the corruption of religion. Heresy disorganizes the political constitution, destroys the forces of social life; leads on to scepticism and atheism, which completes the ruin of every civilization. But the very excess of social degradation compels men to seek after a

[82] Vico, *Principes de la philosophie de l'histoire traduit de la scienza* par J Michelet (Bruxelles, 1835), p 392 and Bks iv and v; G. Vico, *Opere*, Vol. V. *Principi di una scienza nuova* (Milano, 1854), pp. 562–63; G. Vico, *La science nouvelle* (Paris, 1844), pp. 389–390.

[83] See above, chap. viii

[84] Campanella, "Aforismi politici," 86. *Opere di Tomasso Campanella* (Torino, 1854), Vol. II, p. 25.

new unity, to listen to a new legislator, and gradually submit themselves to the laws of a new theocracy. There is thus a cyclical movement in the history of religions. Beginning with unity — that is, with a papacy or theocracy — it passes through divers stages or forms of heresy to atheism, whence it is driven back to unity.

These three stages — theocracy, heresy, and atheism — recur in history. The political movement is also a cycle. Its stages are monarchy, the various forms of government with divided and enfeebled sovereignty, and democracy, which results in monarchy again. The two cycles — the religious and political — are interdependent and concentric.[85]

Fourth Type. The fourth type of immanent theories of change represents a special variation of the third type. As there, also here, God remains the ultimate source of change. But as far as He granted to man either (a) *freedom of will,* or (b) *immutable laws,* or (c) a *predestined certain course to man or society; the man's or society's course of change becomes derivatively immanent.*

These variations, especially the first, have been dominant theories of many Christian thinkers. Let us look briefly at them.

Christian Free Will Theories. 1. So far as a theory views God as the ultimate Prime Mover and Guide and Arbiter of all events and happenings, such a theory is of course not immanent in the absolute sense of the term. But so far as it assumes at the same time that man has a *free will* and respectively is capable of controlling his destiny and bears in himself the seeds of either salvation or perdition, such an assumption means an acceptance of the immanent principle of change in man and in sociocultural phenomena, in a relative sense. The major stream of early Christian thought was utterly reluctant to regard man, society, and the whole realm of sociocultural phenomena as merely passive material in the control of external conditions; as a mere *tabula rasa* on which everything was written by the external factors. For these reasons, the *acceptance of the doctrine of free will means an acceptance of the principle of immanent change, in some form and to some degree.* Such a doctrine of free will has been the official doctrine of the Christian Church.

2. Another form in which the immanent principle of change manifested itself, if not in absolute then in a relative sense, was the assumption that though the empirical world's course depends upon God, God himself granted it immutable laws of uniformities, according to which

[85] *Ibid.,* 86 ff.

it runs, functions, and changes. After such a grant, these uniformities become immanent in the world, and in every system in it, including the sociocultural systems; consequently, so far as they are not made quite dependent upon another empirical force, any essential change in these systems is immanent in them, as a manifestation of their nature and the uniformities attached to or imprinted in them. Whether we are considering the revolutions of the heavenly bodies; or the course of change run by the organic and sociocultural systems, so far as it is not determined exclusively by other empirical agencies; any such change is, in this derivative nonultimate sense, immanent in them. Thus, such theories contain in themselves the immanent principle in some form and to some degree.

3. The third variant in which the principle also is present implicitly, to some extent, is the *doctrine of predestination*, of which Calvin's doctrine may serve as an example. In the absolute sense, such a theory makes man and human affairs a mere result of the Supreme Agent and does not leave any space for immanency or self-determination of their life course. But, in a relative sense, so far as such a theory claims that all the life courses of man, or of the systems created by men, are predestined even before their origin, and are but a mere realization of such a destiny, the theory evidently implies an utter ineffectiveness and impotency of the empirical factors external to man or to the system. Those granted the divine grace to be saved will have properties and a life course which saves them, no matter what are the external factors; or even the external factors for them will be destined to be those necessary for their salvation. Those who are not granted the grace will have the life history and destiny of the "condemned," regardless of any empirical external agency. In this implication, the doctrine of predestination contains (in a relative sense) a principle of immanency in a rather striking and peculiar form. Here Aristotelian "potentiality" of human being is posited even before the birth of man, and all his subsequent life is made the mere execution of this preordained potentiality.

Several other varieties of the immanent principle of change and self-determination have been given in the Middle Ages and later. So far as they all had in the background God as the ultimate cause of every change, they all articulate the immanent principle only in a relative sense. But so far as they ascribe either free will, or immanent immutable uniformities, or even predestination, to all or several of the empirical systems, they contain the immanent principle in a relative

sense. Practically, the theories of the majority of the Church Fathers of the first few centuries of our era; those of Boethius, Isidore of Seville, Bede, Rhabanus Maurus, Erigena, William of Conches, Thierry de Chartres, Gilbert de la Porre, David de Dinant, Amalricus the Heretic, William of Auvergne, Alexander of Hales, Siger of Brabant, Albertus Magnus, St. Thomas Aquinas, and of many other thinkers of the centuries from the sixth to the sixteenth, belong to one of the above varieties of the (relative) immanent theories, and contain in themselves the elements of immanency in one of the above variations.

Immanent Change among the Church Fathers and Christian Thinkers of the Middle Ages. This can be seen from the following summary of the theories of Christian thinkers on this problem. Notwithstanding several secondary differences among the Church Fathers in their theories of the "why" and "how" of change, the fundamental principles of their answers to the questions are essentially similar. They can be summed up as follows:

1. Since God is the creator of the empirical world, He is the ultimate source of any change, even the slightest, that happens in such a world. And God himself, being absolute and timeless, remains eternally unchangeable Being, "without a shadow of alteration." On this point the Christian theory is similar to the Aristotelian theory of the Prime Mover, but sharply dissimilar from the Aristotelian theory of the eternity of the world and its infinity and endless recurrence.

2. The empirical world being finite, and having the beginning and end of its existence (most of the Church Fathers thought its total duration was six thousand years) by the will of God, is ever changeable and mutable. It will end in the catastrophe of an Antichrist and then will come the Last Judgment. In this secondary sense, immanency of change is implanted by God in its very nature. It is not the eternal and everlasting Being, but everchanging Becoming. In this point Christianity followed Plato-Aristotle, who also regarded change as the inalienable property of the empirical world.

3. Among the phenomena of the empirical world, the inanimate objects cannot change by themselves and need some empirical mover external to them, while animated creatures, and especially man, endowed with free will and created in the image of God, can change by themselves, without any external mover or starter. In this sense, the empirical man and human society bear in themselves the reasons for their own change. Therefore, change is specifically immanent in them (though in the absolute sense, God remains the ultimate source

of change). In this point again, there is a similarity to the Aristotelian conception of change.

4. Making free will of man the source of the change, Christianity naturally rejected all externalistic theories of change which looked for it either in stars and cosmic influences, or in other factors external to man. Still more sharply Christianity rejected externalistic absolute determinism of whatever kind. This was the reason why it rejected Manicheism, astrology, theories of the *annus magnus*, and of the eternal return of things. Here are a few examples:

The heavens, revolving under His (God's) government, are subject to Him in peace. Day and night run the course appointed by Him, in no way hindering each other.[86]

All things have an end [in this empirical world]. Christ, being begotten by the Father before the beginning of time . . . and remains the same forever; for of His kingdom there shall be no end.[87] [Mathetes, before Augustine, tells that Christians dwell [in this world] but simply as sojourners.] . . . They pass their days on earth, but they are citizens of heaven. They dwell in the world, yet are not of the world. God is the very Creator and Fashioner of all things.[88]

"God in the beginning made the race of angels and men with free will," whence it follows that "man is capable of vice and virtue" and is not ruled by Fate, as Stoics teach, contrary to their own moral teachings.[89]

God, who created the heaven and the earth, and all things that are therein.[90]

"In as many days as this world was made, in so many thousands of years shall it be concluded." (6000 years.) Then comes the ca-

[86] Clement, "The First Epistle," chap xx, *The Ante-Nicene Fathers* (Buffalo, 1888), Vol I, p 10.

[87] Ignatius, "Epistle to the Magnesians," *ibid.*, Vol. I, p 61.

[88] Mathetes, "The Epistle to Diognetus," chaps v–viii, *ibid*, pp. 27 ff. In his writings as well as in those of other Fathers, predecessors of St Augustine, one finds practically all — including many expressions like "the City of Man," and "the City of God" — that was brilliantly summed up by St Augustine. Similarly Justin Martyr, "The First Apology," chaps viii ff , *ibid* , pp 165 ff

[89] Justin Martyr, "The Second Apology," chap. vii; *ibid.*, pp. 190 ff. See there his denunciation of the Stoics' theory of the eternal return of things, "ever turning, and altering, and dissolving into the same thing" See his "Dialogue with Trypho," chap xvi, where he stresses that God foresees and foreordains everything. *Ibid*, p. 202. Also his criticism of Pythagorean, Plato's, Aristotle's theories, in his "Hortatory Address to the Greeks," chaps iv–viii, *ibid*, pp. 276 ff *et passim*

[90] Irenaeus, "Against Heresies," Bk. i, Preface, *ibid.*, p. 315. See his criticism of various theories or heresies and his reiteration of the Christian Credo, especially chap. x, pp. 330 ff.

tastrophe of Antichrist; the Last Judgment, and thereafter the eternal kingdom of God.[91]

God was in the beginning. . . . Matter is not, like God, without beginning, nor, as having no beginning, is of equal power with God; it is begotten . . . and brought into existence by the Framer of all things alone. . . . We believe that there will be a resurrection of bodies after the consummation of all things: not, as the Stoics affirm, according to the return of certain cycles, the same things being produced and destroyed for no useful purpose, but a resurrection once and for all, when our periods of existence are completed, and in consequence solely of the constitution of things under which men alone live, for the purpose of passing judgment upon them.[92]

God is without beginning because He is unbegotten: and He is unchangeable, because He is immortal. And he is called God [on account of] running, and moving, and being active, and nourishing, and foreseeing, and governing, and making all things alive. But he is Lord, because He rules over the universe.[93]

He created man in His image and granted man free will. Its misuse led to the Fall and then to the origin of evil.

The reason which made the universe out of diverse elements . . . has also disposed time into order, by fixing and distinguishing its mode, according to which this first portion of it, which we inhabit from the beginning of the world, flows down by a temporal course to a close; but the portion which succeeds and to which we look forward continues forever. When, therefore, the boundary and limit, that millennial interspace, has been passed, when even the outward fashion of the world — equally a thing of time — itself . . . passes away, then the whole human race shall be raised again, to have its dues meted out according as it has merited in the period of good or evil, and thereafter to have these paid out through the immeasurable ages of eternity. Therefore after this there is neither death nor repeated resurrection.[94]

To change her habit, is, at all events, the stated function of entire nature. The very world itself (this which we inhabit) meantime discharges it.[95]

[91] Irenaeus, *op cit*, Bk v, chaps xxvii ff; *ibid*, pp 556 ff See also Herma, "The Pastor," Bk. iii, chap i, where he says, "In this world we have no abiding city, we ought to seek one to come," *ibid.*, Vol. II, p. 31

[92] Tatian, "Address to the Greeks," chaps v, vi, vii, *ibid*, Vol. II, pp 67 ff

[93] Theophilus, "To Atolycus," Bk i, chaps. iii, iv ff, *ibid.*, Vol. II, pp 89 ff.; Bk ii, chaps. x, xi ff. Also Athenagoras, "Plea for the Christians," *passim, ibid.*, pp. 129 ff.; "On the Resurrection of the Dead," chaps ii, iii, *et passim, ibid*, Vol. II See also Clement of Alexandria, "Stromata," *passim*, and especially Bk iv, chaps. xxv-xxvi; Bk. v, chap. viii, *ibid.*, Vol. II.

[94] Tertullian, "Apology," chap. xlviii, *et passim, ibid.*, Vol. II, pp. 53–54.

[95] Tertullian, "On the Pallium," chap. ii, *et passim, ibid.*, Vol. IV, pp. 6 ff. See also Minucius Felix, "The Octavius," chaps. ii, xx, *et passim, ibid.*, chaps. iv, v, pp. 174 ff., 184 ff.

Fate is nothing, except so far as fate is God. Man's mind is free, and therefore so is his action.[96]

There is one God, who created and arranged all things. . . . Every rational soul is possessed of free will and volition. . . . From which it follows that we understand ourselves not to be subject to necessity, so as to be compelled by all means, even against our will, to do either good or evil. . . . This also is a part of the Church's teachings, that the world was made and took its beginning at a certain time, and is to be destroyed on account of its wickedness. But what existed before this world, and what will exist after it . . . there is no clear statement regarding it in the teaching of the Church.[97]

On similar grounds, Hippolytus rejects the astrological theories of the influence of the stars and any kind of decisive external determinism, and very successfully criticizes the astrological theories of the *annus magnus*, astral influences, and so on.[98]

This is God's law that whatever is now born degenerates with old age of the world itself [which, in his belief, was approaching the age of senescence]. Everything that has had a beginning should perish, and things that have grown should become old, and strong things should become weak, and the great things, small.

At the same time Cyprian stresses that all this change, including the catastrophes, takes place by the order of God, who sends such calamities as punishment for sins.[99]

In Archelaus' "The Acts of Disputation with the Heresiarch Manes," we find one of the completest treatises on the problem of evil in the

[96] Minucius Felix, "The Octavius," chap xxxvi, *ibid*, pp. 194–95

[97] Origen, *De Principus*, Preface, *ibid*, Vol IV, pp 240–241 It is to be noted that Origen's answer to what God was doing before He created the world is different from St Augustine's, Augustine solved the problem by stating that the world was created not *in* time, but together *with* time, therefore the question becomes superfluous. Origen answers that before the creation of this world God was busy with the creation and destruction of other worlds "As after this world's destruction there will be another world, so also we believe that others existed before the present came into being." However these worlds are not simultaneous, but follow one another *De Principis*, Bk iii, chap. v, *ibid*, p. 341. At the same time he sharply opposed the Stoic theories of the eternal return of things, and the determinism underlying it Such theories "cannot be established by any reasoning, if souls are actuated by freedom of will, and maintain either their advance or retrogression according to the power of their will" *Ibid*, Bk. ii, chap. iii, pp. 272 ff. Also his "Against Celsus," Bk. iv, chap lxvii, *ibid*, pp. 527 ff.

[98] Hippolytus, "The Refutation of all Heresies," Bk. iv, *ibid*, Vol V, pp. 25 ff. See also Methodius, "The Banquet of the Ten Virgins," *ibid*., Vol. VI, pp 341 ff.

[99] Cyprian, "Treatise V to Demetrianus," *ibid*, Vol. V, pp. 457 ff. Similarly, Novatian, "Treatise of Trinity." "God reaches to even the very last thing Without His will even a hair does not fall." Also Dionysius, *ibid*., Vol. VI, pp. 81 ff.

world and its Christian solution. Since God created everything and God is good, how could evil appear in the world? Manicheanism, following Zoroastrianism, solved it through assumption of the two eternal principles: one Good, another Evil, coexisting side by side and coterminal in time (corresponding to Ahura Mazda and Angra Mainyu of the Zoroastrian religion).

"I hold that there are two natures, one good and another evil," says Manes in this "stenographic" report of the dispute between himself and Archelaus, representing the Christian standpoint.

> The creator of man is not the Lord, but another being, who is also himself of an unbegotten nature, who has neither founder, nor creator, nor maker, but who, such as he is, has been produced by his malice alone.

To this Archelaus successfully objects and systematically develops the Christian solution of the problem, namely that man is created by God in His own image and endowed with rational nature and free will. The source of the evil, beginning with the Fall, is the misuse of the freedom and deviation from the path of God. Besides, what appears to be evil may not be so, from a deeper standpoint.[100]

Arnobius and Lactantius develop their beliefs along the same lines. Both stress the Providential guidance of the world. Both regard the empirical world as incessantly changing and finite. It will perish in the catastrophe of the Antichrist's coming. Both agree that in these incessant changes many processes, especially calamities, recur "at stated intervals." Both solve the problem of evil in the above way and in a sense declare it nonexistent from a deeper standpoint. "Whatever happens to us adverse," says Arnobius, "is in reality not an evil to the world itself." As signs of the coming end of the world, Lactantius mentions that

> all kinds of vices and frauds will become frequent, justice will perish; faith, peace, mercy, modesty, truth, will have no existence; violence and daring will abound,

together with wars, atheism, abolition of property and so on. Then will come the reign of Antichrist, after which there will be established

[100] Archelaus, "The Acts of Disputation with the Heresiarch Manes." *Ibid.*, Vol. VI, pp. 189 ff. *et passim*. A similar answer is given by Alexander, "On the Manicheans" "For man is possible to change and become good It is in his power" *Ibid*, Vol VI, pp. 247 ff. As it is known, Manicheanism was very influential at that time, and at one time threatened to carry with itself most of the Christian and pagan thinkers. Among others, St. Augustine also succumbed to it, before his conversion. In terms of immanency, Manicheanism means a fatalistic variety of immanency of evil in man.

the Christian millennium; then will come a new and final catastrophe, after which there will be the Last Judgment and eternal kingdom of God.[101]

St. Augustine brilliantly summed up and systematized and deepened most of these conceptions.

The Prime-Mover of anything is God, as

most supreme, most powerful . . . most constant and incomprehensible; immutable, yet changing in all things; never new and never old, yet renewing all things. . . . Ever in action, and yet quiet; . . . upholding, filling, and protecting, creating, nourishing, and perfecting all things. God as truth indeed, wherein is no change nor shadow of alteration, . . . incorruptible and inviolable, and unchangeable.[102]

The world is created by God not *in* time, but *with* time. As such, it is ever changing. In this way, St. Augustine answered the question: What was God doing before the creation of the world? [103]

Man is created rational, endowed with free will. Misuse of this freedom created evil; hence "Free will is the cause of Sin." However, from a deeper standpoint, the evil is causeless and does not exist. "Our God made all things very good." [104] Thus he rejects all kinds of externalistic determinism in human conduct and in human affairs, particularly the astrological, cosmic, and other forms of externalistic determinism, and together with it, all the theories of eternal returns of things.[105]

[101] Arnobius, "The Seven Books Against the Heathen," *ibid*, Vol VI, pp 413 ff. Lactantius, "The Divine Institutes," *ibid*, Vol VII, pp 253 ff. "On the Workmanship of God," where the rational nature of man is stressed especially, with his free will and his responsibility. *Ibid*, Vol VII, pp 281 ff

[102] St Augustine, *Confessions*, translated by Sir Tobie Matthew (London, 1923), Bk. i, chap iv, Bk iii, chaps vi, vii; Bk vii, chap i.

[103] *Ibid*, Bk. xi, *passim* "Behold, the heavens and the earth are; they proclaim that they are created; for they change and vary. They proclaim also that they made not themselves" "If before heaven and earth there was no time, why is it demanded what Thou then didst? For there was no 'then,' when there was no time" *The City of God*, Bk. x, chap i.

[104] *Confessions*, Bk vii, *passim*, and especially chaps. xi–xvi; *The City of God*, Bk xix, chap. 13 See these remarkable passages.

[105] "God forbid that we should believe this 'For Christ once died for our sins, and rising again, dies no more, and we, after our resurrection, shall be always with the Lord'. . . . The following place I think fits them [the partisans of the Great Year and eternal cycles of the universe] best the wicked walk in a circuit; not because their life (as they think) is to run circularly, but because their false doctrine runs round in a circular maze (Ps. xii, 1)." *The City of God*, Bk. xi, chap. xiii. See the whole of this book. Also *Confessions*, Bk. vii.

The created empirical world, or the city of man, is finite in its existence. Its duration is six thousand years.[106] During this finite existence, the empirical world is ever changing, because "variety and change" are implanted in its nature.[107] In this sense its change is immanent. "All earthly things have their changes, revolutions, and dissolutions." [108]

After the end of this world and the city of man, there will come the City of God, eternal and everlasting. This is "end without end. For what other thing is our end, but to come to that kingdom of which there is no end." [109]

These principles were followed by subsequent Christian thinkers, with some variation in secondary matters, but very similar in the main part.

Whether we take the greatest medieval thinkers of the less "orthodox" stream, like J. S. Erigena in the ninth, and Nicolaus Cusanus in the fifteenth century; or the more "orthodox" thinkers, culminating in Albertus Magnus and St. Thomas Aquinas; they all share the principle of God as the true reality, as the Prime Mover and creator of the world. Likewise, they all regard the changeability of this world as immanent in it, as so created and endowed. Also, they all consider man as created in the image of God, endowed with rational nature and free will; and as such, being his own mover and respectively responsible for his actions. No less definitely they rejected any form of external determinism of any empirical factor as absolute, be it a cosmic, biological, or social factor.

For Erigena, the ultimate reality is God, undefinable, incomprehensible, above all definitions, all categories, the "infinitude of infinitudes," "*coincidentia oppositorum.*" From God emanate "the primal causes" and through them, the empirical created world.[110]

Man is sixfold in his nature: soul, as contemplating God; reason, as investigating the reasons of natural things; interior sense, as finding, discerning, and defining the empirical things; external sense, as re-

[106] *The City of God*, Bk. xi, chap. x; Bk. xiv, chap. xxix. There he calls "abominable lying" the theory of an Egyptian scholar who claimed that mankind had existed already for more than 100,000 years.

[107] *Ibid.*, Bk. xi.

[108] *Ibid.*, Bk. iv, chaps. i, ii.

[109] *The City of God*, Bk. xviii and Bk xiii.

[110] See Erigena's writings, especially his *De Divisione Naturae*, edited by H. J. Floss, in the *Patrologia Latina* of the Abbé Migne, Vol. 122. Columns 433–458, 510 d, 516–517, 684, and the whole of Book One and Book Two.

ceiving images (*phantasiæ*) from the external world through organs of perception; vital motion, as animating and controlling the vital functions of the body; body. In this sixfold nature man is reflecting the visible and invisible universe, and is one with, and created in, the image of God. The soul is the image of God, and the body is the image of the soul, or an image of an image.[111]

In Erigena's mystical and symbolic interpretation, the Fall is not a concrete event, but a state; it is bodily concupiscence, a quest for corporeal values, an irrational motion of the soul, turning from God to a love of material things. In this sense it is evil, as a mere privation and shortcoming of the natural will.[112]

The created empirical world, including man, will return back to God and will be dissolved in Him. (The doctrine of Erigena's *adonatio*.) The process is already begun in humanity with the resurrection of Christ and will be continued. Here again, the Last Judgment, the resurrection and restoration are interpreted by Erigena much more symbolically than by the orthodox Christian theory.[113] All these are not concrete empirical events, but take place in man's conscience (*et unusquisque suarum actionum et cogitationum judex erit*) or the state of the soul.

It is unnecessary for our purposes to go into other points of Erigena's philosophy, which is much more profound than this sketch shows, and is probably the deepest and most original philosophy after that of St. Augustine. The above shows that in his system man is created and guided by God, but is endowed with soul, reason, and inner sense which in no way are determined by any empirical or bodily forces and factors. Even the irrational motions of the human soul are spontaneous and in this sense causeless, especially in reference to empirical factors.[114]

[111] *Ibid.*, columns 582–590, 750–787, 825 and the whole of Book Three.

[112] *Ibid.*, columns 810 ff., 847–48, 863. Here Erigena solves the problem of evil as causeless and nonexistent in a deeper sense along the lines of the solution of Augustine See especially columns 828 d, 826 b, c.

[113] *Ibid.*, columns 997, 986, 964; 532–538; and the whole of Books Four and Five

[114] Seemingly small at the beginning — even condemned by the Church — the influence of Erigena tended to grow in the subsequent centuries and manifested itself especially in the writings of Master Eckhart and the mystics, and particularly of Nicolaus Cusanus of the fifteenth century. Cusanus' *De Docta ignorantia* is practically a brilliant version of Erigena's philosophy. At the present time this philosophy is again coming to the front of philosophical thought See about the influence of Erigena in Henry Bett, *J. S. Erigena* (Cambridge, 1925), chap. v. For the more recent resurgence of this philosophy, see S. L. Frank, *The Inexpressible* (Nepostijimoiie) (in Russian, Paris, 1939).

As to St. Thomas Aquinas' position in the problem, it is but a Platonized and Christianized version of the Aristotelian theory. A few quotations make clear his position.

Of actions done by man those alone are properly *human* which are proper to man as man. Now man differs from irrational animals in this, that he is master of his actions. Wherefore those actions alone are properly human, of which he is master. Now man is master of his actions through his reason and will; whence, too, the free will is defined as the *faculty and will of reason.* Therefore those actions are properly called human which proceed from a deliberate will. And if any other actions are found in man, they can be called actions of *a man,* but not properly *human* actions, since they are not proper to man as man. Now it is clear that whatever actions proceed from power, are caused by that power in accordance with the nature of its object. But the object of the will is the end and the good. Therefore all human actions must be for an end. Although the end be last in the order of execution, yet it is first in the order of the agent's intention. And it is in this way that it is a cause.[115]

Every agent, of necessity, acts for an end. . . . But agent does not move except out of intention for an end. . . . Just as this determination is effected, in the rational nature, by the *rational appetite,* which is called will, so in other things, it is caused by their natural inclination, which is called the *natural appetite.* Nevertheless, it must be observed that a thing tends to an end, by its action or movement, in two ways: first, as a thing, moving itself to the end — as man; secondly, as a thing moved by another to the end, as an arrow tends to a determinate end through being moved by the archer, who directs his action to the end. Therefore these things that are possessed of reason, move themselves to an end; because they have dominion over their actions, through their free will, which is the faculty of will and reason. But those things that lack reason tend to an end, by natural inclination, as being moved by another and not by themselves; since they do not know the nature of an end as such, and consequently cannot ordain anything to an end, but can be ordained to an end only by another. For the entire irrational nature is in comparison to God as an instrument to the principal agent. Consequently, it is proper to the rational nature to tend to an end, as directing and leading itself to the end: whereas it is proper to the irrational nature to tend to an end, as directed or led by another, whether it apprehends the end, as do irrational animals, or does not apprehend it, as is the case of those things which are altogether void of knowledge.

When man of himself acts for an end; but when he acts at another's com-

[115] *The Summa theologica,* First Part of the Second Part. Treatise on the Last End, qu. 1, art. i, Vol. 6, in translation of the Fathers of the English Dominican Province (London, Burns, Oates and Washburn, n.d.).

mand, or when he is moved under another's compulsion, it is not necessary that he should know the end. And it is thus with irrational creatures.[116]

Still more clearly the Angelic Doctor formulates these ideas in his *Treatise on Human Acts*.

The principle of some acts or movements is within the agent, or that which is moved; whereas the principle of some movements or acts is outside. For when a stone is moved upwards, the principle of this movement is outside the stone; whereas, when it is moved downwards, the principle of this movement is in the stone. Now of those things that are moved by an intrinsic principle, some move themselves, some not. For since every agent or thing moved, acts or is moved for an end, as stated above, those are perfectly moved by an intrinsic principle, whose intrinsic principle is one not only of movement, but of movement for an end. Now in order for a thing to be done for an end, some knowledge of the end is necessary. Therefore, whatever so acts or is moved by an intrinsic principle, that is, has some knowledge of the end, has within itself the principle of its acts, so that it not only acts, but acts for an end. On the other hand, if a thing has no knowledge of the end, even though it has an intrinsic principle of action or movement, nevertheless the principle of acting or being moved for an end is not in that thing, but in something else. . . . Wherefore suchlike things are not said to move themselves, but to be moved by others. . . . The will, through its volition to the end, moves itself to will the means.[117]

In the absolute sense,

God moves man to act, not only by proposing the appetible to the senses, or by effecting the change in his body, but also by moving the will itself; because every movement, either of the will or of nature, proceeds from God as the First Mover. And just as it is not incompatible with nature that the natural movement be from God as the First Mover, inasmuch as nature is an instrument of God moving it; so it is not contrary to the essence of a voluntary act, that it proceeds from God, inasmuch as the will is moved by God. Nevertheless, both natural and voluntary movements have this in common, that it is essential that they should proceed from a principle within the agent.[118]

These quotations make the position of St. Thomas clear. Absolutely man is dependent upon God.[119] But endowed with free will and reason,

[116] *Ibid*, qu. i, art. 2 See the whole of the "Treatise on the Last End," and also "Treatise on Human Acts" (in the same volume) and "Treatise on Law" and on "Grace" in Vol. VIII of the edition quoted.

[117] *Ibid*, qu. 9, art iii.

[118] *Ibid.*, qu. 6, art. i; qu 9, art. 6, Vol. 6, quoted.

[119] See also on motion and its cause, *Summa Theologica*, part i, qu. 2, art. 3.

insofar as he acts humanly for an end, with its knowledge, he is a self-mover, and the source of his own actions. But even there

> Since the will is an active principle, not determinate to one thing, but having an indifferent relation to many things, God so moves it that He does not determine it of necessity to one thing, but its movement remains contingent and not necessary, except in those things to which it is moved naturally.[120]

"Man does not choose of necessity." [121]

III. Conclusion of the Survey

The above four types cover the main varieties of the theories of immanent change in the sociocultural world. They make it clear that the principle of immanent change is neither mine nor anybody's recent invention, but is one of the most ancient principles of human thought. It has an honorable past, a continuous and long history, a large number of supporters, among whom the greatest social thinkers are found. Only the popularity in recent times of the externalistic principle of change and an ignorance of the history of social and philosophical thought may lead to the idea that it is a recent invention.

IV. The Role of Immanent and Externalistic Principles in Contemporary Scientific Specialized Research

The philistine "matter-of-fact" researchers and scholars are often very proud to be just "plain fact-finders," free from any general principles and somewhat disdainful in regard to them. They, and all the like-minded, may say: "Granted that the immanent principle has a long past; granted that it is more adequate than the externalistic principle. What of it? Like many other abstractions, it may be interesting speculation, but perfectly unimportant for any special research of a fact-finding type. We have nothing to do with it or with its competitors. We do not speculate but study the facts as they are. And that is what science is."

Being perfectly wrong generally, such a proposition is also wrong here. It is wrong generally, because no analysis or scientific description of anything is possible without some general principles, some conceptual scheme, no matter whether or not such a philistine fact-finder is aware of this. Even a description of this table on which I am writing is impossible without the use of a number of words, such as

[120] *Ibid.*, qu. 10, art. iv. [121] *Ibid.*, qu. 13, art. v.

"object," "body," "square," "five by four feet," "heavy," "mahogany," "inexpensive," and so on. Any of these or other terms is already an "abstraction"; if you like, a "universal." Using other terms, one uses abstractions and universals, and cannot dispense with them in any way, and under any circumstances. What is "body," "object," "square," "heavy," and so on? As soon as such a question is put, our anti-abstractionist has to define them, if he uses the terms accurately and correctly; their definition is already one of the most abstract procedures existing. Still more wrong are such philistines in our case, in any study of change whatsoever. As soon as they say "change," "process," "factor," "cause," "external-internal," "variable," "modification," "transformation," "evolution," "development," and the like,[122] they introduce a host of the most abstract principles and assume — conscientiously or not — a certain attitude in regard to them. Many of these philistines are often unaware of that, but such an unawareness does not make their study necessarily better; if anything, it makes it worse. In brief, whatever study of whatever change in the field of sociocultural phenomena one takes, even the narrowest change, one can easily see that the author assumes and applies either the immanent, or externalistic, or a combination of these principles. For the sake of an illustration of this, let us take a few instances.

First, anthropological theories concerning the course of development of many a primitive culture. Anthropologists and ethnologists have for a long time been confronted with the problem of why the course of change varies in different primitive cultures, and why they developed in divergent ways and became different from one another. Respectively, some have used externalistic, some immanent, and some mixed explanations. However, most of the prominent investigators have strongly emphasized the role of the immanent principle in the matter, under the name of the *conditioning role of the precedent*, and of *"the definition of the situation."* As soon as a given — large or small — system of culture, be it totemism, mythology, social organization, art, or any other, emerges (among the primitive peoples), its very emergence in a certain form starts its selective and self-directing process: the initial or precedent status of it inevitably determines which external elements it absorbs and which not; to what agencies it

[122] See papers on social process by R. Bain, E. E. Eubank, F. Znaniecki, R. MacIver, and others in E. S. Bogardus' (editor) *Social Problems and Social Processes* (Chicago, 1933).

is sensitive and to which not; what possibilities of change (or mutation forms) will be excluded from its further transformations and which not. In brief, any primitive culture, by the fact of being such and such at a given or initial moment, enormously determines its future and the possible forms of transformation it will and will not be able to undergo.[123]

A second instance is given by such works as A. J. Toynbee's *A Study of History*. As soon as the problems of why some cultures develop into historical civilizations while others do not; why some of them grow while the others do not; why some of them are already dead while others are still alive — as soon as such problems are considered seriously, the immanent principles of explanation of these basic phenomena become unavoidable, and purely externalistic principles turn out to be inadequate to explain these whys.

Another example is given by the business cycle theories. A mere glance at these theories shows at once that a number of them are looking for the causes and factors of business fluctuations in a series of "factors" perfectly *external* either to the business system or even to the social system of which the business system is a part. Such are the various geographic theories of W. S. Jevons, W. H. Shaw, H. H. Clayton, W. H. Beveridge, W. P. Timoshenko, E. Huntington and others.[124] Ascribing the cause of business fluctuations either to climatic changes, or to rainfall, or to sun spots or other cosmic influences, including that of the constellation of the planets, the theories are of the clear-cut externalistic type, that seeks the reasons for the change anywhere but in the business system itself. Less extreme, but still externalistic, are the theories that look for the causes of cycles of prosperity and depression in various biological factors, beginning with the health of the

[123] Of many anthropological works, which fully or partially realize and demonstrate this principle, concrete examples are given by such works as R. Lowie's "Some Problems in Ethnology of the Crow and Village Indians," *American Anthropologist*, Vol. XIV (1912), pp. 68–71; A. Goldenweiser, in his paper on the pattern theory of the origin of totemism, *American Anthropologist*, Vol. XIV (1912), pp. 600–607; C. Wissler, in "Ceremonial Bundles of the Blackfoot Indians," *Anthropological Papers of the American Museum of Natural History*, Vol VII, part 2 (1912), pp 100–106; W I Thomas' "definition of situation" factor, logically developed, is but a variety of the principle of immanent change. See W. I. Thomas, *Primitive Behavior* (New York, 1937), chap. ii, *et passim*. So also is F. Znaniecki's "closed system." See his *The Method of Sociology* (New York, 1934), pp. 11 ff

[124] See a summary of these theories in my *Contemporary Sociological Theories*, pp 120 ff. Also in A. C. Pigou, *Industrial Fluctuations* (London, 1927), pp. 30 ff; W C. Mitchell, *Business Cycles* (New York, 1930), pp. 12–16; A. Hansen, *Cycles of Prosperity and Depression* (Madison, 1921); J. Schumpeter, *Business Cycles* (New York, 1939).

population and ending with age-sex composition, with birth-death rates and the like.

On the other hand, a large number of theories of the business cycle are of the clear-cut immanent type. They see the cause of it in the conditions of the business and its system, and in their immanent generation of the consequences that lead now to depression, now to prosperity. Such are the theories which look for the cause of business fluctuation in the process of saving and investing (Tugan-Baranovsky and others); in construction work (A. Spiethoff, G. H. Hull and others); in the changes in tastes, quantity and quality of production, in methods of supplying commodities (J. Schumpeter); in generalized production (M. Bouniatian, A. Aftalion and others); in banking operations (A. H. Hansen, R. G. Hawtrey, partly I. Fisher, and others); in the production and the flow of money incomes (R. E. May, E. Lederer); in the role played by profit-making,[125] and finally in the economic system as a whole. E. Wagemann's theory is an explicit example of that. His methodological assumptions are:

> All parts of the economic system are interconnected in an ultimate functional union: the system thus formed is closed and compact and is subject to its own laws. Influences from outside, whether they proceed from a non-economic sphere or from foreign economic organisms, affect the system simply as stimuli, which cause to be set in operation the forces inherent in the economic organism under observation.[126]

All these theories, as we see, regard the cause of the fluctuations to be in some special part of the business system, and in the immanent fluctuation of this part, which also immanently generates the consequences for the whole business system.

Other theories are also immanent, but they look at business as a mere part of a larger social system, with the psychological properties of human beings, and try to show how various or specific parts of this social system immanently generate the fluctuations. Such, to an extent, are the theories which emphasize particularly innovations and inventions — immanent in the social life — as the cause of business fluctuations (J. Schumpeter and others); such are all the theories which implicitly or explicitly consider the social life itself as immanently fluctuating and therefore manifesting this movement in the business conditions.

[125] See a concise characterization of these theories in W. Mitchell's work quoted, chap. i.
[126] E. Wagemann, *Economic Rhythm* (New York, 1930), p. 13.

Finally, there are many mixed theories, which set forth a number of factors — social, psychological, biological, and cosmic — as the causes of fluctuations. An example of these is given, for instance, in the theory of Pigou, who puts as the real causes: variation in the yield of harvest (which implies an influence of geographic conditions); large technical innovations, the discovery and exploitation of mineral deposits, industrial disputes, net changes in taste, war, changes in the foreign markets, autonomous monetary causes, and other psychological causes.[127] A large number of other theories belong to this type. Unfortunately, most of them are not an organic synthesis of the series of internal and external factors, but mainly a mechanical, side-by-side juxtaposition of various factors perfectly incommensurable with one another and incapable of being measured and appreciated in their comparative roles and in their working together.[128]

This cursory but accurate glance at the "factual" theories of the most empirical phenomenon of business fluctuation shows at once that the immanent and externalistic principles of change are not abstractions hanging somewhere far outside the actual empirical and matter-of-fact studies of the narrowest problems, but are evident, and exist in any such theory, and appear to be its essence and central axis. Every investigator of the business cycle is either an "immanentist" or "externalist" or "mechanical or organic mixer" of these principles, no matter whether he realizes his own position or not. More than that: in most cases his assumption of one of these principles controls the direction of his study, the factors to which he pays attention, the conclusions he reaches. He only fools himself if he thinks he is free from any such "speculative assumptions." It is needless to add that it is better in all respects for any investigator to know what he assumes and why, and to be careful in checking the validity of his assumption, than to talk prose without being aware that he is talking prose. The results of such a naïveté are usually disastrous.

What is said of business fluctuations can be said of any other

[127] See A. C. Pigou, *op cit*, pp 35 ff, chaps vi, vii, *et passim* See also S. S Kuznets, *Secular Movements in Production and Prices* (Boston-New York, 1930) as a sample of a mixed but mainly immanent interpretation, with many concrete examples of how a given process, for instance, technical progress, itself generates forces that begin to inhibit it and to slacken its progress

[128] This problem of so-called "multiple causation" is a difficult and little thought through problem of the social sciences. Regarding its absurd application, see my "Neglected Factor of War," *American Sociological Review*, August, 1938. See especially my forthcoming *Sociocultural Causality, Space, Time*.

factual problem of the sociocultural sciences. Whatever phenomenon of sociocultural change is examined by an economist, sociologist, anthropologist, political scientist, historian, philosopher, specialist in art, or other social scientist, as soon as the investigator begins to study it, and especially to account for the change, its forms, its rhythms, directions and causes, he is up against our problem of immanent or external principles of change; he assumes (consciously or not) one of these positions and arrives at either immanent, or externalistic, or mixed conclusions. Whether it is the problem of why Rome decayed, or why Caesar defeated his rivals, of why Christianity (but not other Oriental cults) triumphed, or any other problem of history; whether it is the problem of change of prices, or of demand and supply, or of business fluctuations in economics; or whether it is the problem of change of constitution, government regimes, of success of a given political party, or other problem of political change; whether it is the problem of decline of materialism in favor of idealism, or any other problem of cultural and philosophical history; or whether it is the problem of war, revolutions, crimes, suicides. or other social problems — any of these at once involves the principles discussed and forces the investigator to make his choice. The same is true of any change in any other field of sociocultural phenomena. A concise demonstration of this is given by the fact of the existence of the geographical, biological, psychological, and many other "schools" in the social sciences. Geographers try to explain everything — races, health, vitality, genius, a given form of art, religion, philosophy, law, a given economic organization, birth-death rates, suicide and morbidity, revolutions and wars, blossoming and decay of culture or nation — everything sociocultural, by their purely external geographic factors.[129] The same is true of all the numerous biological, and psychological, and sociologistic theories.[130]

Of these, in regard to sociocultural phenomena, all the real sociologistic theories are immanent, to some degree. When Durkheim looks for the "factors" of suicide, or religion, and many other social phenomena (except the division of labor, where Durkheim is externalistic) in the social phenomena themselves; when De Roberty finds in the very process of social interaction the real source of practically all the

[129] See all the variety of sociocultural phenomena which the partisans of the geographic factors try to account for, through them, in my *Contemporary Sociological Theories*, chap. iii.

[130] *Ibid., passim.*

purely social and cultural (superorganic) phenomena; when Savigny, Puchta, and later on W. G. Sumner show that law and mores "come nobody knows whence," crystallize and change, having their own logic and their own life; they again assert, to various degrees, an immanent principle of change of these and other sociocultural phenomena. The same is true of the Marxian school, as far as the logic of change of modes of production is concerned; their change is assumed to be immanent. The same is true of the theories of artistic or social change, exemplified by the following quotations.

Evolution is a development conforming to the immanent dialectic of social system which, like other organisms, tends to create an internal milieu in which the system isolates itself from the rest of the world. Aesthetic life in the occidental world, and beginning with the Greek civilization, is an organism sufficiently independent and having sufficiently developed division of labour in order that a certain number of purely intrinsic relationships can be established in its evolution, without consideration of any other factor as more important than the preceding moment of this evolution itself.[131]

As an organism grows in weight or dimension, as it unfolds and differentiates its characteristic forms, it loses its vitality, just because it has used it up in the process. . . . As a society enlarges and expands, as it perfects and differentiates its institutions, its language, religion, law, government, industry and art, it loses its civilizing and propelling vigour; for it has been using it up in its course.[132]

The same can be said of all truly sociologistic studies of the specific social immanent factor taken by the author.[133] All the other schools — geographic, biological, and psychological — to the extent that they try to account for sociocultural phenomena and their change by cosmic, biological, and individual psychological factors, are, in most cases, externalistic, as far as the sociocultural phenomena are concerned.[134]

Not only all the really scientific studies do not escape these principles, but, as we shall see (in Chapters Fourteen to Sixteen) a large

[131] Charles Lalo, *Esquisse d'une esthétique musicale scientifique* (Paris, 1908), pp 252–53, 262.

[132] G. Tarde, *The Laws of Imitation* (New York, 1903), p 147

[133] See these studies in my *Contemporary Sociological Theories*, chaps. viii, ix, x.

[134] In reference to their own phenomenon, many of these are, of course, immanent For instance, the logistic theory of the growth of the population is perfectly immanent, so far as the growth of the population is concerned the process regulates itself. So far, however, as the theory attempts to account for the nondemographic sociocultural phenomena by the demographic factor, it becomes externalistic. See the biological and psychological theories of social processes in my *Contemporary Sociological Theories*, chaps. ii–vii, xi.

number of the basic concepts of various social sciences, like causality, equilibrium, factorial analysis, and so on, imply either an immanent or externalistic principle. Let us take, for example, such a basic concept in economics and other social sciences as that of *equilibrium*. (Its detailed analysis will be given in Chapter Fourteen.) By equilibrium is generally meant a tendency of a social system (or any other), when disturbed, to return to its previous status. If we ask why the disturbed system tends to return to its previous position, we rarely find an answer. As a matter of fact, most of the social scientists hardly ever ask such a question. They merely regard it as axiomatic datum, as an immanent property of the system. It just tends to reestablish its previous position. Immanent implication of the concept is clear.

What is said of equilibrium may be said of a great many other basic concepts of the social sciences. Many of these are thought to be mechanistic-externalistic. And yet, a part of them in fact are an embodiment of the immanent principle.

All this makes unquestionable the impossibility of escaping one of these principles in any sociocultural investigation, and exposes all the naïveté of the above philistine "fact hunters." It also vindicates and explains why, in this work, such attention is given to the formulation and elucidation of these principles. The reason is that they are one of the basic categories of science generally, and the sociocultural sciences particularly. A conscious or unconscious choice of one of the three competitors predetermines the methods, the technique, the very thinking itself, in the study of sociocultural phenomena. If an immanent principle is assumed, a host of problems of study, several methods and approaches, many a technique, and many a mode of thinking are at once ruled out as invalid. Likewise, such research and study become superfluous in their topics, in their "causal and factorial analysis," not even to mention a great number of technical operations.

Vice versa, an assumption of an externalistic principle leads to similar results in regard to topics, methods, technique that are dictated by the immanent principle of change. Which of these basic principles of change is more valid for a study of the problems of social change, the above chapters answer. In my opinion, in application to the change of a sociocultural system, the immanent principle is absolutely unavoidable; the externalistic principle is subsidiary. Without the former, no change of any sociocultural system can be studied, just as without an organism and its immanent properties, no external analysis

of its milieu can explain either the properties of the organism, or its functions and modes of change in the course of its existence. The same external milieu may mean, and may function in thousands of different ways for, different organisms or systems. In this sense, without considering the immanent principle of change of a given sociocultural system, there is no logical and fruitful possibility of studying the external factors of its change. For this reason, the immanent principle is logically prior to the external principle. It is prior also, because one can study the immanent change of a given system — at least, its main and inherent phases — without a study of the external conditions of the system. We are reasonably sure about the growth of an oak from an acorn; about the passage of man's life from childhood to maturity and old age, if such a life runs its full course; we know and can know, in this way of immanent study, many other properties and uniform phases of the change of the system. Thus the immanent principle permits us to study the system in a great many important ways, without recourse to the externalistic principle, while externalistic study without recourse to the immanent principle becomes almost impossible as a fruitful study. Without a knowledge of the immanent properties and life destiny of a given system of law, art, war, religion, business, science, political regime, or the family, one cannot study (excluding crazy pseudo studies) say, the influence of the external factor of rainfall on all of them, or rainfall as such, *in abstracto*. Its effects are certainly different on each of these different social systems. To formulate the effects of rainfall upon all systems generally means to formulate its influence upon nothing, or to hunt for a uniformity where it is not given.

As mentioned, the externalistic principle is not excluded by the acceptance of the immanent principle, but it is relegated to its proper sphere and to its proper functions, outlined above.[135]

[135] To what extent the externalistic principle seems to monopolize the thought of some of the contemporary scholars is shown by the criticism of my hypothesis that the present dominant Sensate culture is likely to decline in the future, and that possibly we already have entered such a decline. Crane Brinton attempts to criticize this hypothesis and does not use any better argument than to say that there is no external factor which menaces it: there are no barbarians who can conquer the present Western Sensate culture; there are no internal destructive vandals; likewise, neither Japan nor China is a real menace; nor is any other external factor likely to destroy it Therefore, the critic concludes, my prognosis is wrong The argument of my critic runs like the argument of a person who criticizes the statement that a given man sooner or later will die and that it is likely (in view of his old age and internal infirmities) that such a death is not far off. "Look here, Doctor! The weather is fine and therefore our friend will have neither

V. Conclusion

The preceding shows the cardinal importance of the principle for any, even the most specialized, empirical study of change. It vindicates the attention given to it in this work. The subsequent chapters will show this still more convincingly. They will demonstrate the unsoundness and absurdity of several externalistic methods of study of social phenomena, no matter how popular they are. For the present, however, we can stop here the elucidation of the principle of immanent change. Its meaning and implications are outlined sufficiently clearly.

As a conclusion to this part, the answer to the first "why," namely, *Why and for what reason or cause do the sociocultural supersystems and systems studied in the preceding three volumes change?* is given. It runs as follows:

These and any other sociocultural systems change immanently. This immanency of change is the unexceptional, ever-present, permanent, universal and necessary reason ("cause") of their change. External circumstances are neither necessary, nor permanent, nor universal causes of change of these systems. They are only auxiliary and intermittent reasons (causes) for change, sometimes favoring, sometimes disfavoring change, sometimes accelerating, sometimes slowing, once in a while catastrophically crushing the system. The Graeco-Roman and Western, as well as the Chinese, the Hindu, the Egyptian, or any other culture and society touched on in the preceding volumes is destined to change, bears in itself its own motor that propels it incessantly to transform itself.

Such is the answer to this first "why." It answers, however, only this general "Why change?" It does not answer the question: Why did the studied cultures and societies change from Ideational to Sensate (through intermediary forms) and vice versa? Why did these swings recur, instead of each culture moving along a certain linear trend, be-

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sunstroke nor catch cold; no gangster menaces his life; the roof of his house will not fall; there is no chance for him to swallow poison; there is no epidemic now in the vicinity. Therefore, Doctor, your prognosis is all wrong" Both critics seem never to have thought about an immanent principle of change, which can lead in both cases — and in the case of the man certainly — to the phenomena of decline and death. If this simple idea had occurred to any one of the critics, they would never have uttered their naïve criticisms. See Crane Brinton, "Socio-Astrology," *Southern Review*, Autumn, 1937, pp 262–64. See my answer "Histrionics," *ibid*, Winter, 1938, p. 564. History is already demonstrating the immanent decline of our Sensate culture.

coming bigger and better Ideational or Idealistic or Sensate cultures? Why are there rhythms, periodicities and varying tempi in the change? And a number of other "why's."

The first "Why" disposed of, let us now take the second and see whether it can be answered adequately.

Chapter Fourteen

THE "WHY" OF SOCIOCULTURAL RHYTHMS AND SWINGS. THE PRINCIPLE OF LIMIT

I. The Second and Third "Why"

In the preceding chapters the existence and variety of the nonidentical sociocultural rhythms have been ascertained. The question arises: Why these recurrent but not identical rhythms? Why do sociocultural processes not move continuously and in the same direction, like the material body moving rectilinearly and uniformly, according to the law of inertia? Or, if the sociocultural processes must have turns and oscillations in their change, why do they not move in the way of ever new turns, of ever new change, without recurrent rhythms? Theoretically, at least, the change of sociocultural processes may have four main patterns: linear, identically cyclical, ever new in all parts, and, finally, varyingly or nonidentically recurrent.[1]

Do all these four forms of sociocultural change really occur? If so, in which processes and under what conditions? What is the place of the form of recurrence of the nonidentical rhythms among these and what is their "why"? As we have been dealing mainly with these nonidentical rhythms of rise and decline of war, internal disturbances, idealism-materialism, Visual-Ideational art and other subrhythms embraced by the super-rhythm of the Ideational-Idealistic-Sensate phases, the answer to the "why" of such swings is particularly urgent for our theory. Such is our first "why."

If this is answered, the next one hungrily challenges us: Why do some of the sociocultural processes have two-phase rhythms while the others have triple, quadruple, and other types of rhythms? As a part of this question, why are some of the rhythms periodical, while some others are nonperiodical? Such is the second "why" of this chapter.

If one attempts to solve these questions, the easiest answer that suggests itself at once is a purely empirical statement: ***It is so empirically, and that is that.***

[1] See the analysis of these forms in *Dynamics*, Vol 1, chap. iv.

However, for more inquisitive minds, such an answer does not appear to be entirely satisfactory. But, "Why is it so empirically?" A mere "It is so" does not explain the problem; it only replaces one mystery with another. In order for such a mystery to be somewhat comprehensible, we have to have some valid reason for it — whether of *a priori* or *a posteriori* type. Only when any "It is so" — from the empirical movement of planets, or empirical sequence of seasons, or geographic distribution of species, up to sociocultural rhythms — is reduced to some reason or principle, like those of celestial rational mechanics or those of biological evolution, and so on, only then is this "It is so" made somewhat comprehensible.

That is the reason why this, as well as other important "why's," has never been left at the level of the above "It is so," and an attempt has always been made to explain it by some principles that make it comprehensible. Let us glance at the main types of the principles that have been offered in explanation of rhythms generally and sociocultural rhythms particularly.

II. Criticism of Mechanistic Theories of Sociocultural Rhythms and Their Phases

The current theories of sociocultural rhythms view them as a mere variety of physicochemical rhythms. They try to account for them in the mechanistic terms of forces, of the law of action and reaction, of various formulas of equilibrium of a material system, and other propositions of rational mechanics. A typical example of such theories is given by Herbert Spencer's theory of rhythm. In a chapter entitled "The Rhythm of Motion," he gives a long series of facts — mechanical, physical, chemical, biological, psychological, and social — that show the existence of rhythm in all these realms. The conclusions are that "all motion is rhythmical," and "perhaps nowhere are the illustrations of rhythm so numerous and so manifest as among the phenomena of life" (though "plants do not usually show us any decided periodicities"); that the same is true of the psychological and social processes; and that "rhythm" is a "universal principle" and "inevitable corollary from the persistence of forces."[2] He indicates further that "rhythm is very generally not simple but compound."[3] If we ask why rhythm, the answer is that: "rhythm results wherever there is a conflict of forces not in equilibrium."[4]

[2] H. Spencer, *First Principles* (New York, 1886), pp 253, 261, 264, 271.
[3] *Ibid.*, p 253 [4] *Ibid.*, pp 254-55.

Farther on, Spencer reduces the explanation to the principle of "persistence of forces" and the law of action and reaction.

> Like every action and reaction, rhythm is a consequence of persistence of force.[5]

Most of the other interpretations of rhythm refer to the same law of action and reaction in various theories of equilibrium of a system — physical, chemical, or other. Such are two theories of van't Hoff's law of movable equilibrium, generalized later in the theorem of Le Chatelier. In the formulation of W. Ostwald, it runs as follows:

> If a system in equilibrium is subjected to a constraint by which the equilibrium is shifted, a reaction takes place which opposes the constraint, *i.e.*, one by which its effect is partially annulled.[6]

In other words, "whenever changes in external condition of a system are produced, processes also occur within the system which tend to counteract the effect of the external changes."[7]

Along the same line moves the interpretation of Cournot, that the primary effect of the force disturbing the equilibrium of a system immediately diffuses throughout the whole system and has to overcome the resistance of the cohesive or liaison forces between the elements of the system, meeting thus the resistance of the system as a whole. In this process of overcoming the resistance, it progressively decreases in its force; the decrease leads to a decrease of the disturbance or the amplitude of the oscillations, and eventually, if the disturbing force is not overwhelming, it spends itself in this overcoming of the resistance, and results in the re-establishment of the equilibrium of the system, and in a rhythm.[8]

Other theories represent a variation running along somewhat similar

[5] *Ibid*, pp. 269–271.

[6] W Ostwald, *Principles of Inorganic Chemistry*, translated by W. Findlay (London, 1902), p 130

[7] A Findlay, *The Phase Rule and Its Application* (London, 1904), p 56.

[8] The same explanation is given by H. Spencer (*op cit*, pp. 270–271) in his theory of the "cohesive tension" These principles are in a sense a modification of d'Alembert's and Lagrange's principles of virtual displacement, virtual work, and virtual velocity, and consequently a derivative of their formula of equilibrium that embraces the state of rest as well as moving equilibrium, and that runs as follows in the contemporary formulation "The equilibrium of a material system is given when the resultant of the applied forces, the forces of liaison and that of inertia, mutually annul one another and give zero" P. Appel et S. Dautheville, *Précis de mécanique rationelle* (Paris, 1924), p. 505. Also E. Mach, *The Science of Mechanics* (Chicago, 1902), pp. 49 ff. See further on Equilibrium in this chapter.

lines. Such are the theories that ascribe the rhythm either to the presence of two mutually inhibiting forces, or to more numerous combinations of these, where now one, now another force becomes dominant, and such an alternation of domination results in a rhythmical oscillation of the process and in a recurrence of similar phases in it. Theories of that kind are numerous in the field of mechanics, physics, biology, and sociology. It is easy to see that such a theory represents a variation of the Spencerian theory that "rhythm results wherever there is a conflict of forces not in equilibrium." [9]

Do these principles explain satisfactorily the fact of recurrence of similar "punctuations" and rhythms in the sociocultural processes? In a way they do; and in a way they do not.

We may agree that for existence of rhythm the presence of antagonistic forces not in equilibrium is necessary. But does it follow that "rhythm results wherever there is a conflict of forces not in equilibrium," and that "if the movement cannot be uniform, then in absence of acceleration and retardation continued through infinite time and space (results which cannot be conceived) the only alternative is rhythm"? These conclusions are rather questionable in application to sociocultural change. One of the possible results of a conflict of forces or presence of a multitude of forces always varying can be a nonrhythmical, though ever new movement of the system, and especially, its quantitative and qualitative change. If the forces are numerous and ever changing in number, power, and direction, the result may be a trajectory similar to some fanciful path or highway, with ever new directions, curves, patterns, being now circular, now straight, now rhythmical, with turns both sharp and gradual, now to the south, now to the north, or east, or west, or northeast, or southwest; with motion, now uniform, now accelerating, now retarding, its changes spaced at different intervals; in brief, exhibiting no conspicuous recurrences or rhythms. If, instead of trajectory of motion, we take a change in sociocultural system (and in fact we deal with change but not with motion), considering the inexhaustible richness of the possible qualitative, quantitative, "substantial," "spatial," "tempo and time" properties that a system in process can have, the possibility of a process which is neither cyclical, nor rectilinear, nor rhythmical, but

[9] A different argument of Fechner is tautological, therefore invalid for this reason G. T. Fechner, *Einige ideen zur Schopfungs — und Entwickelungs — geschichte der Organismen* (Leipzig, 1873), chap. iii, quoted in translation of L. J. Henderson in his *The Order of Nature* (Cambridge, 1917), pp. 229–230.

at any new stage has ever new characteristics emergent only at a given moment and not repeated at all — such a possibility is quite thinkable. Considering that actually almost any sociocultural system exists and changes amid a multitude of external forces of the most different quality, quantity, power, and direction, the possibility of a process without any recurrence becomes not only thinkable but more probable than a recurrence of similar rhythms in it. "History never repeats itself," sums up well such a possibility. And the nature of historical reality that is ever new is in a sense an evidence of the real existence of such a possibility. Spencer's conclusion that "rhythm results wherever there is conflict of forces not in equilibrium" and "is the only alternative," overstates the situation and admits of only one possibility, where in fact another — and one more easily conceivable — is certainly present. This means that in application to sociocultural change, his deduction is unwarranted logically, and therefore does not explain the cause of rhythms in the sociocultural processes that proceed amidst an enormous number of the widest diversity of ever-changing external conditions and forces.

That this is so, Spencer himself testifies, inadvertently. He says: "Plants do not, indeed, usually show us any decided periodicities, save those determined by day and night, and by seasons." [10]

We may ask: If the law of rhythm is a "general law of movement," or "a necessary characteristic of motion" (and of any change, as Spencer means and says), then why do plants not exhibit this law except in one form? If Spencer had shown that plants function *not* amidst a "conflict of forces not in equilibrium" he may have explained the exception. But he does not even claim such a peculiarity for plants. We read further: "It is not manifest that the changes of consciousness are in any sense rhythmical." [11] We may ask again "Why?"

Even the few cases of rhythmical mental and psychosocial processes which he mentions, he has to qualify as "irregular." [12]

Why? If even these few processes he finds only remotely, confusedly, and irregularly rhythmical, still less can we assume that all the millions and millions of sociocultural process are rhythmical, because rhythm is the only alternative whenever conflicting forces not in equilibrium are present. This explains why the principles of

[10] *Ibid.*, p 261.
[11] *Ibid.*, p. 264.
[12] *Ibid.*, pp. 267, 269, and others.

Spencer are insufficient for an explanation of why many sociocultural processes are rhythmical or have recurrent punctuations. Still less can they explain why some of the rhythms are periodical.

What is said of the inadequacy of the Spencerian answer to our "Why?" with a variation can be said of all the other theories mentioned. It is easy to invoke the prestige of the "law of action and reaction," [18] or the principles of mechanics concerning equilibrium, but it is exceedingly difficult to show that these principles are applicable to our "Why" and that they explain indeed why and how rhythms are possible in many sociocultural processes that persist amidst a diversity of ever-changing external (to each) conditions, and why some of the rhythms are double, some triple, etc., in the number of their phases.

In fact, practically all these theories use an argument of *pure prestige and analogy,* instead of demonstrating the application of these laws to the problem.

We may grant that the law of action and reaction works in the field of sociocultural processes, but how shall we apply it and show that it works indeed, and explains the phenomena of rhythm there? Suppose we have a rhythm in the development of painting (visual-idealistic-symbolic), or in the political field (aristocracy-oligarchy-democracy-tyranny, or monarchy-republic-constitutional monarchy). How to interpret such a rhythm in terms of "action and reaction"? Is the "reaction" to visual painting an Ideational or Idealistic style? If Idealistic, why that instead of Ideational? If Ideational, then why not Idealistic?

If we have a recurrent rhythm, monarchy-republic-constitutional monarchy, which of these forms is action and which is reaction? And why? And where is there equivalency of action and reaction? If nominalism, realism, and conceptualism fluctuate in their domination, which of these is action and which reaction, and to which? And so on and so forth.

And where is there the equivalency or equality of the action to reaction? Or reaction to action? If there is such equality, how is it measured, through what criteria, and with what units? The answer is that most of the criticized theorizers hardly even raise such questions and still less attempt to answer them. They just refer dogmatically to the law of action and reaction and stop at that. Such an

[18] Though this law itself is a kind of mystery when one tries to comprehend it. See E. Meyerson, *Identité et realité* (Paris, 1912), *passim,* and chaps. ii, iii, iv and v.

appeal to the prestige of that law and to purely analogical dogmatism is evidently neither an explanation of the rhythms, nor a real application of the law, nor a scientific procedure in any way.

The same can be said of the explanations of the sociocultural rhythms centered around the concept of equilibrium. We grant, according to the principle of Le Chatelier, Spencer, and others, that when a system is subjected to external disturbing influence, certain processes start in the system that tend to counteract the disturbing effects — the principle which I expressed in the form of the statement that any system has a margin of autonomy from external forces. Granting this, we seemingly have some explanation of some of the rhythms, as a result of the alternation of the dominations of the disturbing forces, succeeded by that of the forces of the inner cohesion of the system.

When, however, we try to apply the principle factually, beyond its purely analogical use, we find ourselves up against insuperable difficulties. Suppose there is such a rhythm in the process of science, as the alternation of the periods of "fact-finding" and "synthesis" (the rhythm stressed by Spencer, Claude Bernard and others). Let us grant further that a given science, say, physics or sociology, is a system (integrated unity). Can we apply our principle of equilibrium to it and explain through it the given rhythm? As soon as we try to do that, we are lost. Indeed, let us assume that a given science is now "at the state of fact-finding equilibrium." To get it out of that state, we need an external disturbing force or constraint. What is it? And where shall we look for it? Which one out of the millions of external forces amidst which science exists shall we take for such a force or forces?

Nobody can answer this first and easiest question. Meanwhile, it should be answered, if the principle of equilibrium is not a mere word or analogy: it should be shown that in such a state of equilibrium of science such and such external forces always appear and try to thrust it out of that equilibrium of fact-finding. If this first difficulty is overcome, then a host of new ones awaits us.

The next difficulty is to explain how and why such disturbing forces during a given length of time (which is an interval of several years, anyhow), do not succeed in breaking the fact-finding equilibrium, while after that time they do succeed in doing it. What is the reason?

Is it that the cohesive forces of the science system during the first

period are stronger than the disturbing forces, and therefore successfully resist the attack of the disturbing forces? Is it that the disturbing forces during that time have not gathered full momentum? If either one of these suppositions be true, how is the relative power of the cohesive forces of the system and of the disturbing forces to be measured? With what unit? Without a demonstration of this, the statement loses any real validity. Meanwhile, such a demonstration has never been given in the field of social phenomena.

The next difficulty is to explain how and why the "fact-finding equilibrium" is finally broken by the disturbing forces that seemingly become dominant. Why and how do they become dominant at a given moment? For what reason? Why and how, beginning with such a moment, do the cohesive forces of the system weaken and give up? We do not have an answer.

The next, more appalling difficulty is to explain why the fact-finding equilibrium is eventually replaced by the equilibrium of theoretical synthesizing. How and from where did it come? Why is the science system, having lost its "fact-finding equilibrium," not broken into pieces, and why does it not remain in an anarchical state of chaos, or why is it not replaced by an "anti-scientific" (say, religious) equilibrium of synthesis and theorizing? Our principle does not answer these questions.

Nor does it give an answer to the question: What are these forces of the equilibrium of synthesis? Whence did they spring up? How and why have they grown to be dominant? Has it been due to some internal changes in the system, or to a certain combination of external conditions? If to either, how and why?

Then again, all these "why's" reappear in regard to the equilibrium of synthesis while it exists, and also when it is broken and replaced again by that of fact-finding.

As soon as such real application of the principle of equilibrium to the explanation of the sociocultural rhythms — in science or in any field of culture and society — is attempted earnestly, we see that in fact it has never been made, and, within our present knowledge, hardly can be made. All that has been attempted along this line is but a rather naïve application of analogy and appeal to the high-sounding prestige of the principle of equilibrium. In order to see that still more clearly, let us make a more substantial analysis of the application of the principle of equilibrium in the social sciences. Such an analysis may turn out to be instructive in many ways.

III. Criticism of the Principle of Equilibrium in Its Application to Sociocultural Phenomena [14]

Not only as an explanatory principle of rhythms in sociocultural processes, but as that of many other sociocultural phenomena, the principle of equilibrium has been widely used in the social sciences. In spite of this, it appears to me inadequate and *represents a liability rather than an asset in the social sciences, and, for this reason, should be dropped rather than used in these disciplines.*

When one surveys the meanings given to the term "equilibrium" in the social sciences, one sees at once, first, that it is used with very diverse meanings; second, that most of the meanings are unsatisfactory, being either unclear, or self-contradictory, or meaningless; third, that where the meaning is more or less satisfactory, there are other terms and concepts within the social sciences expressing the same meaning better and more adequately than the term "equilibrium." Let us concisely substantiate these contentions.

Main Meanings of Equilibrium in the Social Sciences

The term "equilibrium" is used in the social sciences with at least five different meanings.

A. *Concepts identifying equilibrium with a state of being at rest.* A considerable number of the concepts of equilibrium in the social sciences mean that the respective social phenomena are in an unchangeable static state, or the state of being at rest, be it price, or the relationship between demand and supply, the *status quo* in a political, religious, or other system; or the static state of the whole system. Such, for instance, is the ultimate sense of H. Spencer's concept of equilibrium.

> In all cases (of motion) then, there is a progress toward equilibration. . . . Every motion under resistance is continually suffering deductions; and these increasing deductions finally result in the cessation of the motion.[15]

Farther on, he distinguishes the *mobile equilibrium* exemplified by the motion of the spinning top; however, such a mobile equilibrium sooner or later "lapses into complete equilibrium." It is but "a transitional state on the way toward complete equilibrium." [16]

[14] This is an abbreviated version of my Presidential Address at the Thirteenth International Congress of Sociology: "Le concept d'equilibre est-il nécessaire aux sciences sociales," *Revue Internationale de Sociologie*, September-October, 1936.

[15] H. Spencer, *First Principles* (London, 1870), chap. xxii, pp. 483–85.

[16] *Ibid.*, pp 485–89.

Thus, in spite of the several varieties of equilibrium mentioned by Spencer, it is ultimately identical, for him, with a state of being at rest. Death, however, is regarded in one place as the "overturn of the balance" — which is both somewhat dark and contradictory to his former statements; while in another place it is defined as "the complete equilibration which we call death." [17]

Whatever happens to an organism — its movement or rest, good or bad adaptation, destruction of life or its preservation, and finally life or death — everything is equilibrium. Whatever happens to society: war and peace, order and disorder, prosperity and depression, all is again equilibrium.[18] Thus A and non-A both are equilibrium. This shows that the concept is already so all-embracing and so plastic that practically it has little, if any, definite meaning. If one should say what is *not* equilibrium under these conditions, he would find hardly anything that is not an equilibrium.

To crown all the above inconsistencies and the dumping together of the most different things into one concept of equilibrium, Spencer concludes his chapter with two statements which are stunning in their contradiction. First, he says that the process of equilibration has to go on in the whole universe until a complete equilibrium of universal death is reached. "The proximate end of all the transformations (in the whole universe and in the human universe) is a state of quiescence" and "omnipresent death," "which brings Evolution under all its forms to a close."

Two pages farther on, Spencer assures us that the process of equilibration in man and society represents

> a gradual advance towards harmony between man's mental nature and the conditions of his existence. . . . Evolution can end only in the establishment of the greatest perfection and the most complete happiness. [!] [19]

Unless this "perfection and happiness" mean death — which can scarcely be accepted, because it is difficult to talk of happiness or unhappiness in death, and apply to death these concepts of feelings and experiences of a living creature — I cannot put together these contradictory statements. They are utterly irreconcilable. And yet it is comprehensible why Spencer ended with this contradiction, since his concept of equilibrium embraces both motionless balance and motion, harmony and disharmony, adaptation and maladaptation, life and

[17] *Ibid.*, pp. 498–501. [18] *Ibid.*, pp. 507–513. [19] *Ibid.*, pp. 514–17.

death, fortune and misfortune; in brief, everything. Such are the tricks which a bad concept of equilibrium plays upon its authors.

The brief analysis of Spencer's concept discloses already some of its disadvantages. The reason for all his blunders is to be found in an attempt to apply a concept of mechanics to phenomena which are rarely, if ever, at rest in the sense of the state of rest in mechanics; and which are not so much quantitative — as are the phenomena of mechanics — as they are qualitative. Hence, the contradictions mentioned. These remarks give an idea of why I style the concept of equilibrium a liability rather than an asset in the social sciences.

But the legion of social scientists who use equilibrium in the sense of a state of being at rest is not limited to Spencer. Here are a few other examples.

> The germ idea of an economic equilibrium is simply that of balance of many forces operative upon a price configuration, which configuration, with respect to the balanced forces, remains in a state of rest.[20]
>
> Economic equilibrium can then be defined as a state which will be maintained indefinitely if no changes occur in the elements of economic life.[21]

Implicitly and explicitly, this meaning of equilibrium, often styled "static," is found in the concepts of equilibrium of G. Cassel ("stationary equilibrium"),[22] A. Marshall,[23] J. B. Clark,[24] V. Pareto,[25] partly W. S. Jevons,[26] R. W. Souter,[27] and many others.

It must be rather evident that this concept of equilibrium is little, if at all, applicable to a social system, or to social processes and social phenomena generally: first of all, because social systems and processes are in a state of incessant flux, change, modification, transformation and movement. These may be now gradual and slow, now sudden and rapid; but they are hardly in a state of rest. Therefore the concept of equilibrium in that sense is either inapplicable, or — and this is what it really means in many works mentioned — it means a com-

[20] H. L. Moore, *Synthetic Economics* (New York, 1929), pp 19–20.

[21] W. I. Zawadski, *Les mathématiques appliquées a l'économie politique* (Paris, 1914), pp 124–25.

[22] G Cassel, *Theoretische Nationalokonomie* (Leipzig, 1918), pp 23–27.

[23] A Marshall, *Principles of Economics* (London, 1925), pp. 333–34. Also "Distribution and Exchange," *Economic Journal* (1898), pp. 38 ff.

[24] J B. Clark, *The Distribution of Wealth* (New York, 1922), pp 63 ff, 401 ff. Also *Essentials of Economic Theory* (New York, 1922), pp. 127 ff.

[25] V. Pareto, *Cours d'économie politique* (Lausanne, 1887), Vol II, pp. 9–13.

[26] W. S. Jevons, *The Theory of Political Economy* (London, 1888), pp. 95 ff.

[27] R W Souter, "Equilibrium Economics and Business Cycle," pp. 46, 58, *Quarterly Journal of Economics* (1930), pp. 40–93.

paratively slow and gradual change contrasted with a sudden and rapid change.[28] Such a meaning is already a departure from the initial meaning of "the state of rest."

In the second place, the concept of equilibrium discussed, if it is used rigorously, forces us to declare all the sociocultural phenomena which are in a state of change (movement, transformation, motion, or modification), as the phenomena of disequilibrium. As practically all the sociocultural phenomena are in a process of change, we have to declare almost all of them as in a state of permanent disequilibrium. Such a result leaves little use for equilibrium in the field of social phenomena; it throws almost all the social world into "the inferno of a perpetual disequilibrium"; and finally, what is still more important, it dumps into the one ditch of disequilibrium the most different and often opposite processes, the most contrasting states of various social systems, the most opposed forms of social life. In other words, the concept of disequilibrium, embracing all these opposite and different phenomena, becomes practically meaningless.

In the third place, the concept does not have the virtue even of being faithful to, or identical with, the concept of equilibrium in mechanics; therefore it does not have even the formal clarity of a general concept of equilibrium. It attempts to ape the concept of equilibrium of mechanics, but it fails in its imitation. Why? Because, after the introduction of D'Alembert's and Lagrange's principle of virtual displacement, virtual work, virtual velocity, and so on, the equilibrium of mechanics does not mean a state of rest specifically, but any state — at rest as well as in motion — when the sum total of the external forces applied to the material system annul one another and give a zero result.[29]

> The equilibrium of a material system is given when the resultant of the applied forces, the forces of the liaison and that of inertia, mutually annul one another and give zero.[30]

Fourth, if the concept in this sense, as a state of rest, is consistently applied to the various social problems to which it has been applied, the

[28] See, for instance, W. Souter's, partly A. Marshall's, W. Zawadski's, and other works, quoted.

[29] See H. Crew and K. K. Smith, *Mechanics for Students of Physics and Engineering* (New York, 1930), p. 39.

[30] P. Appel et S. Dautheville, *Précis de mécanique rationelle* (Paris, 1924), p. 505. See there and also in E. Mach, *The Science of Mechanics* (Chicago, 1902), pp. 49 ff., the details and mathematical formulation of the principle.

result is perfectly absurd. For instance, many theories contend that any social system exists so long as it holds its equilibrium; as soon as its equilibrium is broken, it ceases to exist. Now, if equilibrium means a state of rest, then many most vigorous and robust social systems and organizations, especially those that are in a process of rapid growth, have to be declared dead and nonexistent, while the life duration of all the other social systems and organizations has to be declared as short as that of a butterfly, because the duration of the state of rest or unchangeableness in most social systems — if such moments are ever given at all — is exceedingly short. Many social organizations that have existed for years, decades, centuries, and even for thousands of years,[31] have to be declared either as existing only for a few moments, a few days or weeks, or as being able incessantly to die and to be resurrected. In all these cases we have noticed only logical and factual absurdities. These remarks are sufficient to point out why this concept of equilibrium is a mere liability in the field of the social sciences, and why it has to be rejected. Let us now take the other main concepts of equilibrium in the social sciences.

B. *Concepts identifying equilibrium with a momentary state of rest, interpreted often in an ethical or evaluative sense.* As a variety of the above-described concept of equilibrium, the concepts that identify it with a *momentary state* of rest must be mentioned. Such equilibrium is often qualified as "unstable," sometimes "momentary static," and the like. It might not be mentioned specifically, if its use were not associated with the rudest "*quarternio terminorum*" and other evident logical blunders. The following is an example.

> A business firm grows and attains great strength, and afterwards perhaps stagnates and decays; and at the turning point there is a balancing or equilibrium of the forces of life and decay.[32]

A. C. Pigou's unstable equilibrium is of this class also. A system "is in unstable equilibrium if the small disturbance calls out further disturbing forces which act in a cumulative manner to drive the system away from its initial position." "An egg poised on one of its ends" is an example of this unstable equilibrium of Pigou.[33]

V. Pareto also uses a variety of this concept of equilibrium.

[31] See the factual duration of various types of social organizations in P Sorokin, "Life-Span, Age-Composition and Mortality of Social Organizations," *Mensch en Maatschappij*, 9e Jaargang, pp 69–85

[32] A. Marshall, *Principles*, quoted, pp. 323–24.

[33] A C. Pigou, *The Economics of Welfare* (London, 1929), pp. 792–93.

Let A stand for an individual's desire to drink wine, and B for a fear he has that it may injure his health. The man drinks one glass of wine, then a second, and then he stops, because after the second glass the fear effectively curbs the thirst. . . . The intermediate stage in which the individual has drunk the first glass of wine and is about to drink another, in which, that is, the work of A and B is not yet completed [What is meant by this completion?], is described in mechanics by saying that an equilibrium has not yet been attained. The stage in which both the thirst and the fear have completed their work [? ? ?] so that the individual ceases drinking [Does not this mean that fear continues the work and crushes the desire to drink?] is described in mechanics by saying that an equilibrium has been attained. [Mechanics would hardly say *that* in application to this specific case.] By analogy, not from identity, we may likewise use the term *equilibrium* for an economic or a social situation.[34]

To this class belong many other definitions of equilibrium; those of F. Fetter,[35] W. Zawadski,[36] W. Souter,[37] partly of Clark, Jevons, S. C. Haret,[38] and others.

In all these concepts equilibrium is thought of as a momentary state of rest in a system, when two opposite sets of forces mutually counterbalance one another, or mutually annul one another. According to some, such a moment is actually reached by a system; according to others, it is never reached, but represents a theoretical point which may be reached; finally, according to many, it is reached, and, at the same time, it is not reached at all.

What should be said about this variety of the concept of equilibrium in its application to sociocultural phenomena? First, practically all the objections raised in regard to the preceding concept of equilibrium, as a state of rest, are applicable to this variety. But, in addition, it has its own shortcomings.

(1) If, by definition, such a state is momentary, or, according to some, is never even achieved by a system,[39] then its working applica-

[34] V. Pareto, *The Mind and Society* (English translation of his *Trattato*, New York, 1935), §§ 121–22; Vol I, pp 65–66 Like many others, Pareto uses another concept of equilibrium which will be discussed farther on.

[35] F. Fetter, *Economic Principles* (New York, 1918), Vol. I, pp. 399 ff.

[36] W. Zawadski, *op. cit.*, pp. 124–25.

[37] W. Souter, *op cit.*, p 58

[38] S. C. Haret, *Mécanique sociale* (Paris-Bucharest, 1910), pp. 67 ff.

[39] "This state (of static equilibrium) is never actually attained for adjustments cannot be made instantaneously and disturbing factors are always at work." W. Zawadski, *op. cit.*, pp. 124–25.

Modern economics "does not claim that these forces ever have attained — or ever will attain — that particular balance which is called general static equilibrium" W. Souter, *op. cit.*, p. 58. Also F. Fetter, *op. cit.*, p 399.

bility becomes either very limited, or, if it is never attained, its applicability becomes zero. On the other hand, the state of the disequilibrium of all social phenomena becomes, by definition, universal, permanent and all-embracing. As such, it embraces all the processes and phenomena and systems, however different they are from each other. The result is that instead of creating a definite concept, we create a concept of disequilibrium where one can put anything and everything. Evidently such a concept is not a scientific concept at all.

(2) So far as the terms equilibrium and disequilibrium have evaluative connotations — and in the use of these terms by the authors these connotations, as we shall see,[40] are almost always present — it gives a peculiar social and ethical color to almost the whole of social life. Since in the life of a business firm, of a man, or of any social system or social process, the state of rest is, at the best, momentary, or is even never attained; and since the state of equilibrium is most frequently identified by the authors with the state of "harmony," "adjustment," "normalcy," "maximum utility," and "well-being"; while the state of disequilibrium is identified with "disharmony," "maladjustment," "pathology," etc., the conclusion is reached that the whole social life and the life of any system or person is an unceasing disequilibrium — a kind of permanent pathology, abnormality, maladjustment, and the like. Such a conclusion looks like that of a person mentally ill, who thinks that except for himself the whole world is crazy.

(3) That, however, is not all. One may ask why we should regard the above "turning points" — in Marshall's case, the moment of the zenith of the firm; in Pareto's case, the moment after drinking the second glass of wine; and the respective moments of "adjustment" in other concepts — as the points of equilibrium? Are these moments in reality the moments when the respective system is at rest; does not live; does not change; does not move? The answer is rather simple: no, the system — whether an organization, a person, or any cultural system — continues to live; therefore it continues to change; therefore it continues to be in "motion." And perhaps A. Marshall himself, in his "Distribution and Exchange" (quoted, pp. 40–43), indicates

[40] That such evaluative connotations and the respective shift of meaning are present in the concepts of equilibrium of this kind, one can see even from the above quotation of A. Marshall. For F. Fetter and many others it is the "point of adjustment" or "adaptation." For still others, like F. Y. Edgeworth, it is the point or moment when "the integrated utility of the whole economic system should be at maximum." F. Y. Edgeworth, *Papers Relating to Political Economy* (London, 1925), Vol. II, pp 295–96.

the inadequacy of transporting from mechanics to the field of social phenomena the concept of a "state of rest," and of the unlawfulness of its application to these phenomena.[41] That is exactly the point. In mechanics, which deals with quantities only, the state of rest is clear, helpful, and adequate. When it is taken into the qualitative world of socio-psychocultural phenomena, it becomes almost an empty term, devoid of any meaning.[42]

To identify equilibrium as Pareto does, with either a satisfaction of desire, or an abstention from its satisfaction for various reasons, or an inhibition of it by this or that agency, is neither to show that these states are the state of rest, nor to clarify the nature of these phenomena by the addition of the word equilibrium, nor to create a homogeneous class of equilibrium out of all these qualitatively different states and processes. The introduction of the concept of equilibrium would perhaps be fruitful in all such cases if we had had some means of measurement of the comparative "force" of the desire to drink and of the fear. Knowing the comparative "force" of A and B, applied to the individual, we would be able to predict at least which of the two forces would prevail, and what course the behavior of the individual would follow. But, alas, such a situation does not exist in Pareto's and other similar cases. We cannot talk here of mutual annulment of forces A and B; we do not have any measuring stick to decide their comparative power; we do not have a unit of force; neither can we determine here virtual displacement, virtual velocity, or virtual work. In a word, there are none of the elements of mechanical equilibrium. Therefore, in the factual situation, it is not a concept of equilibrium which helps us to decide what is to be the issue; but rather the factual observed issue alone permits us to say something about the presence or absence of a hazy pseudo equilibrium. In other words, in the qualitative world of situations, as in Pareto's case, the introduction of the concept of equilibrium does not have any heuristic value; it does not increase our knowledge; it becomes a mere "parasitic" attachment.

C. *The concept of equilibrium identifying it with mutual limitation or inhibition of two or more social organs, functions, agencies, or forces.* Even as early as Confucius' concept of "harmony and equi-

[41] A. Marshall, *op. cit.*, p. 43.

[42] Terms like "rest," "relaxation," "recreation," "holiday," and even "sleep" do not mean here a rest in the sense of a lack of any motion or activity. Even "sleep" is activity, and very much so. Even not drinking the third glass of wine, in Pareto's case, is an activity, and sometimes a very strenuous one for a habitual drinker.

librium," this meaning was already given to the term "equilibrium." Polybius' famous political system of check and balance is another example of it. Later on, in the political, social, economic, and, of course, biological theories [43] this concept of equilibrium has been widely used. Beginning with the famous political formula of the divisions of the functions and power in the state government, and ending with the doctrine and practice of "the equilibrium of powers" in international relationships, along with many other forms, this concept of equilibrium is widely used and accepted. It points out that there are "limits" for the development or growth of most organs and agencies of a system; there is a "limit" for the movement of many social processes along a certain trend; there are "limits" even in the causal or functional relationship of two or more social variables.[44] In so far as the concept points out, unifies, and tries to describe the large class of social relationships of this type, it is scientifically valuable and serves as a useful instrumentality.

Another thing to be considered is whether we need the term "equilibrium" for such an analysis, unification, and description. I am inclined to think that at the best it is useless, and in addition is a liability. So far as it has a definite meaning, its use in the above sense — a sense very different from that of mechanics — leads to many misleading ideas suggesting that it is the same concept as that of mechanics, and with the same meaning, and therefore can be relied upon, treated, and used for deductions and conclusions in the same way as equilibrium in mechanics. Such conclusions and deductions would certainly be misleading, because the above concept has little in common with that of mechanics. If this is not realized, the result will be one additional theory of "Social Mechanics," of which theories we have an abundance and which have all proved themselves sterile and inadequate.[45] Instead of a real and direct study of these processes of the immanent generation of inhibitory forces, such a term and concept may lead to mere analogical theorizing along the line of the principles of mechanics, which would probably be as fruitless as all the similar attempts made hitherto.[46]

[43] A recent good example of it in biology is given by W B. Cannon in his *Wisdom of the Body* (New York, 1933).

[44] See next section of this chapter on Principle of Limit.

[45] Concerning these theories see P. Sorokin, *Contemporary Sociological Theories*, chap i.

[46] On this, see particularly T. Rainoff, "On Economic Equilibrium The Problem of Equilibrium in Classical Mechanics and Economics," *Voprosy Konjiunktury* (in Russian),

On the other hand, without using the concept of equilibrium, we can analyze, unify, and describe the respective classes of phenomena as well as, and probably even better than, we can by using it.[47] For instance, the above principles of "immanent change and generation of inhibition," associated with the principle of "limit," make perfectly needless the principle of equilibrium.

D. *Concepts of equilibrium identifying it with "adaptation," "adjustment," "maximum utility," "normality," "harmony," "usefulness," "fitness," "effectiveness," "survival," "harmless mutual limitation," the "suum quique," and other normative and evaluative notions.* The above concept of equilibrium, in the sense of mutual limitation, is not always used to mean a purely factual immanent generation of the inhibitory forces, but often is complicated by the injection into it of some kind of "normative" elements; such as an ethical, or utilitarian, or other "norm" of some value. An example of this is given in Professor Duprat's concept of opposition and limitation *"sans se nuire,"* without the *"détriment d'autres."*[48] It is evident that the notions of "harm" and of "detriment," as well as those of "utility," "usefulness," "well-being," "sanity," and so on have nothing to do with mechanics, and represent an injection of the normative-evaluative elements into the concept of equilibrium. There is an enormous variety of this type of concept of equilibrium. Here are a few additional examples.

Economic equilibrium may be regarded as determined by the condition that the advantage of all parties concerned, the *integrated utility* of the whole economic system, should be *maximum*.[49]

Here, under apparently mathematico-positive form, an evaluative element — maximum utility — is made decisive in the concept of economic equilibrium. Similar normative elements permeate in a sense

Vol. III, pp. 93–114, Vol. IV, pp. 86–120. It is one of the best analyses of the problem, which shows the incompatibility of the concept of the equilibrium of mechanics with economics See also some criticisms of H. L Moore's moving equilibrium in E W Gilboy, "Demand Curves in Theory and Practice," *Quarterly Journal of Economics* (1930), pp. 601–20.

[47] It is to the credit of Professor Cannon that he introduced for the description of somewhat similar phenomena in biology a term quite different from that of equilibrium. See his *Wisdom of the Body* mentioned.

[48] See G L. Duprat, "Introduction a l'étude des équilibres sociaux," *Revue Internationale de Sociologie*, September-October, 1936 See there also E. Lasbax, "La sociologie et la notion d'équilibre."

[49] F. Y. Edgeworth, *op. cit.*, pp. 295–96.

the concept of A. Marshall, who, playing with biological analogies, views equilibrium as a climax of the growth (before the beginning of the decay) of an organism, tree, business firm and so on.[50] Almost all the economists are using widely such terms as adaptation, adjustment (with maladjustment and other derivatives) as a substitute or even as explanatory terms for "equilibrium." Such terms almost always have the evaluative elements and normative connotations. Therefore, the equilibriums defined through such terms have these also. For example: "Each individual is seeking to find the best adjustment for himself. . . . If for a moment this is attained, there results an equilibrium for each individual." "General adjustment" for the whole economic system is styled as "general equilibrium." [51]

Likewise, the term "harmony" (resulting either from a free competition or free play of economic forces) has been used as an equivalent for equilibrium, not only by the Physiocrats, but also by A. Comte,[52] H. Spencer,[53] A. Toynbee [54] and by a large number of economists. Another disguised form of the marked "normativism" and "evaluativeness" in economics is presented by the term "normal," quite often used as an explanatory concept for the very definition of economic equilibrium. "Equilibrium price" is often defined as "normal" price. So with other "equilibrated" economic phenomena.

I have nothing against any of these normative and evaluative concepts; but I object strenuously to the identification of any of these with equilibrium; and especially to the covering of all these different notions and norms by the same term of "equilibrium" (and respectively for "disequilibrium"). It must be evident that in this last sense the concept of equilibrium becomes empty: a mere kind of bag that holds "solidarity," "well-being," "adaptation," *"suum quique,"* "justice," "sanity," "harmony," "normality," and many other notions, each defined poorly and each being different from the others.

It is also evident that equilibrium in any of the three above-mentioned senses — as a state of rest, as a momentary state of rest, and

[50] See especially his *Distribution and Exchange*, quoted, pp. 43–44. These elements permeate it in many other forms. And generally, however paradoxical it may appear at first glance, economic theories of value, of utility and price, the concepts of general and special equilibrium, all have an abundant amount of the normative and evaluative elements, often masked under the cloak of "positive" — even "quantitative" — terminology.

[51] F. Fetter, *Economic Principles*, Vol. I, p. 399

[52] A. Comte, *System of Positive Polity* (London, 1875), Vol. I, pp. 335, 356–57.

[53] H. Spencer, *First Principles*, pp. 498, 507.

[54] See a *Study of History*, Vols. III, IV, V, *passim*.

as mutual limitation — is something quite different from any of these normative notions. War between two parties is a case of mutual inhibition; but it is hardly a case of solidarity or harmony or adaptation. Adaptation consists in a possibility of satisfaction of the main needs of an organization or group; but it has little to do with either a state of rest, a momentary state of rest, or the mutual limitation and inhibition of two or more forces. Nonexcessive or proportional development of various functions or capacities of an individual may represent a case of the mutual limitation of these functions, without detrimental effects for each of these capacities. When, however, the case is viewed from a normative standpoint, it often gives "well-rounded mediocrity" as the "equilibrium ideal," while many a genius, with an excessive development of literary, musical, mathematical, or other ability — often at the cost of the other functions — has to be estimated in that case as something "disequilibrated," and, therefore, inferior to the "average well-rounded mediocrity." The command: "Don't do to others what you would not have done to yourself" may fit the formula of equilibrium as the nondetrimental limitation of each participant. But we may seriously question whether this "positive ideal," as a norm, is superior to the norm: "Sacrifice your life for others," or "Requite hatred by kindness and love your enemy," which looks as if it were an excessive disequilibration. In brief, the mixture of equilibrium as a mathematical notion with a normative concept disfigures both: it robs the concept of equilibrium of its definiteness and it depresses the ethical, aesthetic, and other social norms, and often deprives them of their normative value.

To sum up: equilibrium in any of the above four senses (A, B, C, D) plus the following sense (E) is in no way identical with, or similar to, any of the normative notions: be it "harmony," "solidarity," "adaptation," "usefulness," "adjustment," "utility," "fitness," "well-being," "harmless limitation," "co-operation," "peace," "sanity," "proportionality," "the Golden Rule," "love your enemy," or anything similar. In defining these norms we are not obliged to pay the slightest attention to what in each case would be the relationship of the *mechanical* forces, their velocity, and direction; and vice versa, the equilibrium of mechanics has nothing to do with "adaptation," "adjustment," "love," "sanity" and other normative notions. In the treatises of mechanics, such terms are not found at all. Explicit or implicit mixture of these two sets of concepts always results in bad ethico-logical hash.

E. ***Concepts of equilibrium identifying it with a tendency of a social system, when disturbed, to return to its previous status, or to hold its "normal" trend or level.*** The fifth and probably the most important conception of social equilibrium is given by all the theories that in various forms identify it with that status of a social system which, being disturbed, tends to reassume its previous position or status or form. In the field of "special equilibrium," for instance, in the movement of price, the equilibrium respectively consists in the tendency of the price — in spite of disturbances that cause it to deviate now above, now below — to oscillate around a certain level that may be styled the level of equilibrium. Here are a few examples of this concept;

> A system is in stable equilibrium if, when any small disturbance takes place, forces come into play to re-establish the initial position.[55]
>
> A system in equilibrium tends, under the influence of a disturbing cause, to oscillate about its position of normal [what is this "normal"?] stability.[56]

So also, A. Marshall.[57]

> If an existing state of equilibrium is altered, forces tending to re-establish it come into play — that, no more, no less, is what equilibrium means.

(Note the *idem per idem* in this "rigorous" definition; equilibrium is defined through the "existing state of equilibrium.") [58]

A large number of other social scientists, many trying to follow Bernoulli's theorem of oscillations and Cournot's principle of decreasing amplitude of oscillations, repeat this variety of the concept of equilibrium.[59]

There can hardly be any doubt that of all the varieties of the concept of equilibrium in the social sciences, this particular variety is the most important, the clearest, and the most sound. As we have seen in Chapters Two, Twelve, and Thirteen, it is one of the fundamental characteristics of *any system, considered as a unified body in contradistinction to a mere congeries of various elements.* Whether such a system is mechanical, as, for instance, an automobile; or an organic

[55] A C Pigou, *op cit*, pp 792–93.

[56] H L. Moore, *Synthetic Economics*, p 10.

[57] A Marshall, *Principles*, quoted, pp 345 ff.

[58] V Pareto, *Trattato*, translated into English under the title *The Mind and Society*, sections 1210 ff, Vol. II, p. 727

[59] See, for instance, S. C Haret, *op cit.*, pp 67 ff.; A. Portuendo y Barcelo, *Essais de mécanique sociale* (Paris, 1925), pp 170 ff., C Gini, *Prime linee di patologia economica* (Milano, 1935), chaps. i, ii, *et passim*.

system, such as an organism; or a social system, as an organization, society, cultural system of science, art, ethics, or any other unified cultural system of values integrated causally and meaningfully — it is one of its most fundamental characteristics to possess in its functioning and life processes a margin of autonomy with respect to external forces, and to be a "self-regulating" unity, so far as maintenance of its identity, continuity, and development are concerned.

In the field of material bodies, as a system of material points, the concept of equilibrium is perfectly fitted to describe, analyze, determine, and even measure these phenomena. Bernoulli's theorem formulates the conditions under which a system in equilibrium tends, after being disturbed, to oscillate about its position of normal stability.

The situation is different, however, in the field of the partly biological — and especially the sociocultural — phenomena. As mentioned above, in the social sciences we do not have any of the concepts and units necessary for real determination and measurement of the tendency of a sociocultural system, upon being disturbed, to return to its "previous or normal" position. Therefore, the use of the term "equilibrium" becomes here purely analogical. We may, following Cournot, talk of the primary or direct effects of a disturbing cause upon the system, and of the secondary or indirect effects upon it, resulting from the liaisons between the elements of the system. But all this does not add a scintilla to the knowledge derived from the study of the fundamental properties of any system: since it is an integrated whole, there naturally are liaisons (our interdependence, see Chapter Two) between its parts and elements. Therefore the disturbing effects naturally tend to diffuse (our conductivity, see Chapter Two) over the whole system; the disturbing factor has to overcome the resistance of the whole system (our self-determination and margin of autonomy, see Chapters Two, Twelve, and Thirteen), and in this process of overcoming, progressively decreases in its "force"; and this decrease leads to a decrease of the amplitude of oscillations. All this and many other conclusions deductively follow from the very concept of an integrated system. All this can be deduced, analyzed, and described in the terms of the integrated system and its properties, without any use of the term "equilibrium," as we have shown. The statement: "A social system, when disturbed, tends to preserve its integrity," gives all that the concept of equilibrium, in this last sense, can give. Its use here, in contradistinction to mechan-

ics, does not provide any advantage, any better or deeper insight, knowledge and understanding of the respective phenomena. In this sense the term is useless.

Second, it is in many respects harmful. One form of harm can be seen already in the formulas of equilibrium quoted above, especially in the field of so-called general equilibrium of an economic, political, or any other sociocultural system. Most of these formulas talk of the "return to, or re-establishment of, the initial or previous position." Such a statement is rather misleading. Most of the social systems, being disturbed, rarely, if ever, return exactly to the previous or initial position that existed before the disturbance. They cannot do it also on account of their immanent change. After a depression, the economic system may return to prosperity, but it will be a prosperity different from that which existed before the depression. The political regime of monarchy may be re-established after a revolution, but it will be a different monarchy (even with the same dynasty) from the pre-revolutionary one. After a domination of "romanticism" in art, the art may return to "classicism," but it will be a "neo-classicism," different from the classicism of the pre-romantic period. Even in the field of so-called "special equilibrium," for instance, in the oscillation of price around a "normal" level, the return of the price to one of the preceding levels is not exactly a return or re-establishment of its previous or initial position.

These remarks indicate the inadequacy and inaccuracy of the formulas of equilibrium. Carried on by "imitative desire," the social scientists try to copy the formula from the natural sciences, forgetting the fundamental difference between the sociocultural and the inorganic phenomena. The result is a grossly inadequate formulation and description of the respective phenomena, which in fact do not return to their "initial or previous position or status." When, instead of "initial or previous," the term "normal" is used, the situation hardly becomes better, due to all the ambiguity of the term, when it is used in company with the mechanistic concepts and configurations. It loses a definite social meaning which can be given to it, and it does not acquire the virtue of being as clearly defined as the concepts of mechanics. Such is one shortcoming.

Another example of it consists in the assumption of a formula of equilibrium such that all the disturbing forces have to be *external* to the system; that every change which the system experiences (as a result of some disturbance) is to be regarded as produced by agencies

external to the system; and that the system as such cannot generate any forces for its own change and disturbance. This "externalistic standpoint," so typical of the whole contemporary mentality, is perfectly correct in application to the material systems of mechanics. But it is grossly incorrect in application to the organic and especially the sociocultural systems. As we have seen, change and disturbance is an immanent trait of these systems, as long as they function, even in an unchangeable or absolutely constant external *milieu*. (See Chapters Twelve and Thirteen.)

This point may appear unimportant; but in fact, as we have seen in Chapters Twelve and Thirteen, it is of cardinal importance. If it were properly understood, hundreds of theories of quasi-equilibrium, with a supposedly mathematical appearance, with two or more variables nicely settled on the axes of ordinate and abscissa, with all the proper X, Y, Z's and other more complex formulas and symbols of mathematics, and which, as a matter of fact, explain little if anything, would never have appeared.[60]

Without enumeration of other shortcomings that follow from the use of the concept of equilibrium in the sense discussed, the above is sufficient to show why even in this case the introduction of this term and concept does not present anything which cannot be described and formulated, even more precisely, through terms and concepts taken from the field of the social sciences and fitted to the nature of social phenomena; and why such an introduction is likely to lead to several inadequacies, inaccuracies, and errors.

Conclusions. The above five types of the concept of equilibrium embrace almost all the main types of this concept, as it is used in the social sciences.[61] However brief is the discussion of each type, I hope it is sufficient to make it plain that there are serious reasons for doubting the advisability and fruitfulness of using the term "equilibrium" in the field of the social sciences generally and of sociology particu-

[60] One of the most conspicuous examples of such a quasi-mathematical appearance is to be found in V. Pareto's pet "formulas" and quasi-mathematical descriptions of equilibrium. See V. Pareto, *The Mind and Society* (*Traité de sociologie générale*), sections 2067 ff. All his X's and diagrams and formulas remain practically without any contact with the concrete psychosocial material he gives in his work; beyond a purely analogical reasoning and analogical transcription of the quasi-mathematical, mechanical, and geometrical symbols and signs, he has not succeeded in building up any real theory of social equilibrium.

[61] See a few varieties of these types in R Streller, *Statik und Dynamik in der theoretischen Nationalökonomie* (Leipzig, 1926). Also his *Die Dynamik der theoretischen Nationalökonomie* (Tübingen, 1928), and in T. Rainoff's work, quoted.

larly.[62] *If the concept of equilibrium is thus either inapplicable, or, at the most, useless, in the study of sociocultural phenomena, it follows it does not and cannot account for sociocultural rhythms, periodicities, double, triple and more complex rhythms.* These considerations are sufficient to explain why all the above mechanistic explanations of sociocultural rhythms are mere analogies. For pedagogical purposes, such analogies have, perhaps, some value. As scientific theories of sociocultural rhythms, they can hardly be taken seriously.[63]

IV. Tentative Hypothesis: The Principle of Limits in Reference to Causal (Functional) Relationship, Direction of Sociocultural Change, and to the Range of Possibilities of Change of Systems

The net result of the preceding analysis is negative. Mechanistic theories do not account for our second "why." Does this mean that we shall give up the problem and acquiesce in the merely empirical: "It is so"? Such a course is certainly the easiest, but it does not get us anywhere. The above "why" still remains unanswered. An effort to answer it seems to be commendable. If such an answer makes a microscopic step beyond that "It is so," such an answer, when roughly valid, is a step forward towards the solution. Hence the subsequent tentative hypothesis.

[62] See an additional criticism of it in Joseph Mayer, *Social Science Principles* (Duke U Press, 1941).

[63] A considerable improvement in comparison with the above theories of equilibrium is the theory set forth by Pontes de Miranda, Pinto Ferreira, Mario Lins and others, seeing the cause of rhythms in the principle of symmetry and dis-symmetry of forces working in the non-Euclidian, many-dimensional curvature of social space-time, or in the dis-symmetry of various cultures and culture areas. However, up to the present, we have only a sketch of such a theory, without a serious attempt to apply it to the systematic interpretation of the facts of the sociocultural world Thus it also remains, to a considerable degree, analogical to the post-Riemannian and post-Minkowski-Einstein-Planck theory of quanta mechanics If the principle of symmetry were taken in Leibnitz's sense as a special case of the principle of sufficient reason, it would be much less analogical and might render better service in the explanation of the phenomena of rhythm as well as a number of other phenomena. See P de Miranda, *Unsymmetrie und Liebespaar* (Rio de Janeiro, 1926), *Introducão à sociologia Geral* (Rio de Janeiro, 1927); Mario Lins, *Espaço-Tempo e Relacoēs Sociaes* (Rio de Janeiro, 1940); Pinto Ferreira, *Teoria do Espaço Social* (Rio de Janeiro, 1939); *Wahrscheinlichkeitslogik und Soziologie* (Rio de Janeiro, 1940). Of Leibnitz's principle of sufficient reason, see G. W. Leibnitz, *Opera Philosophica* (Berlin, 1840), pp 515 ff; "De legibus naturae," *Mathematische Schriften* (Halle, 1860), Vol. VI.

The general reason why sociocultural systems change in the course of their existence has been given by the principle of immanent change developed in the preceding two chapters. The special reason why many sociocultural systems have recurrent nonidentical rhythms and turns, instead of proceeding forever in the same direction, or undergoing ever new changes devoid of any recurrence, or running in an identical cycle, is given by the principle of limits. It is implied in the principle of immanent change but has not been unfolded. Its unfolding is now in order.

A. *Limits in Causal-Functional Relationship.* It may be safely assumed that the discovery and accurate formulation of causal or functional relationships between two or more variables is the supreme task of any generalizing science and the ambition of such a scientist or scholar. To arrive at some causal formula is the final goal beyond the great amount of arduous "spade work" which precedes it. This labor may consist of collection, tabulation, and calculation of statistical data, or experimentation, or case study, or historical exploration, or just speculation. Just because it does constitute such a highly regarded goal we are prone, perhaps, to find such causal relations where they do not exist, or to describe them in a form which is inaccurate. These scientific "sins" are quite common in the history of science, and the "graveyard" of the annals of scholarship is full of such attempts. All this is too well known to warrant further discussion.

Much less known, however, is another error committed in the search for scientific laws. This error may be described as neglect on the part of the scholars to indicate the limits within which their causal formulas are valid. Here is the essence of this mistake:

Suppose that after most careful study (statistical, experimental, or any other type), a sociologist or other scientist finds that between variables A and B there exists a definite causal connection of a certain kind, such that when the value of A is varied in a certain manner the value of B changes correspondingly. Let us grant for the moment that the formula is correct. Shall we conclude from this that the study of the relationship is complete and that the formulation is quite adequate scientifically? Explicitly or implicitly most authors answer this question positively. *But rarely,* if ever, *do such generalizations indicate the limits within which the established relationship is valid.* Since A and B happen to be causally connected within the limits of the values observed, it is concluded or assumed that the connection would remain valid for any values which might be assigned to A and B. In mathe-

matical terminology the relationship is assumed to be of the type of continuous functional equation like

$$B = 1 + 2A^2,$$

where one can assign any value to A in full confidence that it will be continuously represented in B. Can we assume that all causal relationships are and must be of this type of continuous equation? Is this general assumption valid? Or must we state the boundaries within which the causal relationship holds and beyond which it ceases to exist, or exists only with radically changed nature?

As soon as this question is clearly stated, a series of mathematical, logical, and empirical considerations come to mind, challenging the validity of the assumption.

(1) That the premise is not the only possible one mathematically is shown by the existence of discontinuous functional equations, for example:

$$B = \frac{1}{A} \text{ or } B = \sqrt{A^2 - 1}$$

In the first instance B becomes plus or minus infinity when A takes the value of zero and passes at a jump from negative to positive infinity when A is passing through zero from a negative to a positive value. In the second formula, when A varies gradually from minus infinity to -1 and from $+1$ to plus infinity, B varies also insensibly from plus infinity to zero. But when A assumes a value between -1 and $+1$, B has no real value but instead becomes imaginary, and the function is discontinuous between these two points. Since expressions of this nature exist in the mathematical realm, it is a purely dogmatic assumption to believe that all empirical relationships are continuous. Some of them may be of this discontinuous type.

(2) We may also say that there is no logical reason whatever to assume that the observance or discovery of causal relationships for certain values of the phenomena warrants a conclusion that the same connection will necessarily exist whatever values the variables assume. This is equivalent to saying that there is a logical basis for contending that causality between two phenomena exists only within certain limits and that outside these bounds the relationship either disappears or becomes radically altered in nature.

(3) There remains, consequently, the testimony of the empirical facts relating to the phenomena studied, and these data are the

most important witnesses in the case. Putting aside for the present the problem as to whether there are some causal relationships of a continuous type ("limitless") (see later), there is no doubt that many such relationships have limit(s) in the values of the variables, beyond which the given relationship disappears or fundamentally changes. Illustrative instances may be related as follows. The more strongly I strike a piano key, the louder the resulting sound. Within a certain limit the loudness of the sound is a direct function of the force exerted in the stroke. This is certainly true, yet beyond a certain limit the result will not be an increase in the volume of the sound, but rather a broken piano, whatever be the effort expended. An adequate formula relating these two factors must not only state that the sound of the key is proportional to the intensity of the stroke, but it must add the qualification: within certain limits, and the points beyond which the formula becomes invalid must be specified. Arsenic in certain quantities is a deadly poison, but in smaller amounts it is not lethal at all. Whiskey, when taken in certain amounts, is not intoxicating, but does induce that state when absorbed in larger quantities.

Physicochemical and biological sciences are full of such phenomena and they are well summed up in the form of leading principles of these sciences, such as "stability limit" (Knorr and others), "critical temperature," "critical pressure," "critical concentration," and the like, for a designation of the limits beyond which the given equilibrium system changes or ends (either in the number of its phases, or degree of freedom, or the concentration of its components, and so on, according to Willard Gibbs's "Phase Rule") or the given relationship between the variables ceases to exist.[64]

[64] Here are the illustrations for the nonspecialists

"Chemical reactions do not take place completely in one direction, but proceed only to a certain point and there make a halt"

"Upper limit in vaporization curve On continuing to add heat to water contained in a closed vessel, the pressure of the vapour will gradually increase Since with increase of pressure the density of the vapour must increase, and since with a rise of temperature the density of the liquid must decrease, a *point will be reached* at which the density of liquid and vapour become identical, the system [consisting of two phases of water. liquid and vapour] ceases to be heterogeneous, and passes into one homogeneous phase. The temperature at which this occurs is called *critical temperature* To this temperature there will, of course, correspond a certain definite pressure, called the *critical pressure.* The curve representing the equilibrium between liquid and vapour must, therefore, end abruptly at the critical point. At temperatures above this point no pressure, however great, can cause the formation of the liquid phase [what, up to that point, was possible through a definite increase of pressure with an increase of heat], at temperatures above the critical point the vapour becomes a gas.

The same is true of the science of biology. There the principle of limit comes up at almost any proposition formulating the relationship between two or more biological, biophysical, biochemical, or biosocial variables. The simplest everyday experience shows it clearly.

Let us now turn to social variables. We have thousands of formulas which claim the existence of causal relationships but which state no bounds to their validity. A few examples may be given:

There exists a positive relation or causal association of such and such a degree of correlation between:

Business depression and criminality,
Business depression and mortality,
Business revival and birth rate,
Poverty and marriage rate,
Divorce and suicide,
Resemblance and attraction in marriage,
Urbanization and mental disease,
Urbanization and irreligiosity.

Or, there exists a negative functional relationship between:

Education and suggestibility,
Population density and fertility,
Education and criminality,
A certain ecological city area and feeblemindedness,
Brachycephaly and genius,
Nutrition and low stature,
Farm income and illiteracy,
Nutrition and fertility.

Or

Irreligiosity is a factor in demoralization and decay,
Illiteracy positively influences fertility,
Order of birth and mental diseases are positively correlated,
Urbanization and marriage rates are negatively correlated,
Movie attendance favors an unsanctioned sex life,
Mental disease is the main factor of suicide.

"In the case of water, the critical temperature is 364.3, and the critical pressure is 194 6 atm ; at the point representing these conditions the vapour-pressure curve of water must cease." Alex. Findlay, *The Phase Rule and Its Applications* (London, 1904), pp. 7, 21–22. See there a large number of such "points of limit," pp 96, 200, 234. W. Gibbs's "Phase Rule," the Newtonian "law of action and reaction," theorems of van't Hoff and of Le Chatelier, and many other principles of mechanics, physics, chemistry, give the formulation of a similar principle in their own fields.

Granting only for a moment that in all these and thousands of other formulas the evidences offered are satisfactory, shall we say that the conclusions as stated are complete and adequate, and that the positive or negative relationship found is likely to hold whatever value the variables may assume? By no means. We know that within certain limits improved nutrition tends to accelerate growth and increase stature, but beyond a certain point no additional improvement in food, quantitative or qualitative, will be followed by a further increase in stature. Poverty, below the physiological minimum, has an adverse effect on fertility, but above this line comparative poverty does not necessarily have the same result. At some point, compared with a state of relative comfort, it may serve as a stimulus or be associated with increased fertility. Similar statements may be made regarding the relations between poverty and criminality, urbanization and mental disease, marriage and suicide. Mobility within certain limits is a factor in demoralization, but in other degrees facilitates morality. We may conclude similarly as regards prosperity. Density of population within certain limits can be a positive and, within other limits, a negative factor in fertility. Likeness of a certain degree and character is a positive factor in marriage choice, but other degrees or types of resemblance hinder marriage attraction.

There is no need to multiply the instances further. With a reasonable degree of probability we can conclude that there is scarcely any causal tie between societal variables which holds for all values given to them. In other words *the hypothesis or assumption of the unlimited validity of any causal relationship which may be discovered between societal variables is faulty and conduces to still more erroneous conclusions.* It is certainly defective and most fallacious in the social sciences.

The moral of this discussion may be summarized as follows:

(*a*) The common and almost unquestioned assumption that a certain causal-functional relation discovered for variables of stated values will remain valid for any values whatever is fallacious.

(*b*) All causal, functional, or correlational formulas claiming the existence of connections between two or more variables, but not containing any indication of the limits within which the generalization is valid and beyond which it must be qualified or abandoned, are immature inferences and conclusions.

(*c*) In such incomplete and unqualified form these statements give no adequate knowledge of the interrelationships between the phenom-

ena and often disfigure the nature of these bonds, disguise other more efficient causes or more fundamental relationships, and hinder the discovery of the true conditions existing beyond the limits which should really be imposed upon the stated conclusions.

(*d*) If such limitations are not carefully determined and stated we can hardly expect to penetrate to any real knowledge of the interactions among societal variables. We shall suffer from a multiplication of immature causal formulas, and contradictory coefficients of correlation will overwhelm us.

(*e*) The above shows that causal-functional interdependence between most diverse and numerous variables has limits within a certain value of these variables. Beyond it, it ceases to exist, or changes fundamentally.

B. *Limits in Direction of Sociocultural Change.* This principle of limits has great importance in another field of social studies, namely, the problems concerning the direction of social processes. Especially since the eighteenth century the social and, to a large extent, the biological sciences have been seduced by the theory of evolution and of progress with a perpetual linear tendency—whether unilinear, spiral, branching, or oscillatory.[65] According to this theory Omnipotent Evolution and Providential Progress unerringly lead mankind ever nearer to some goal or toward some "bigger and better" state.

The explicit or implicit assumption of all these theories is that social or biological processes move endlessly with or without minor deviations in the same direction without limit. May we regard such a fundamental postulate as valid? For my part, I am ready to contend that in application to the majority of the sociocultural processes, it is untenable. Whether it is valid in regard to a few processes we shall see later. The general reasons for such a statement are as follows:

A perpetual tendency in social processes is a more complicated form of uniform and rectilinear motion in mechanics. Newton's law tells us under what conditions this is possible. In order for such to occur there must be absolute noninterference of any exterior forces, or absolute isolation from any environmental influence is essential. Otherwise definite movement in one direction is impossible, and friction and shocks of external forces would disturb the movement and eventually change its direction. Through gravitational forces, for instance, linear movement becomes circular or elliptical.

Do these essential conditions exist for any particular processes or

[65] See *Dynamics*, Vol. I, chap iv; Vol. II, chap. x

for all social processes? Evidently not. Social processes, individually or in their totality, are not absolutely isolated from the outside cosmical and biological worlds nor from the "pressure" of other social processes. They permanently and ceaselessly interfere with each other. Unless we postulate a miracle or an active Providence, it is quite improbable that all these innumerable forces would act in such a way that their resultant would be negligible or constant at every moment, thus maintaining the direction of the processes unchanged. Such an assumption of a perfect and eternal balance of the numberless cosmic, biological, and social processes is equivalent to a miracle and contrary to all probability.

Even if this assumption were shown to be valid, it alone would not guarantee the indefinite trend of social processes in one direction. For this still another basic condition is needed, namely, that the social system itself — be it a small social group, mankind, a cultural system, or any social phenomenon — which is in process would retain its nature and characteristics unchanged forever. Why? Because a system of mutually equilibrated external forces acting upon the system in such a way as to maintain its direction of movement or trend would not in fact serve to assure this continuity of direction when the system itself changes. By virtue of the Principle of Immanent Change any "social system in process," just because it is in process, will inevitably be worn out, modified, or transformed. Likewise it is hardly probable that the change would occur in such a manner that all the "parts and sides" or aspects of a social system in process would become changed proportionately so as not to break the existing perpetual trend of the movement. Such an assumption also would require a miracle.

These considerations show then that for an admission of perpetual direction of social or biological processes at least two highly improbable assumptions must be made and two "miracles" expected. Consequently, in reference to all or the majority of sociocultural processes, neither assumption nor the theory resting upon it is acceptable. They are a matter of belief and cannot be propositions of science. This explains why there are turns and caesuras in the direction of the majority of sociocultural processes.

To these considerations the arguments of Aristotle and Hegel can be added. If the Aristotelian argument is not valid in application to the motion of the material body, it has some validity in reference to qualitative change.

According to Aristotle, any change can be thought of only as a pas-

sage between antithetical terms, between two contrary (like hot and cold, dry and wet) or contradictory terms (as in the case of "coming to be" and "ceasing to exist"). Without such an antithesis no change is thinkable.[66] If then any change means a passage between the antithetical terms, it follows that no movement or change (except purely rotatory or circular) can go on forever continuously and in the same direction. "No progression other than local movement can be continuous and perpetual." [67]

Developing this argument,[68] Aristotle concludes that rectilinear motion (or a change) cannot be continuous (*i.e.*, uniform, uninterrupted and everlasting) because the moving or changing object sooner or later has to reach one of the antithetical poles, after which it either ceases to move or changes the direction of the movement, or reverses it. Hence the necessity of limit, of caesura, or turn, or rhythm, even of reversal, in the direction of the movement or change.

We have seen that in a modified form this argument is set forth by Hegel, in the very essence of his dialectical method. Since any concept, and the reality that corresponds to it, contains in itself its own negation — is an identity of the opposites — and in the process of its unfolding generates its antithesis, no change or movement can proceed forever continuously in the same direction and without turns and rhythms.

The totality of the above considerations is sufficient to demonstrate why many (if not all) sociocultural processes have caesuras, rhythms and turns in their directions; and why they do not proceed forever continuously and uniformly along the same trend.

C. *Principle of Limited Possibilities of Change.* The third variation of the principle of limit may be styled the *principle of limited possibilities*. It is a derivative of the principle of limit in causal and directional fields. We have seen that many processes cannot move forever in the same direction; having reached their limit, they turn in a new direction; along this new direction they also cannot move forever, and sooner or later have to turn again, and so on.

This raises a problem: is the range of these new turns and changes unlimited for all the sociocultural and other processes? Can they endlessly make new turns, new forms, new transformations, without any limit? Or is such a possibility limited, if not for all, then for many systems in the process? In other words, shall we accept the

[66] Aristotle, *The Physics*, translated by F M. Cornford (London-Harvard, 1934), 188b.
[67] *Ibid.*, 261a, 261b. [68] *Ibid.*, 261b.

principle of limited or unlimited possibilities of "turns," forms, modifications, patterns, beats, tempi, trends, which a system in process can assume? The answer is: *if not for all, then at least for an enormous number of sociocultural systems in process, the number of fundamental possibilities as to ever new fundamental turns in direction, essentially new forms, patterns and appearances the system can assume is limited and bounded. Different concretely in number for different systems, these possibilities are not infinite but finite. Having run through all of them, the system either ends its existence, or, if it continues to live, it has to repeat again one or more of the turns and forms through which it has already passed. In that case, the process of the existence of the system would display recurrent qualitative, quantitative, spatial rhythms, turns, patterns, forms, tempi, or what not (no matter whether they are periodical or not).*

One of the main reasons for this was indicated in Chapter Two: If a given system has unlimited possibilities of change, under such conditions, the system can change so radically that it will lose all its essential characteristics and become unidentifiable. Such a change means the cessation of the existence of the system; when a system becomes unidentifiable and loses its sameness, it disappears. Hence, so long as a system lives, it has limits in its change. The selectivity of a system leads to the same result. An unlimited possibility of change for a given system means it can become anything, can ingest everything, therefore can become radically different from what it was and unidentifiable. Such a change is equivalent to the cessation of the existence of the system and to its replacement by another — quite different — system. For these almost axiomatic reasons, practically any system must have and does have limits to the range of its change. The limits transgressed, the system disappears.

Empirically, there is not the slightest doubt that an enormous number of chemical, physical, biological, and sociocultural systems follow this principle. In chemistry, for instance, a system of water can have only three phases — vapor, liquid, and solid — and no more. These phases in certain conditions can coexist all together; in other conditions, two or three coexist; in some other, there is only one; but the system of water cannot have more than three phases and its degree of freedom is also limited, according to Gibbs's formula: $P + F = C + 2$, or $F = C + 2 - P$, where P denotes the number of phases, F the degree of freedom, and C the number of components. The system with more than one component may have a greater number of phases

and degrees of freedom, and yet these are finite for almost all chemical systems. There is a limit to the possibilities of transformation for each of them, and this limit is rather narrow.[69]

The same can be said of the biological systems. Either in the duration of life of each organism, or in the size of growth, or in the variation of the anatomical and physiological traits of the organisms of the same species, or in hundreds of other traits and characteristics, the variation of the organisms of the same species, however great sometimes, is confined within certain limits. The possibilities for each organism of the same species are finite. Therefore, the variations themselves are recurrent. The same can be said of the biological processes, either within an organism, or within a species, or even a number of species. In all of these we find a set of the same processes: reproduction, alimentation, self-defence, process of growth, maturing and aging, and finally death. The details of the performance of each of these processes may vary, but the processes themselves in some form, are practically the same for all organisms. Within one species, even the "technique" of performance of these basic functions varies within very narrow limits, fixed by the *inherited reflex and instinct mechanism.* Reflex and instinct mean here very limited possibilities of variation. The same has to be said of another biological principle: heredity. It limits decisively even possibilities of variation of the individual organisms of the same species.

Quite certain limits for each species exist, further, in its *adaptation* process, *selection* process, and *survival* process. For hardly any species in all these respects does there exist an unlimited possibility of adaptation to, and survival amidst, most different milieus. For some species the possibilities may be wider, for others narrower, but for all the range is bounded. In brief, in biological processes there is an enormous number of fundamental and secondary processes that are clearly limited in the possibilities of their variation and direction. Therefore, most of these processes repeat themselves — in organisms, in species, in a conglomeration of species.

[69] See A Findlay, *The Phase Rule*, pp 16 ff Another form of the limited possibilities in chemistry is the limited number of chemical elements. H Poincaré rightly indicates that, if instead of ninety-two simple elements we had ninety-two billions of them, no science of chemistry would be possible "Each time we picked up a new pebble, there would be a great probability of its being made of an unknown substance. . . . In such a world there would be no science. Thought and even life would perhaps be impossible, for evolution could not have developed the instinct of conservation." H. Poincaré, *Science et méthode*, quoted in L. du Noüy, *Biological Time* (London, 1936), p. 34.

Though *homo sapiens* is considered to be a more variable creature than other species, and though sociocultural processes are probably more varying than inorganic and organic processes; yet there is hardly any doubt that the variation of individuals, of individual behavior as well as that of the sociocultural processes, has, in most cases, if not in all, a limited range of possibilities. This is perfectly clear in regard to physiological, anatomical, psychological, and sociocultural traits and behavior of individuals. Duration of life; main physio-psychological processes; the cycle of completed life, moving from childhood to senility and death; though they vary from man to man, they vary within certain limits. There has not been a *homo sapiens* who lived a thousand years; there has not been a man constructed like an elephant. The anatomical structure of the human organism and its physiological processes are essentially the same among all human beings and races. There are only two normal sexes, with the hermaphroditus sex as the third. The main psychological processes — sensation, perception, reproductive imagination, feelings, emotions, and ideas — are present in some form in all human beings, however great is the difference between an idiot and a genius. And so on.

Not so clear seems to be the situation with the sociocultural processes. And yet an enormous number of them, if not all, seem to have a clearly limited range of possibility of variation. First, we find the same basic processes among all the societies and groups: as long as they live, there is some process of getting their living and means of subsistence; there are the processes of reproduction, birth, and death; there is some kind of organization — social, economic, political, religious, or others; in some form there goes on the process of learning and its transmission from generation to generation; some sort of family and marriage, magic and religion, political and economic organization, art and science, law and mores — all these and other basic institutions are found among practically all societies. So also the phenomena of differentiation and stratification. We have hardly ever had a social system without these institutions and processes.

Turning to the variation of the processes within the same field of society and culture, we are struck again by the narrow range of the qualitative types each process has had among most different social groups. If we turn to the *types of economic organization*, classifications of the economic historians rarely go beyond five or six main economic types that have existed in history: hunters and collectors of the free produce of nature; pastoral; agricultural; industrial; or varieties

of such classifications as given by Hobhouse-Ginsberg-Wheeler; by B. Hildebrandt; by K. Bücher, G. Schmoller, E. Meyer, W. Sombart, and others. If to the forms given by these classifications we add new forms to come (though all the supposedly new forms contemplated, like totalitarian, socialist, communist, anarchist economies all have occurred many times in the past), the range of possibilities remains still limited. If we take the forms of the *family and marriage* (not to mention the customs of courting and sex satisfaction) their forms, according to the historians of the family and marriage, have again been limited: the existing classifications rarely go beyond some ten or twelve main forms. The same is true of the biosocial forms of prostitution and "free sexual love."

If we turn to the forms of *political organization,* here the limited range of the forms that have existed is still narrower than in the preceding fields. Five fundamental forms of Plato and six (good and bad) forms of Aristotle and Polybius embrace practically all the main forms that have existed. In the classifications of the texts of the constitutional law, the number is often still smaller: monarchy, republic, constitutional monarchy, and some other mixed form — that is about all one finds there. Hardly different is the situation in regard to the *religious process.* No matter how various religions are classified — totemism, animism, fetishism, polytheism, monotheism, atheism, or in several different ways — the existing classifications are again few and consist of a rather small number of the main forms of religion. In *art,* no matter what is the classification, Ideational-Idealistic-Sensate; Classic-Romantic; Idealistic-Realistic; Architectural-Plastic-Malerisch; Oriental-Occidental; Paleolithic-Neolithic-Oriental-Classic-Medieval-Modern; Visual-Symbolic, and so on — all more or less serious classifications give again a limited species of the art style, of the art forms, patterns, canons.[70]

The history of philosophical thought [71] is but the history of an inces-

[70] Recently R Strauss said that almost all possible acceptable musical forms have been exploited, therefore it was improbable that many substantially new forms would be invented. Likewise, historians of art quite frequently speak of the exhausted possibilities of variation of a certain style, for instance, Gothic architecture, or classical painting, and so on.

[71] Here, C. Renouvier, and then W. Dilthey, rightly claimed that the number of the main types of philosophy is limited generally, therefore in a new variation these types have been recurring and will recur again and again See C. Renouvier, *Esquisse d'une classification systématique des doctrines philosophique* (Paris, 1885). See also H. Leisegang, *Denkformen* (Berlin, 1928); K. Jöel, *Wandlungen der Weltanschauung,* quoted, E. Wechssler, *Die Generationen als Jugendreihe,* quoted. Succinctly, this is well

sant variation of the same main — and few — themes, like idealism-materialism; realism-nominalism-conceptualism; empiricism-rationalism-mysticism-fideism-scepticism; determinism-indeterminism; eternalism-temporalism, and so on, which have been studied in the preceding volumes of this work. All the main systems of truth fall within our three main systems: truth of faith, of reason, of the senses, plus some mixed forms.

Not very different is the situation in the *theories of ethics and law, as well as in the actual codes of ethics and law.* All the ethical systems, no matter how they are classified, incessantly "swing" between the ethics of absolute principles and that of happiness: eudemonism, utilitarianism, hedonism, and some mixture between these poles. Even the main commandments of ethical systems are practically the same in all the great religious and moral systems. Likewise, however greatly the *codes of law* differ in details, in their main principles and divisions, they give but a few types — constitutional, civil, criminal law; and again, as has been shown in Volume Two of this work, the main crimes in all the codes are either identical or similar. The same is true of civil and constitutional law. Any one who is acquainted with the theories of law knows that the main classes of the theories are few, and can easily be counted on the fingers of two hands; and represent also an incessant variation of the same main themes; from the law and theory of the Code of Hammurabi, the Bible, or the Law of the Twelve Tables, with the Gaius, Ulpianus, Modestinus, Papinianus, up to the present codes and theories of law.

Even in *science,* so far as its fundamental categories and principles are concerned, the situation is not much different. As has been partly shown in Volume Two of this work, even in physics, chemistry, biology, and other natural sciences, the main principles, like atomism, vitalism-mechanism, and so on, are not very numerous, and the respective theories, however different in details, represent also a variation of the main — and essentially the same — themes.

Similarly, the *main types of society,* of *sociocultural systems and processes,* are very limited in their number. *Gemeinschaft-Gesellschaft,* society with "mechanical-organic" solidarity; religious-secular; hunters-pastoral-agricultural-industrial; clan-tribe-state-international federation; simple-compound-doubly compound-triply compound;

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expressed by the statement ascribed to A N. Whitehead, that the history of philosophy is but a series of footnotes to Plato See his *Adventures of Ideas* (New York, 1933), pp. 354, 366.

rural-urban; savage-civilized; these and similar classifications rarely go beyond half a dozen types. So also with the more detailed classification of specified social groups, such as the family; territorial (neighborhood) group; the state; national, political party; religious group; occupational, economic, racial, sexual, age group; scientific; recreational; class; caste.[72]

No different is the situation with regard to the main types of *cultural systems and supersystems;* in Chapter Three and in following chapters of this volume their number has been shown to be very limited, no matter what classification we take.

So also with *sociocultural processes.* Whatever classification is taken, their main types are numerically small: isolation-contact; assimilation-conflict-adaptation; imitation-opposition-adaptation; cooperation-antagonism; differentiation-stratification-integration; war-peace; order-disorder; individualization-collectivization; organization-disorganization; progress-regress; rise-decline; prosperity-depression; production-distribution-consumption; linear-cyclical-erratically varying; and so on. The main classes rarely go beyond five or ten types.[73]

If we take such narrower phenomena as, for instance, the patterns of dress and coiffure, and dress colors, we find there again "an eternal return" of the limited number of main patterns and colors. Sometimes striking similarity between the pattern of dress of the women of such widely removed cultures as Minoan and modern Parisian cultures[74] can be noted.

If within each of these fundamental processes we examine more detailed subprocesses, the picture is not essentially different. From the brevity of the above examples one should not conclude that the

[72] See a survey of various classifications of social groups and societies in my *Sistema sociologii* (St Petersburg, 1921), Vol II; my *Contemporary Sociological Theories,* chap ix

[73] See for various classifications of sociocultural processes L. von Wiese, *System der Allgemeinen Soziologie* (Munchen, 1933), E A. Ross, *Principles of Sociology* (New York, 1938), G Tarde, *Social Laws* (New York, 1899), R Park and E. Burgess, *Introduction to the Science of Sociology* (Chicago, 1924), K Young, *An Introductory Sociology* (New York, 1939); my *Contemporary Sociological Theories,* pp 507 ff , C A Ellwood, *The Psychology of Human Society* (New York, 1925); E Bogardus, *Fundamentals of Social Psychology* (New York, 1924).

[74] See G. Glotz, *La civilisation Egéenne* (Paris, 1923), pp. 88 ff. About recurrence of the dress and coiffure patterns, see A L Kroeber, "On the Principle of Order in Civilization as Exemplified by Changes of Fashion" *American Anthropologist* (1919), Vol. XXI 235–243; P. H. Nystrom, *Economics of Fashion* (New York, 1928), chaps. ii, iii, *passim;* E Smith, *Color Variation in Dress,* unpublished honor thesis, Radcliffe College, 1932. See many reproductions of similar costumes and coiffures of women of the most different cultures and periods in W. Deonna, *L'archéologie,* quoted (Paris, 1912), 3 vols., *passim.*

principle of limited possibilities is something "exotic" or operative only in a few instances. Cultural anthropologists, ethnologists, historians, and sociologists have been confronted with a host of facts to which they have given the name of *cultural convergence*, meaning by it an essential similarity of cultural traits of various cultures, due neither to borrowing nor to common origin, nor to any contact of these cultures, but generated more or less independently. M. I. Rostovtzeff, A. J. Toynbee, R. Lowie, R. Thurnwald, A. Goldenweiser and many others rightly sought an explanation of the phenomena of convergence in "the principle of limited possibilities" of culture variations, as Goldenweiser and Thurnwald put it.[75]

[75] The question is very old and has been discussed for centuries under various names of "diffusion, independent invention, convergence" Recent treatment of it is given in several studies in the volume· *Independence, Convergence and Borrowing in Institutions, Thought, and Art* (Harvard University Press, 1937) A systematic analysis of it is presented in A Goldenweiser, "The Principle of Limited Possibilities," *Journal of American Folklore* (1913), Vol XXVI, pp 259–290; R Thurnwald, "The Spell of Limited Possibilities," *American Sociological Review*, April, 1937, pp 195–203 In these studies the principle of limit is treated entirely in the sense of this third application of it, without an extension of it in reference to the causal relationship and direction of sociocultural processes The paper of Goldenweiser written especially for finding an explanatory principle of the phenomena of convergence deals with cultural traits and complexes somewhat atomistically, without a clear formulation of the cultural congeries and systems The main thing it attempts to explain is why different culture complexes have "psychologically similar cultural traits" while their sources are dissimilar and much more numerous. His answer is the limited possibilities that objectively exist

"Analysis of individual cultures shows that every culture is characterised by a limited number of cultural traits, both objective and psychological, the character of which is also clearly defined. Marked similarities exist between such traits in different cultures. On the other hand, an analysis of the historical and psychological sources of such cultural traits reveals a much greater possible variety of origins and processes This limitation in number and character of cultural traits, when compared with the multiplicity of possible historical and psychological sources, constitutes a limitation in the possibilities of development, and necessitates convergence. The principle of limited possibilities in cultural development thus constitutes an *a priori* argument in favour of convergence" See A. Goldenweiser, "The Principle of Limited Possibilities," *Journal of American Folklore* (1913), Vol. XXVI, pp 289–90

The development of this principle in application of the problem of convergence is well done. However, some of the assumptions of this development appear to me somewhat doubtful. First, if we have culture congeries, there are hardly any "limited possibilities"; therefore in application to them, the principle is hardly valid. A Goldenweiser unfortunately does not make this necessary limitation. Second, his specific setting of the problem as similarities arising from much more numerous and diverse historical and psychological sources is also somewhat overplayed and unnecessarily made a central point. If such a similarity from diversity is taken, without limitation, it would mean that dissimilar causes produce similar results — a proposition that can hardly be accepted. Thurnwald's thesis is more accurate but somewhat vitiated by stressing the purely singularistic (individualistic) basis of limited possibilities. "The changes of a cultural

Dr. Lowie rightly refers to this principle in giving a series of facts of convergence. In many unrelated societies we find recurrent and limited types of descent. The reason is that generally descent may be either matrilinear or patrilinear; hence the recurrence of such systems. Likewise, the number of ways in which a skin membrane can generally be fastened to a drum is limited: therefore the modes of that are also recurrent. And so on.[76] A. Haberlandt points out that the number of possibilities in the development and variation of arrow points is also limited; so in the case of sword handles,[77] and many other objects. Hence the recurrence of the same forms and patterns or types. Similarly, Thurnwald indicates that the possibilities in variation of individualism-collectivism, forms of reciprocity, woman's social status, forms of inheritance, means of social control and power, production-distribution-consumption, forms of language and so on, are also objectively limited; therefore they are recurrent. A. Goldenweiser rightly says:

The chaos of cultural traits, so bewildering at first, easily yields to certain obvious forms of classification; the multiplicity of customs and beliefs is found to follow certain patterns, usually few in number and well defined.

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system are limited by the human faculties . . . The human factor is standardised by man's *biological* capacity. Man's actions and psychological reactions to stimuli are limited. Therefore, they occur again and again Consequently similar situations are created, even by different stimuli" R Thurnwald, "Cultural Rotation," *American Sociological Review*, February, 1937, p 33 "Human possibilities offer but a restricted combination of situations which may recur at various epochs independent of the accumulative process" R Thurnwald, "The Spell of Limited Possibilities," quoted, p 195. The limited possibilities in variation of sociocultural transformations are due, in my opinion, not only to the limitation of the faculties of the human individual, but to the limited possibilities of variation of the sociocultural systems, as such We have seen that, under the penalty of the cessation of existence, no given sociocultural system can continue in its variation beyond a certain limit, otherwise, it becomes unidentifiable and ends its existence For this reason only, not mentioning the others, it is unnecessary to reduce the source of limitations to purely limited bio-psychological faculties of the human individual The principle is, as we have seen, universal for all systems, from chemical to sociocultural In a more cautious formulation the principle has to be worded, in application to the phenomena of convergence, somewhat as given in the text, namely, essential similarities of unrelated sociocultural systems are often found, and are recurrent in time and space They probably are due to the limited possibilities of variations of their main forms Since the number of possible main forms is limited, their recurrence is inevitable. The reader may notice that in my formulation I apply it only to systems, and specify that various systems have different ranges of possibilities.

[76] See R Lowie, "On the Principle of Convergence in Ethnology," *Journal of American Folklore* (1912), Vol XXV, pp 37 ff.

[77] A. Haberlandt, "Praehistorisch — etnographische Parallelen," *Archiv fur Anthropologie* (1913), Vol. XII, pp. 1–25.

[So also with other traits of different cultures.] One soon observes that certain fundamental cultural forms occur again and again . . . that the forms lend themselves to a classification into a fairly small number of types, which constantly recur, as one passes from culture to culture. . . . Thus one finds a social organization consists of social units (in the limited sense), or of families, or of local groups, or of various combinations of these units; that an art consists of carving, or drawing, or painting, or of a combination of these; that the form of it is realistic or semi-conventionalized, or purely geometrical . . . that a mythology comprises epics, or animal stories, or nature myths, or traditional accounts of historical happenings, or creation legends, or several of these types together; and so on through the entire series of cultural forms." [78]

These references and remarks are sufficient to show that the principle of limit in this aspect of the limited possibilities of forms and modes of transformations is a principle applicable, if not to all sociocultural systems, then at least to their overwhelming majority.

When, farther on, we turn from such similarities to much more detailed similarities recurrent in the most different — and unrelated — cultures, for instance, to the recurrent "motive of flying gallop," the explanation seems to be again along the line of "convergence" or limited possibilities of expression of the idea "of wind's fast movement." [79]

Still more is it so in regard to the recurrence of the main colors of dress [80] or various objects of culture: since the number of main colors is limited to seven, they cannot help recurring again and again in space and time, in dress as well as in various cultural objects.

To sum up: from logical and factual evidences, *it is reasonably certain that an enormous number of sociocultural systems and processes have a limited range of possibilities in their variation, in the creation of new fundamental forms.* If this be so, then after a sufficiently long existence of the process given, during which it runs through all the main forms, in its further existence it cannot help repeating the forms

[78] A. Goldenweiser, *op cit*, pp. 270–73 See *passim*. Like G. Tarde before him, he also rightly calls attention to the limited possibilities of language in its phonetic and grammatic aspects "The number of sounds that can be articulated is practically unlimited; but in a language, only a definite and relatively small number of sounds is used Obviously, this is not incidental but a necessary condition of language" (for otherwise, with unlimited variation, no language as a medium of intercommunication is possible and can successfully function). So with the limited number of grammar rules. *Ibid.*, p. 270 See also G. Tarde, *The Laws of Imitation*, quoted, pp. 175 ff.

[79] See M. I Rostovtzeff, "Parthian Art and the Motive of the Flying Gallop," in *Independence, Convergence and Borrowing* (Harvard University Press, 1937), pp 44–56

[80] See the quoted thesis of E C. Smith, *Color Variation in Dress.*

already used, either all of them, or some of them; either in the same order as before, or in different order; but repetition and recurrence of the forms becomes inescapable under these conditions. Only the processes that end before they have exhausted all the range of the limited possibilities; or the processes whose range of possibilities is unlimited (if such processes exist) can escape this recurrence or repetition. Such is the third important aspect of the principle of limit. Having now the principle of limits at our disposal, we can turn to its use in explanation of our second and third "why's."

V. Principle of Limits and Sociocultural Rhythms

In order to make the problem and its difficulties clear, let us recapitulate the specific difficulties connected with it. The problem is: *How are rhythms and recurrent punctuations possible in sociocultural processes?* The specific difficulties consist in the fact that we do not postulate the changing sociocultural systems as isolated from all external forces. We know that none of the systems is isolated and that each exists and functions amidst a variety of diverse environmental forces, which themselves — and their constellations — always vary. If the system were isolated, or the external agencies constant, the explanation would be much easier than is the actual case. Let us add that by a recurrent rhythm or punctuation, we mean not an identical reproduction, but only such a similarity between the recurrent rhythms or punctuations as justifies their subsumption under the same class or species as essentially similar, but not identical.

The above *principle of limits, especially in its second and third aspects, appears to give an answer to the problem.* If we assume that a given system has immanently limited possibilities in its transformations, a sufficient time being given during which it runs through all of these possibilities, it cannot help repeating some of the previous forms during its subsequent existence. If there are only, say, four possibilities for a given system to experience, after all four have been run through, these four — or some of them — in the same or a different order will reappear during the subsequent existence of the process. The conclusion is practically self-evident. A number of corollaries follow from it.

A. *If the immanent possibilities of various forms, or of quantitative and qualitative changes, of a system are unlimited or very large, the process of existence of the system will appear nonrhythmical, either because none of the previous forms or changes recur, or because*

it is exceedingly difficult to grasp their exceptionally rare recurrence amidst the ever-changing forms of the system. Such recurrences may happen so irregularly and be separated from each other by such a large time interval, that they become practically unobservable and unnoticeable. This is the reason why I do not dogmatically ascribe rhythm to all the sociocultural processes. Some of them function without exhibiting any graspable rhythm, displaying "ever new" aspects in their existence. So far as such processes are evident in history — and they certainly are — the old motto that history is ever new and never repeats itself is justified.

B. *The less numerous are the immanent possibilities of change of a system, the more pronounced is the rhythmical character of its processes.* If a system, say, a political regime, has only six possibilities (as Plato and Aristotle thought): monarchy, aristocracy, oligarchy, democracy, mob rule, and tyranny, these regimes must recur either in the same or in different order: either all six forms or only some of them, whether in the history of the same nation, if it still exists after it has exhausted all its forms, or in that of other bodies politic, no matter where and when they exist. If, instead of our six forms, we assume only two possibilities, say, monarchy and republic, the rhythms of monarchy-republic will be still more pronounced, and, other conditions being equal, will recur more frequently and regularly. In other words, the rhythm of the sociocultural process is in reverse relationship to the number of possible forms of its change.

C. *The number of the phases of the rhythm in the sociocultural process is roughly proportional to the number of its immanent possibilities of forms of change.* If, as in the above hypothetical forms, the number of the possible political regimes is six, the number of the phases of the political rhythms will, in that case, be either six, or more or less, depending on whether all these forms recur and in what order combination. If the possible forms are only two, the rhythm will be a double-phased rhythm. However, one should not take the proportionality too rigidly and too mathematically, though roughly it is valid, and as such ties together two variables: the number of the immanent possibilities and the double, triple, quadruple or multiple character of the rhythm from the standpoint of its phases. The proposition is again almost self-evident as soon as the principle of limit itself is assumed.

Such appears to me the general principle that accounts for the recurrences and rhythms of all the sociocultural processes that are found

to be rhythmical or recurrent. So far as the principle of limit itself is but a specific case of the principle of immanent constitution and change of the system, its application to this problem is also a mere derivative of this principle. The advantages of this principle here, in comparison with that of the law of action and reaction, or the principle of equilibrium, are that we are not obliged to play with mere analogies, to postulate various (unknown) forces at different angles, and all the other purely analogical reasonings criticized above. Instead, we have a principle that with an inescapable logical validity accounts for the phenomena of recurrence and rhythms. More than that, it binds together several variables, such as the number of the possibilities and the frequency or graspability of rhythms; the number of possibilities and the kind of rhythms—double, triple, quadruple or multiple. In this sense, it answers the issue not only more validly and directly, but much more precisely than the above-mentioned analogical theories.

Like any other explanatory principle, it satisfactorily explains the problem discussed, and generalizes a rather large number of singular "It is so's" into one formula applicable to a very large number of sociocultural processes, and tying together three variables, does it more precisely than the mere incidental "It is so."

Further, it has a predictive value: if I know that only three main forms of cultural supersystems are possible, say, Ideational-Idealistic-Sensate, in integrated culture; or Realism-Nominalism-Conceptualism in the philosophical problem of the reality of the universals, I can reasonably expect first: these forms will recur in the history of culture(s), or in that of philosophical thought in this field; second: the rhythm of their succession will probably be triple, though the order of the phases may vary. If I know that in regard to sex there are only two possibilities for *homo sapiens* (barring the rare cases of hermaphroditi), I can expect only a double rhythm, male-female, in the process of birth, though not necessarily always in the same order of male-female, male-female. If I know that (let us assume with Aristotle, which assumption is roughly correct) there are only six main forms of political regimes, then I can reasonably expect a recurrence of only these six forms in any society, at all times; and the rhythm will be either six-phased or even less complex, though the order of the succession of the regimes may vary.

Thus, in all these respects, the principle answers also the second and the third "why's": namely, Why some sociocultural processes

recur; and why some have double, some triple, some multiple rhythms?

D. Finally, *Why are some of the rhythms periodic, while others are not?* has been answered above, in Chapter Ten. In the sociocultural processes only those rhythms are periodic that are "social conventions" in the broad sense of the term. Social conventions are inseparably tied with "social time" and the time system of the society. Time system is one of the absolutely indispensable conditions of any social life.[81]

So far, therefore, the social nature of the periodicity of the sociocultural rhythms is explained and the problem is answered.

[81] See my forthcoming *Sociocultural Causality, Space, Time.*

Chapter Fifteen

THE PROBLEMS OF EVER-LINEAR, EVER-NEW, AND STRICTLY CIRCULAR SOCIOCULTURAL CHANGE

I. Two Important Corollaries of the Principle of Limit

The preceding chapter accounted for the "why" of sociocultural rhythmical processes and the structure of the rhythms themselves. In this chapter we shall examine whether, among the sociocultural changes, there exist processes with a linear trend throughout their existence; whether there are processes with an ever-new change, without any recurrence; and finally, if there are strictly circular processes that repeat themselves identically, with the "why" of each of these forms of change. The inquiry begins with the problem of existence and the "why" of linear processes.

A. The principle of limited possibilities of variation of a system determines clearly the conditions under which a linear process, with a permanent trend throughout its existence, as well as the ever-new process, are possible. *In a state of isolation or constant environment, the sociocultural system that has only one immanent possibility of change will be changing along one main linear trend throughout its existence.* Such an "invariant" [1] change will be linear, in one of the four forms of linear change — unilinear, oscillating, spiral, and branching — described in the first volume of this work (Chap. iv, pp. 181 ff.). In such case the main direction and the sense of it remain constant throughout the whole process. It would move continuously along the same line, unfolding more and more its one property, and approaching nearer and nearer its terminal point, if there is such a point at all. The result will be a process resembling many a current conception of linear evolution and progress.

[1] To borrow the expression from Gibbs's Phase rule, where the systems that do not possess any degree of freedom are called "invariant" while the systems that possess one or two or many degrees of freedom are called "univariant," "bivariant," "multivariant." See A. Findlay, *op. cit.*, pp. 17 ff.

B. *If, on the other hand, the possibilities of mutation of a system in process are exceedingly great or unlimited, the result will be a process that may have no recurrence, no rhythm, where each link is new, unique, unrepeated.* In that case, we shall have indeed a process which never repeats itself and is "brand-new" at each portion or fraction of its course.

The above corollaries A and B formulate with sufficient precision the essential conditions under which the process may be linear in its direction or ever new in its change. Now the question arises: Are such changes found among the sociocultural processes? Do we really have linear sociocultural processes? Do we have, likewise, perfectly "ever-new" processes? Let us turn to the discussion of the first of these problems.

II. The Problem of Linear Sociocultural Processes

Are such linear processes, with only one possibility of mutation, generally given in the inorganic and organic worlds? If we accept Carnot-Clausius's principle of entropy, such a process is certainly given in a thermodynamic system. Its essential premise is that "it is impossible to make heat pass from a cold to a warm body." In any transformation of other forms of energy into heat, or heat into other forms of energy, a part of the energy is dissipated. The result is an eternal equalization of energy in the world, with the world perpetually "running down" to a final stage where all potentials of energy are equalized and therefore universal death is the final goal.[2] Clausius himself describes this process as follows:

It is frequently asserted that everything in this world has a circular course. While transformations proceed in a certain direction in a certain place and time, other transformations take place in inverse direction at another place and time, in such a way that the same situations are reproduced generally and that the state of the universe remains invariable, when the phenomena are considered in their totality and in a general manner. . . . [However] the second fundamental principle of mechanical theory of heat contradicts this

[2] More exact formulations of this principle are as follows: "La valeur de transformation d'une modification est égale à la diminution que subit, par cette modification, une certaine grandeur liée a toutes les propriétés qui fixent l'état du système, mais indépendante de son mouvement" P Duhem, *L'évolution de la mécanique* (Paris, 1902), p. 111. According to Poincaré, its essence consists in that "it is impossible to make a thermic machine to function with one source of heat," that there must be at least two sources, one cold, another warm. H Poincaré, *Thermodynamique* (Paris, 1892), p. 120.

opinion in the most decisive [la plus formelle] manner. . . . It follows from that that the state of the universe must change more and more in a determined direction.[3]

It tends to an end, or to death, as contemporary astrophysicists often say.

If this theory is accepted — and it is fairly generally accepted, though there are objections to it [4] — we have here one of the most universal processes of a definitely linear type with only one possibility of direction throughout all the existence of the universe.

It goes without saying that most of the current conceptions of biological evolution are built along the linear type also — either a unilinear, oscillatory, spiral, or branching (multilinear) variety of the linear.

It is only a commonplace to say that most of the theories of social evolution and progress that have been formulated in the nineteenth and twentieth centuries have also been a variety of the linear type, with this or that perpetual trend more and more realized in the course of the existence of mankind.[5]

We may leave the thermodynamic and biological processes, with their alleged eternal trends, without discussion. Our task is to consider the matter in application to the sociocultural processes. Are there in sociocultural reality linear processes?

The answer seemingly depends, first, upon the *duration of time* considered. *There is no slightest doubt that if the time period is not too long, there are millions of sociocultural processes with a linear trend during such period.* The reader can glance over almost all the curves and tables of the previous volumes and see that during a certain period, be it one year, or a century, or sometimes even several centuries, almost all the processes considered — for instance, materialism and idealism, eternalism and temporalism, familistic-contractual-compulsory relationships, visual and ideational styles in art, and so on — each of these rival processes has been ascending or descending steadily for decades and possibly even centuries. Be it a quantitative, spatial, or qualitative direction, or the tempo of the process, there is not a doubt that during certain periods, different for different processes, most of the processes have a linear trend.

[3] R. Clausius, "Le second principe fondamental de la théorie mécanique de chaleur," *Revue des cours scientifique* (1868), p 158

[4] See an analysis of that in E Meyerson's *Identité et realité* (Paris, 1912), chap. viii.

[5] See a survey of the theories and the literature in *Dynamics*, Vol. II, chap. x.

Quite different is the situation if the existence of a linear trend is asserted for an infinite time, or for a period that factually exceeds the duration of the given linear trend. It is reasonably certain that an enormous part of the sociocultural processes (for the reasons on which is based the principle of limit in its first and second form) do not have either an eternal linear trend or a trend coextensive with the duration of the existence of the system. In the preceding volumes we have dealt with a number of processes. Though all of them, during a certain period, have exhibited a linear trend, when they are considered in a longer time perspective these linear trends are discovered to be finite, and are replaced by new trends either different or opposite to the previous ones. This concerns practically all the processes considered in the preceding volumes: the changes of art systems with their styles, of systems of truths, philosophies, scientific principles, discoveries, inventions, systems of ethics and law, forms of social relationships, of freedom, of government, of economic well-being, of war, of revolution, and so on. For a certain period, sometimes even during several centuries, a given form appears and grows and overwhelms its rivals; then the direction of the process changes and the ascending trend is replaced by a plateau, or descending trend. And so also in regard to qualitative, spatial, and tempo directions. *In all of them there happened to be a time limit for their linear trends.*

The same can be said of thousands of other sociocultural processes not mentioned specifically in these volumes. *Thus in regard to an enormous part of the sociocultural processes it can reasonably be claimed that all of them have a time limit for their linear trends. Beyond these limits, the trends end and are replaced by different, sometimes opposite trends.* The reasons for such a "trajectory" are given in the preceding chapters: *first, the immanent principle of change; second, the principle of not only one but two or more possibilities of mutations; third, interference of the external agents which for a given process throughout its existence are neither constant, nor absent, nor changing in an equilibrium of mutual annulment.*

These reasons are quite sufficient to explain why the above proposition is valid probably for an overwhelming majority of the sociocultural processes.

But are there processes which are exempt from this rule, which have the same linear trend without any time limits, or at least within the limits of an enormous time duration? If we have to believe a legion of enthusiastic devotees of linear progress and evolution, who have

formulated hundreds of "eternal historical trends and tendencies," there seems to be no doubt that such processes exist and that they are numerous. However, the slightest test of most of these "theories" and their "trends" shows their fantastic and wishful nature. If such trends exist, they can hardly be numerous. We have seen in Chapter Fourteen that in order for such a process to exist, a miraculous and most delicate combination of circumstances is necessary. First, it is necessary that the law of immanent change be eliminated; second, that the system have only one possibility of mutation; third, that it be either absolutely isolated from the rest of the world and external agencies, or that these for an exceptionally long time be constant, or, if varying, must be continuously annulling one another so that the equilibrium of the system and of its trend is undisturbed.[6] Such a combination of exceptionally rare and highly improbable conditions is hardly possible often. Even its rare occurrence, if given, amounts almost to a miracle.

Therefore, if such eternally linear sociocultural processes exist, they must be exceptionally few. Has their existence been proved factually? Have we indeed a process with an eternal linear trend whose reality is unquestionable and beyond any reasonable doubt? As soon as the question is put in this sharp form, the situation becomes much less clear than the partisans of linearism think. Brushing aside thousands of pseudo-linear processes claimed to be linear,[7] the processes which seem to be more certainly linear than all the others are probably as follows: 1. *Growth of the human population on this planet in the course of time.* 2. *Growth of human knowledge and inventions in the course of time.* 3. *Growth of social differentiation and integration in the course of time, including the division of labor.*

It probably will be agreed that these processes are likely to be most linear among all the sociocultural linear processes, if there are generally such processes. Therefore, an analysis of their eternal linearity may serve as an *a posteriori* crucial test of the existence of the genuinely

[6] There remains, of course, a hypothesis of Providence or of teleological principle that purposively guides the course of the system along an eternal trend As a matter of faith, such a belief is quite appropriate But as a matter of empirico-logical scientific demonstration, it is out of place, and is unacceptable to most of the partisans of the linear theory of social evolution and progress.

[7] See a survey of such processes in *Dynamics,* Vol. II, chap. x; W. D. Wallis, *Culture and Progress* (New York, 1930); C A Ellwood, *Cultural Evolution* (New York, 1927); H Hart, *Technique of Social Progress* (New York, 1931); J. B. Bury, *The Idea of Progress* (London, 1920); J. Delvaille, *Essai sur l'histoire de l'idée du progrès* (Paris, 1910); J. O. Hertzler, *Social Progress* (New York, 1928).

linear sociocultural processes which remain linear without any time limit, or as long as mankind exists.

The first argument against a claim of their unlimited linearity may be put as follows: We grant that "from the beginning of human history up to the present time the population of this planet, the knowledge of mankind, and social differentiation and integration have (with perhaps secondary and short-time fluctuations) been growing." But can we be sure that these trends will continue forever, no matter how far the future is projected in time, or as long as mankind exists? Are there any unquestionable reasons or evidences that it will be so, and that the trend will not be replaced by a different or perhaps even opposite one? So far, no convincing reason has been given why the trends will continue forever in the future, unless the hypothesis of Providence is postulated; but such a hypothesis is unacceptable to almost all the partisans of this claim. If anything, the logical reasons are against such a claim (see above). From the fact that it has always been so, it does not follow it will be so forever.

Second, this argument is reinforced by the data of the natural sciences. They assure us that the sun is the ultimate source of energy for life on this planet, including the sociocultural life also. They also assert that in the course of time the sun is cooling and therefore sooner or later the time will come when life on this planet will decline and finally die. This means, then, a decline and an end of human history. If and when human history enters this stage of the cooled sun, human population, its social differentiation and integration, and in all probability human knowledge, must also be on a declining trend, opposite to the trend that has prevailed up to the present time (according to our grant).[8]

The natural scientists have been assuring us that such a future of the sun and life and mankind is quite certain. If this is so, then the alleged eternal trends are nothing but unusually long-time trends which, beyond a certain time limit, are bound to be ended and replaced by different, even opposite, trends. If the partisans of the perpetual trends want to avoid this conclusion, they have to disprove the above assertions of the natural sciences, which they have not done as yet.

[8] One of the great sociologists of the nineteenth and twentieth centuries, G Tarde, wrote of a sociological utopia of mankind at this stage of its history According to his picture, *homo sapiens* returns again to the caves and becomes a cave man, with most of his previous knowledge lost; the population of the earth enormously decreases; social differentiation and integration recede to their primitive forms. *Si non è vero e ben trovato,* one can say to this original utopia.

These two considerations (plus the above logical reasons) make very doubtful the theory of the eternality of the trends discussed. At the best, they appear to be unusually long-time trends, neither eternal nor coextensive with the existence of mankind.

This conclusion is reinforced by other factual considerations.

As to the growth of human population in the course of time, we know of the real size of the population on this planet in the past — especially in the remote past — very little, next to nothing. We do not know even how, when, and where *homo sapiens* appeared on this planet. The current hypotheses in this field are but mere speculations, very different from tested knowledge. Likewise, we do not know what has been the population of mankind in various past periods.[9] What we do know, in fragments, is that the trend of growth in the course of time — if such a trend has been real — has been far from being a strictly linear process; has had many and sometimes enormous setbacks; many and long periods of decline in vast areas, sometimes even on whole continents; and long periods of stagnation. Such a conclusion is unavoidable, first for the reason that if the growth were more or less steady, in the course of time, even at a slight rate of increase, the present population of this planet must have been a hundred thousand, million times larger than it is at the present moment (some two billion human beings). The past history of mankind goes back, from some 200,000 to 800,000 and more years.[10] Even with a slight rate of growth, such a period would have given an enormous figure at the present time. If such is not the situation, this means that somehow the growth has been

[9] As a matter of fact, the rough statistical data about even European populations do not go beyond the eighteenth century. For the earlier centuries we have but a few fragments concerning a few specific cities or localities. Likewise, the population of Greece and Rome is known to us, at best, only in one or two periods, on the basis of the census, and even there it embraces only the population of the main centers of these countries and then only the free population. The rest of the population for various periods is not known. The existing rough figures are but random estimates which may and may not be true. Still less known is the size of the population of other continents at various periods. Therefore, our real knowledge of the number of mankind at various prehistorical and historical periods is quite meager, almost nonexistent. The hypothesis of the perennial trend of growth is really only hypothesis. It appears to us roughly valid just because we are under the spell of the growth of the Western population for the last three centuries. Such a fact predisposes us to view the process as perennial. Meanwhile, the period of few centuries concerning mainly the Euro-American population is but a drop in the ocean of tens of thousands of years of human history. On the basis of such a drop, we are not entitled to project the trend into the infinity of the past history as well as into that of the future. See a series of works concerning the estimates of the population in the past in *Dynamics*, Vol III, chaps. x, xi.

[10] The estimates or guesses of the natural scientists enormously vary.

checked, and was either stationary for long periods, or had gradual or catastrophic declines.

From several historical fragments we know indeed that such stagnations or recessions of the population have occurred many times in vast regions of this planet. Early censuses of China give us the sizes of the population a thousand or two thousand years ago as about as big as the present Chinese population. Marco Polo depicts the population of the thirteenth and fourteenth centuries of India and China as bigger, if anything, than it has ever been since, with cities having several millions of population. Where before flourished great empires, like Egypt, or Sumeria, or Assyro-Babylonia, or Ancient Persia, later on was desolation and depopulation. The population of Greece and Rome, after a period of growth, began to decline, after the second and first centuries B.C. in Greece, and somewhat later in Rome. The population of the Middle Ages in Europe was practically stationary for several centuries, and once in a while, as in the case of the Black Death in 1348–51, suddenly decreased by one-third or even one-half in many European countries during a few years. Finally, we must not forget that the rate of growth of the European population in the nineteenth century was exceptional, and that at the present time it has practically stopped and is replaced either by stationary or, in many countries, by a decreasing trend.

When facts of this kind are kept in mind, it becomes reasonably certain that the trend of growth of the population in no way has been continuous or steady. At the best, it shows a fanciful curve with perhaps the present point higher than it was before, but even this is a guess: we do not have any convincing evidence that sometimes in the past the size of the population was not as high as it is at the present time. And we are still less certain that in the future it will go still higher than at the present. On the contrary, the general considerations given above make such an unlimited growth improbable,[11] almost impossible, in view of the cooling of the sun and of this planet in the remote future. Thus, even in regard to this seemingly most linear process, we are not entitled to claim, with any certainty, that it has been, and especially will be, such, forever. A sufficient extension of the time makes it a process with perhaps a millennial linear trend, but also limited and bound to be nonlinear in the longer time span.

[11] We are led to the same conclusion by the logistic theory of the growth of population presented by P. E Verhulst, R. Pearl, G. U. Yule and others. See my *Contemporary Sociological Theories*, pp. 370 ff.

All these considerations are also applicable to the linearism of the growth of human knowledge. Even if we grant its existence so far, for the reasons indicated above, it is bound to turn downward when the process of ebbing of life on this planet comes. Therefore it also may turn out to be not an eternal linear process, but long-time linear only, which eventually will be ended and replaced by a different or even opposite trend. As to the past history of this trend, it is also far from being strictly linear. It has also known many a recession and stagnation. This can be seen from the tables and curves of the movement of the natural science discoveries and technological inventions given in Volume Two, Chapter Three, especially the table, pp. 134–135, of *Dynamics*, and in the table of Chapter Seven of this volume.

Whether measured by the number of known inventions and discoveries in the natural sciences and technology; or by the geometric averages (of the number of the scientific and technological contributors living in a given period and of the number of lines devoted to them in the *Encyclopaedia Britannica*), the process appears for the whole world *cumulatively* increasing, but the increase is very uneven; while for the last three centuries it has been extraordinarily fast, there were centuries when there was almost no increase, for instance, from A.D. 500 to 1200. If, instead of century periods, we take shorter, say, 50, 25, and 10-year periods, then for the whole world there are several such periods during which little if anything was recorded in the annals of history, as discovered or invented, and some of the discoveries made before were lost.

So, even from the cumulative standpoint — the standpoint adding to any previous inventions and discoveries any others made later — the process is far from being so linear as many assure us, even when the output of the whole of mankind is taken. But the cumulative standpoint is not necessarily the most adequate in the matter. It is in a sense misleading because, by its very nature, it does not admit any loss, anything below zero. From such a standpoint, the curve of growth of wealth, for instance, will always be upward, no matter what is the given situation of the population at a given period, and any later population will always appear to be better than the earlier, because any later populations will, by definition, have all the wealth which all the preceding generations had, no matter whether it was preserved or not. It would add and add all that the great-grandfathers had, all that the grandfathers had, all that the fathers had; and in this way make the generation of the great-grandsons always richer than the preceding

generation, though the grandsons might actually be dying of starvation.

Not exactly the same, but to a degree a similar, error is contained in the cumulative counting of discoveries and inventions. It assumes that none of the discoveries and inventions is lost, which has happened many times (see above, Chapters Four and Six); it assumes that all the preceding discoveries and inventions are known and used by the present population, which is also far from being true and unexceptional; it assumes that none of the previous discoveries and inventions is replaced by a different one — which is also wrong. When these and similar corrections are made, even the cumulative curve of science-technology progress will appear still more fanciful and uneven, with large regions of populations which do not add to, and sometimes rather detract from (lose), the amount of knowledge; and with more frequent stagnant periods, and even periods of actual retrogressions. So even from this standpoint the process is not exactly continuously linear, especially if the periods taken are not too long.

If, instead of such a cumulative standpoint we take the actual output of discoveries and inventions by each 100 or 50 or 25-year period, the intermittency and nonlinearity of the process will be perfectly unquestionable. It is enough to glance at the figures given in the tables referred to in order to be convinced of that. Up to 1700, the output of each subsequent period was far from being greater than the preceding periods; in many a subsequent period it was notably smaller. If, instead of the whole of mankind, separate large countries are taken, there this intermittency, and nonlinearity, and recessions, sometimes to the zero point, are still more conspicuous. (See the tables and the data by countries in the tables of Chapters Three and Five, Volume Two, and Chapter Seven, Volume Four, of *Dynamics*.) In separate countries, like Greece, Rome, Arabia, Persia, Egypt, and others, there is no linear trend at all: after an ascending period, the curve goes down.

All this means that even the process of growth of science and knowledge (though unevenly linear, from a purely formal cumulative standpoint), up to the present time — when the necessary corrections in the formal cumulative viewpoint are made — appears to be very unevenly and intermittently cumulative, showing many periods of stagnation and even recession, if not too long time-periods are taken. When it is considered in the terms of the actual output of each period, it is not linear at all, for a period even of several centuries. When,

however, its future is considered in the light of the premises of the natural sciences themselves, even its cumulative linearity becomes quite uncertain. It is likely to be a long-time trend, but not limitless-in-time linear process. And within its past history there remains only a very pale and shadowy linearity, even from a purely cumulative standpoint.

The same is still truer about the increase of social differentiation in the course of time. According to the main sponsor of this "formula of progress and evolution," Herbert Spencer, the process of evolution (increasing differentiation and integration) always ends in and is replaced by that of dissolution, and these two phases alternate with one another in inorganic, organic, and sociocultural worlds.[12] This means that it is linear only within a limited time-period, after which it changes its trend and is replaced by a different or even opposite one. We are led to the same conclusions by the reasons given above. Even from a purely empirical standpoint it should be noted that most of the earlier writers greatly exaggerated the lack of social differentiation in so-called primitive societies and their culture, and its growth in the modern societies. Seeing a great increase of social differentiation within a given city or nation, they often forgot to notice that though within a small tribe it certainly was less developed, there were formerly many tribes which differed from one another, where now one "standardized" nation exists, within which most of the previous tribal differences are eliminated. The same is true of the "primitive" and "civilized" cultures. In addition, some of the cultural phenomena, supposedly quite undifferentiated among the primitive people, are in fact more complex than these phenomena in "civilized" societies. The example is given by music, mythology and other cultural classes. Finally, in the preceding volumes of *Dynamics* we have seen that for all the processes studied within the time span of some three thousand years, there has not been shown any linear process of progressive differentiation. The phase of it has been replaced several times in all processes by the opposite phase of "uniformization."

To sum up: probably in most linear processes the linearity at best is likely to be a long-time but nevertheless limited linearity. In the perspective of still longer periods projected into the future and into the past, their linear trend is likely to be a mere part of a long-time parabola or other nonlinear curve. Even this linearity for a known part of the

[12] See H. Spencer, *First Principles* (New York, 1886), pp. 285–86, 518, 537, 550. See especially his treatment of social dissolution on pp. 519 ff.

processes appears such only when a purely formal cumulative standpoint is taken, when the periods are large, when the whole of mankind is considered. Even so, this linearity is very uneven, intermittent, with several recessions of stagnation points. When the processes are taken more realistically, from shorter time-periods — from the standpoint of the comparative increase or decrease of the population, of discoveries and inventions, of social differentiation and integration, from each preceding to each subsequent period, and especially for separate countries — the processes appear to be not linear, even in the part known. The net result of all this is that *if there are a few indefinitely linear processes, they are such only from a half-fictitious standpoint; and their linearity is so pale and undetermined that it amounts only to a mere shadow linearity.* This means that almost all the sociocultural processes that appear to be linear are such only within the limited duration of the process in time. Beyond this time limit their direction changes, and the processes appear to be nonlinear. This excursion only confirms what should be expected from the standpoint of the reasons developed on preceding pages in connection with the principle of limit. What appeared to be improbable "deductively" — almost amounting to a miracle, or the pre-established harmony of Leibnitz — appears also improbable empirically. So much then for the linear processes.

III. The Problem of the Ever-New Processes

Turn now to the problem of the sociocultural processes with large or unlimited possibilities of forms and mutations, and therefore potentially capable of having no recurrences, no rhythms (because an unrepeated rhythm is no rhythm at all, and a very infrequent rhythm cannot be grasped as such), being a unique novelty in any link of the process.

Are such processes found among the sociocultural processes? Before an answer is given, we must distinguish between all accidental properties of a system and its essential properties (main meanings, main vehicles and agents). Any system, and anything in the world, even this table and typewriter, when taken in the totality of its accidental singularistic characteristics, is an inexhaustible and infinite microcosm, with millions and billions of traits.[13] And any system,

[13] See about that especially H Rickert, *Die Grenzen der naturwissenschaftlichen Begriffsbildung* (Tubingen and Leipzig, 1902), pp. 33 ff.; A. A. Tschuproff, *Ocherki po teorii statistiki* (St. Petersburg, 1909), chap. i.

when taken in its essential characteristics — those whose absence makes the system non-existent or makes it radically different from what it is — has a limited number of properties, namely, those of *genus plus differentia specifica,* according to the logical definition.

If we put the question in application to a given social system, taken in the totality of all its singularistic properties, the answer is that, due to the principle of immanent change, any system changes incessantly during its existence: among all its properties something new is incessantly introduced and something old is incessantly lost from moment to moment of its existence. In this sense any sociocultural process is ever new and unrepeated. Even a change of the system along the same trend is ever new, because it moves farther, and changes at different (unique) moments of time.

We have admitted then an incessantly changing, new, and creative aspect of the sociocultural processes, without any exception whatsoever, when the totality of their properties is considered; on the other hand, it is to be noted that such an ever-new change is admitted not in regard to all the essential characteristics of the system, but only in regard to some of its accidental singularistic properties. If any system A, or its process A, were at any succeeding moment new totally, or in all its essential traits, there would be neither continuity of the same system, nor of the same process. Instead, there would be a rapidly succeeding series of perfectly different systems and processes, like the mentioned momentary cuts in movie films. If at any succeeding moment the system A (or its process) becomes brand new in all its characteristics, or in the totality of its essential properties, this means that the system A is ended at any of such moments, and is replaced by perfectly different systems B, C, D and so on. Total change of the total system or of all its essential components (meanings, vehicles, agents) means its end, and its replacement by a perfectly different system. It is not the change of the same system, because at any succeeding moment there is nothing left of A. If a given religion, law, state, man, or plant is in one moment replaced by a totally different religion, law, state, man, or plant, there is no continuity of existence or no change of these systems. There is just a replacement of them by quite different ones. In that case, we cannot talk of the process of change, transformation, modification, development, or evolution of the system at all. We can talk only of *substitution* or *replacement* of one system or process by another, totally different.

Hence the conclusion: any sociocultural process is new at any

moment, and, at the same time, is old. These two seemingly opposite statements — system is ever new and ever old, ever changing and ever identical — mutually supplement one another.

If we mean just a *replacement* of one system or one set of congeries by another, in such a substitution they may "change" *in toto* at any moment. In that case, however, we have not a process of change but a *replacement* or substitution of one system or congeries by another.

As soon as any given system — say, the Society for Prevention of Cruelty to Animals, or Gothic architecture, or a cow — loses its essential characteristics, the system ceases to exist *qua* Society for Prevention of Cruelty to Animals, *qua* Gothic architecture, *qua* cow, and is replaced by quite a different system.

These conclusions, translated into the terms of the range of possibilities of the system, mean that *in regard to an indefinitely large number of "accidental" traits and properties of the system, the range of the possibilities of forms and mutations is large, perhaps even unlimited. Hence the fact of the incessant change of these properties and traits in the system during its existence. But in regard to the essential properties of the system or process, the range of the possibilities is definitely limited for each system, so long as it exists. Some systems have narrow, others wider, but always limited possibilities of change, in regard to the essential traits that identify their respective sameness.* Hence the continuity of their existence; hence the coexistence of the ever new and ever old in the system, so long as it exists.

The conclusion concerning the limited possibility of essential mutations of any sociocultural system can also be reached in another way. If we imagine a sociocultural system unlimited in the possibilities of its forms and mutations, the system that can become anything and everything, cow, cathedral, university, polyphonic music, etc., such a system must be either *an infinite omnivariant God*, or absolutely indeterminate ultimate "stuff," or undefined "primary something."

Such infinite omnivariant God, or indeterminate ultimate "stuff," or undefined ultimate "something" is not a definite empirical system, because it is devoid of any empirical determination, any qualities, any quantities, any space-time properties, anything definite. It is Aristotelian formless "matter," Hegelian Pure Being, identical with Nothing, Master Eckehart's and the Mystics' "Divine Nothing," Erigena's and Nicolaus Cusanus' God, "infinitude of infinitudes," as the *"coincidentia oppositorum,"* to which none of our categories are

applicable; even such as "What." [14] Such Absolutes have nothing in common with an empirical sociocultural system, which always is finite individuality, limited, defined, and determined, with all the categories applicable to it. Such a finite system cannot be endowed with an infinite or unlimited capacity or transformation: in that case the finite would contain in itself the infinite, which is logical nonsense. Hence the conclusion of the limited possibility of its transformations, so far as its essential characteristics are concerned, with a much wider possibility of change in its accidental properties. When the limited possibility of the transformation of the system is transgressed, the system loses its identity and ends its existence.

The inexhaustibly diverse and ever-new process of culture is made up through the immanent limited change of its systems, as well as through an incessant replacement of the dying systems by newly born ones. The total history of the sociocultural world certainly displays itself as ever new, as inexhaustible in its creativeness, variations, transformations and diversity at any moment of its existence. It appears to be and probably is infinite in the possibilities of its variations. Such a result is due not only to the fact that each of the multitudes of systems of which it is made up incessantly changes, but also, and mainly, that history uses the method of incessant replacement of the systems that dissolve after reaching their terminal point by ever-new systems that take their place. Through this double method of immanent change of the systems and their replacement, it achieves inexhaustible creative variations. In any compartment of culture we see this substitution of new systems for the dead ones. A certain style in art, say, Gothic architecture, emerges, develops, reaches its full realization, and then, having exhausted its possibilities, stops, and becomes either mummified in its imitative repetitions, or dies out, giving place to a new style. The same destiny awaits this successor. A certain technological invention, say, "horse-buggy" system, emerges, unfolds itself in many varieties, and then stops in development and, sooner or later, is replaced by a new system, say, the automobile, which in no way is its further development but the start of a new system. The same is true of the specific systems in science, religion, art, law, ethics, forms of economic, political, social organization, and what not. The impressive diversity of change in all these fields is due, to a great degree, to the method of substitution. The creative forces of human history in-

[14] Remember Erigena's "God does not know What He is, because God is not What." See Chapter xvi.

cessantly use this method; after unfolding all the possibilities of each created system, they discard it, and start a new system. Having squeezed from it all that it can give, they mold a new successor to it; and so on, *ad infinitum*. Hence, the inexhaustible creativeness of human — social and cultural — history. The same is true of the history of life. Having "experimented" with a given species in all its main possibilities, the creative forces of life discard it and give birth to a new species. So it has been, and so it is.

Each system has limited possibilities of variation, so far as its essential traits are concerned. But in variation of its accidental traits and, especially, in variation of the new types substituted for one another, when the whole process of biological and sociocultural history is considered, there seems to exist the widest, almost unlimited, range of possibilities.

IV. The Problem of Identically Cyclical or Circular Processes

In regard to this possibility we can be brief. We have seen that rhythm and recurrence are unavoidable for practically all the sociocultural processes that exist after all their possibilities are run through. But it has been indicated that the recurrence or rhythm is never identical in all its characteristics with the preceding or following recurrences. It is identical with other recurrent rhythms only in the essential traits, but not in all accidental properties. The impossibility of absolutely identical recurrences either in the same system (recurrence in time), or in different systems (recurrence in space), follows from the same principle of immanent change. By virtue of this, any system is changing by *proprio motu* and is in some degree different at any different moment. Monarchy and Republic, Gothic and Classic style, Materialism and Idealism can alternate in a sociocultural system, but each case of recurrence of Republic or Gothic style is different from the preceding case and from all the subsequent cases in a number of ways and traits. Time is different; details in the components are different: in the system of meanings, in vehicles, in agents; society and environment are different; and so on. Every one of us, from day to day, has dinner or sleep, but each dinner or sleep is not identical with the former ones: we ourselves are changed; time has elapsed irretrievably; and a number of traits of the dinner or sleep are varying.

This is quite sufficient to demonstrate the impossibility of identical

recurrences and rhythms in any sociocultural system and process. In regard to them, at least, we shall abandon the old theories of "eternal return" in identical forms, surveyed above. The principle of immanent change is quite sufficient for that conclusion.

V. Summary

Thus, developing systematically the principle of immanent change and its derivative — the principle of limit — and applying it to the problem of recurrence, rhythm, linearism, and eternal novelty, we come to the conclusions already given in the first volume of *Dynamics:* that the most general pattern of the sociocultural change is that of incessantly varying recurrent processes. (See *Dynamics,* Vol. I, pp. 181 ff.) This means:

1. Identically recurrent sociocultural processes are impossible.

2. Eternally linear sociocultural processes are also impossible. Any process that appears such is, in all probability, a long-time linear process, and when taken in its complete life, it is likely to be a nonlinear process.

3. But a linear trend limited in time (whose duration is different for different systems and processes) is to be expected and is factually found in almost all sociocultural processes. In some it lasts only a few moments or hours or days or months; in others many decades and even centuries, but in all, it is limited in time and is shorter than the time of the whole existence of the system.

4. The sociocultural processes with an unlimited possibility of variation of their essential traits are also impossible — factually and logically. All such systems and processes are limited in these possibilities so far as these essential forms are concerned. Hence, "history is ever old and repeats itself."

5. As to the possibilities of variation of the "accidential" properties of the system, the range of the possibilities here is wide, in some cases, at least, theoretically, almost unbounded. Hence, an incessant change of the system in these traits as long as the system exists. Likewise, almost unlimited are the possibilities of variation of the ever-new systems through the method of substitution or replacement of the exhausted systems by new ones. Hence, history is ever new, unrepeated and inexhaustible in its creativeness.

6. Since practically all the sociocultural systems have limited possibilities of variation of their essential forms, it follows that all the

systems that continue to exist after all their possible forms are exhausted, are bound to have recurrent rhythms. Hence, the inevitability of recurrence in the life process of such systems.

7. Other conditions being equal, the more limited the possibilities of variation of main forms, the more frequent, conspicuous, and graspable are the rhythms in the process of the system, and the simpler the rhythms from the standpoint of their phases. And vice versa, if in some of the processes we cannot grasp any recurrent rhythm, the reason is either that the process has comparatively large possibilities of variation that empirically prevent us from noticing the infrequent rhythm; or that it endures a shorter life span and dies earlier, before it has had a chance to run through all its forms (just as some organisms die at the prenatal stage or in childhood, before they have had a chance to run through all the main phases of human life from birth to senility). Or the inability to grasp any recurrent rhythm may be due to a coexistence and mutual "interference" of several contemporaneous and different rhythms in the same system that change them into an unrhythmical "noise" for the listener or observer; or to the excessively long duration between the recurrences, which makes the rhythm also unobservable; or to the exceedingly complex and many-phased nature of the rhythm.

8. Thus history ever repeats itself and never repeats itself; both seemingly contradictory statements are true and are not contradictory at all, when properly understood.

9. This means that the strictly cyclical (identically recurrent) conception of the sociocultural processes; the linear, in the sense of unlimitedly linear; the unicist, in the sense of the nonexistence of any recurrent rhythms in the sociocultural processes, they being "brand-new" and unique in the totality of their traits and properties at any moment; the static conception that there is no change, and that the sociocultural world ever remains strictly identical with itself — all these conceptions are fallacious. The valid conception is that of an "incessant variation" of the main recurrent themes, which contains in itself, as a part, all these conceptions, and as such is much richer than any of them.[15]

[15] In the light of the very clear though concise statements of these principles in Vol I, pp. 181 ff., and in the light of the above chapters, the reader can possibly share my surprise when some critics, like Lewis Mumford, accused me of a narrowness of conception of the patterns of sociocultural processes, and very condescendingly consented to enlighten me that "social changes result from a multitude of causes, often proceed in a given culture in more than one direction, and take on more than one kind of form. Some changes are fitful, some are cumulative, some are cyclic, some are pulsating, and some are serial.

. . . An adequate theory of social causation must account for all these types of change. Though Sorokin verbally rejects the cyclic and the serial types, he more than once has recourse to them. At the same time, he is driven, like Spengler, to rejecting the element of cumulative improvement, and he closes his eyes to all evidences of the linear drift which becomes observable, if one lengthens the time-perspective sufficiently Sorokin, after demolishing various one-sided theories of social dynamics, ends with an essentially static doctrine." L Mumford, "Insensate Ideologist," *The New Republic*, July 14, 1937, p 283. Unless by "linear" and "serial" and "cumulative," L Mumford means *unlimitedly* linear, serial, and cumulative, whose existence and possibility he can hardly prove, and unless by "cyclic" he means identically cyclic, which also would be impossible for him to prove — his criticism is but a very imperfect and unprecise repetition of exactly what I said in Volume One and what I say, in more expanded form, in the above chapters of this volume. In other words, I am denied in what I said, something which I did not say is ascribed to me, and I am benevolently instructed in the principles that represent a very poor repetition of my own principles. From a critic of the type of L. Mumford, I should expect a little more attentive reading and digestion of my pages.

No less surprising is the criticism of Professor A P Usher, worded as follows: "Although the discussion of types of evolution theories purports to be exhaustive, there is no discussion of any multilinear theory" If by this indefinite statement the critic means what I style and define much more clearly as the branching variety of linear conception (see pp 184 ff, Vol I, where even a picture of such a conception is given), then the critic is evidently wrong If he means something else, he should have expressed his thought more clearly, and even in that case I am reasonably certain that any other form of his "multilinear theory" is embraced by one of the main conceptions defined on these pages. Professor Usher continues further "Much of the criticism of the concept of evolution is directed against naive formulations and misconceptions that would command little respect in any quarter. It is thus possible, that the author is less hostile to the concept of evolution than he appears to be The present work, however, is essentially anti-evolutionary, and it is clearly deemed to be an objective statistical demonstration of the absence of any trend in the development of "integrated cultures or their individual elements" A P Usher, "Sorokin and the Dangerous Science," *Harvard Guardian*, November, 1937, pp. 7–8 I wonder, first, what is "naive formulation" of evolution. I think in the preceding volume, and in this one, I have been referring to and considering the best and most prominent thinkers in that field, and the best works in it. So if there is something in these naive theories I succeeded in showing as weak, I am glad of that. It is up to the critic to show what is the non-naive concept of evolution. Farther on, I am unaware that I am either hostile or friendly toward a conception of evolution undefined by the critic If by this "evolution" he means the linear conception of it, I am neither hostile nor friendly as I clearly said in the first volume of my work, I admit linear trends in almost all the processes — and my numerous tables and charts show plenty of trends of even several centuries' duration Therefore, it is inaccurate to ascribe to me "an objective statistical demonstration of the absence of any trend" This is evidently a wrong ascription. If by evolution is meant an unlimited linear trend in the sociocultural processes, I certainly doubt it, and the existence of such sociocultural processes, for the reasons developed in the above chapters The *onus probandi* in that case is not upon me but upon the partisans of such a trend. Let them try to prove it. If they succeed — which I doubt very much — in its application to sociocultural processes (except the purely formal cumulative standpoint discussed above) I shall be glad to change my opinion. For the present, when such a demonstration is lacking, I stand by my position, armed better than the partisans of such eternal trends.

Another variety of similar criticism is given by N. L. Sims. He identifies my concep-

tion of sociocultural processes with Spengler's cyclical conception and concludes: "Spengler's interpretation has generally been discredited as being untrue to the facts; and Sorokin's scheme, for all its Herculean labors, probably has a similar fate awaiting it, and for like reasons" H L Sims, *The Problem of Social Change* (New York, 1939), p. 219 It is enough to say, on my part· my conception is as far from Spengler's as is Sims's conception from it; I am not a partisan of the cyclical conception, therefore, Sims's criticism does not concern me; nor does he seem to have read carefully what he criticizes

On quite a different ground, the criticism in this point is made by John LaFarge. In his otherwise very intelligent review of my work, the main fault he finds is that "save for the most casual allusions, he [Sorokin] completely ignores the great central fact of history, the Divine intervention in the world through the history of Israel. . . . Dr Sorokin's intellectual flight from revolutionary emergences and Marxian linearism seems to have driven him to the opposite extreme" John LaFarge, "A Critique of Progress," *America*, September 25, 1937, p. 597 As I carefully noted a few times in the preceding chapters of this volume, one of the possible grounds for a belief in an eternal trend of the sociocultural processes is the postulate of Divine Providence, or Divine intervention, whether in the form of God guiding the course of human history or other teleological and purposive force Yes, such a position is logically possible As a believer I, perhaps, share it, though incapable of seeing it often clearly But that is the matter of belief; the standpoint of pure truth of faith In this work, I am not engaged in the study of the sociocultural phenomena from the standpoint of this truth of faith exclusively or mainly I am studying them from the standpoint of the truth of reason and senses From this standpoint, there is little evidence of an existence of the unlimited linear trends in the field of sociocultural phenomena Furthermore, I am not sure also that even from the standpoint of faith, the linear unlimited plan of human history is necessarily the plan of the Divine Providence The direction of sociocultural processes may be guided by the Divine Providence, but there is hardly any reason to impose upon this Guidance the linear or any other narrow pattern of the processes. Incessantly creative process may be better for that purpose

These remarks equally concern other critics — the competent and especially the incompetent — who made some objections in the point of my conception of the sociocultural processes Incompetent critics do not deserve any answer

Side by side with the criticism of the partisans of the unlimited linearism, there has also been a criticism of the conception of recurrence in my theory, and especially of the recurrence and identity of the main types of culture: Ideational, Idealistic, and Sensate, as they have repeated themselves in the course of the Graeco-Roman and Western cultures Professor C. Brinton's criticism may serve as an example of these He objects to the identity of two phases of the Idealistic cultures in my theory that of the culture of Greece of the fifth century B C and that of the European cultures of the thirteenth century. "To the plain critic, the two cultures seem about as different as cultures can be Can anyone imagine St. Louis delivering Pericles' funeral speech? Or St Thomas Aquinas acting the gadfly among the citizens of Paris as Socrates did at Athens? Surely the Parthenon is as unlike the thirteenth century Gothic cathedral as it is possible for two masterpieces of architecture to be" C. Brinton, "Socio-Astrology," *The Southern Review*, Autumn, 1937, p. 258 If one judges the Greek and the Western cultures by their purely perceptional and empirical appearance, the objection seems to be crushing. But perceptionally, the same chemical element, say carbon, is as different as can be, when it is given as diamond, as graphite, and as a constituent element in all organic compounds Certainly, "to the plain critic," there is no similarity between all these carbons. And yet chemistry teaches us that, in spite of all this perceptional dissimilarity, it is the same

chemical element, carbon. Perceptionally, the four phenomena which Professor Brinton studied as the same kind of phenomena, namely, the English Revolution, the French Revolution, the American Revolution, and the Russian Revolution (see C. Brinton's *Anatomy of Revolution*, New York, 1938, and my criticism of it, *Harvard Crimson*, December 3, 1938, p 3) are as different as they can be. In the Russian Revolution there is neither Cromwell, nor Danton, nor a guillotine, nor George Washington, nor an enormous number of "accidental," purely local and temporal perceptional characteristics of any of the other revolutions studied by Brinton; nor in any of these others, those of the rest. London of the seventeenth century (even architecturally) is as different from St. Petersburg or Moscow of 1917, or Boston of the end of the eighteenth century, as the Parthenon is from the Chartres Cathedral. And yet, Professor Brinton himself quite seriously attempts to identify all these four complexes of phenomena as belonging to the same kind, to the class of Revolution, and endeavors — not very successfully — to find the recurrent and identical uniformities in all of them Mr Brinton's "plain critic" is repudiated by Mr Brinton himself, as author of the *Anatomy of Revolution*, identifying seemingly the phenomena quite different perceptionally In my identification of two supersystems of Idealistic culture as belonging to the same Idealistic type, I do the same as is done by chemistry and natural sciences generally, and as is done by Professor Brinton and historians specifically For the same reasons for which chemistry identifies as carbon all its perceptionally different variations, for which all natural sciences identify an enormous number of phenomena perceptionally different, but essentially identical (see about that especially the quoted *Identity and Reality* by E Meyerson), for which historians style as "monarchy," or "feudalism," or "capitalism," or "Christian religion," or "state," "the economic system," or "art," regimes and phenomena as different perceptionally as they can be (what can be more different perceptionally than the *State* of Egypt 2000 B C, that of Dahomeys, that of Athens of Pericles, that of China A D 1936, that of the British Empire of 1914, and of Russia of Stalin's regime!), for exactly the same reason I did not hesitate to call both of these supersystems Idealistic, as I called several other supersystems in the Graeco-Roman and the Western cultures Sensate or Ideational. Their essential characteristics under consideration — and their subsystems of art and science, philosophy and religion, law and ethics, social relationships and political regime, and other important elements of these supersystems — happened to be essentially similar in such periods. And the above three volumes have shown it factually Therefore, there was a recurrence of these supersystems of culture; they were, from the standpoint studied, identical, in their essentials (not in perceptional accidental traits) Therefore, until it is shown — which has not been done as yet — by critics, that my facts and identifications are wrong, the conclusions stand This means that the phenomena of recurrences do take place, and that they are one of the most common patterns of the sociocultural processes. For the instruction of those who claim to be natural-science minded sociologists — and who factually are neither sociologists nor know anything serious about the natural sciences — the following lines from the Phase Rule of W Gibbs may be instructive to remember· the physicochemical "systems which are apparently different in character may behave (according to the phase rule) in a very similar manner" (A Findlay, *op cit*, p 17) The same elementary, but fundamental principle of science is formulated by one of the most empirical logicians as follows

"Identification of an object under varying circumstances means nothing else than the capacity of holding together, in a mental synthesis, certain elements which in nature are often and widely separated; and also of separation from each other elements which from time to time are actually found to be conjoined" J Venn, *The Principles of Empirical or Inductive Logic* (London, 1907), p 6

All this means again that the systems that look perceptionally very different may be

in fact very similar, when analyzed from the standpoint of their essential characteristics *Sapienti sat*.

A somewhat similar, though much more seriously put, objection raised by H Hart in his article, "Sorokin's Data Versus His Conclusions" in *American Sociological Review*, October, 1939, was answered in my "Rejoinder" to his article in the same copy of the *Review*. Therefore, there is no need to repeat the arguments of Hart and my counter-argument

Some criticism given in the article, "Sorokin Counselor to Reaction" by E F Guthrie in *Science and Society*, Vol. III, No. 2, Spring, 1939, either does not concern at all what I said in *Dynamics*, representing mainly effusions of the strong political emotions of the critic, or is such an interpretation of my propositions that I can hardly share The rest is criticism of the type "Everything that deviates from the Gospel of Marx-Lenin is heresy; Sorokin's theories deviate greatly, therefore, he is a heretic and 'Counselor to Reaction'" Like many very enthusiastic believers, Mr Guthrie has not been able to see a number of points similar in Marx's and in my theories If I had a chance of having followers, I would prefer to have them less enthusiastic but better acquainted with my theories Mr Guthrie is a very enthusiastic Marxian, but hardly knows his K Marx well.

Chapter Sixteen

THE REASON FOR THE SUPER-RHYTHM OF IDEATIONAL-IDEALISTIC-SENSATE PHASES IN THE GRAECO-ROMAN AND WESTERN SUPERSYSTEMS OF CULTURE

I. Principles of Immanent Change and of Limited Possibilities as the First Reasons

In the light of the principles of immanent change and of limited possibilities we are prepared now to answer the problem: "Why, in the course of the historical unfolding of the Graeco-Roman and Western cultures, has its supersystem twice repeated the triple rhythm of Ideational-Idealistic-Sensate phases, from the twelfth century B.C. to the end of the Middle Ages, and after the fifteenth century for the third time entered the Sensate phase, which is seemingly declining at the present time? (See the preceding three volumes of *Dynamics*.)

However different may have been the course of these cultures during these centuries in other respects; however large, perhaps even unbounded, are the possibilities of mutation of these cultures in regard to their different aspects and traits, in their congeries and systems unrelated to the supersystem; the fact of the rhythm, and the above order of the phases of each rhythm (Sensate-Ideational-Idealistic, or, what is the same, Ideational-Idealistic-Sensate) seems to be beyond question. Moreover, in a clearly defined form, we have traced somewhat similar rhythms even in several other cultures, like the Hindu, the Chinese, the Arabian, and a few others.

What is the reason for such a rhythm? The answer is given by the principles of immanent change and of the limited possibilities of the main integrated forms of a cultural supersystem. ***By virtue of the principle of immanent change, each of the three integrated forms, or phases, of the Ideational, Idealistic and Sensate supersystems cannot help changing; rising, growing, existing full-blooded for some time, and then declining.*** The principle explains why each of these forms does not stay forever at its domination, and why it has to give place to the other forms of the triad. It does not explain, however, why this

triple rhythm with its three phases is recurrent, and why the phases follow each other in the sequence: Sensate-Ideational-Idealistic.

The recurrence is sufficiently accounted for by the principle of the limited possibilities of the main *integrated* forms of culture. Note, I am stressing the *integrated* forms of culture (or the phases of the integrated supersystem). Only to these is the principle of the limited possibilities applicable. The number of the unintegrated forms of culture is much larger, practically unlimited, if we keep in mind all the variation of diverse congeries, accidental traits, and unrelated systems.

Even the number of unintegrated, eclectically mixed combinations of the Ideational and Sensate culture elements is enormous. In our study of the transitional periods, when one integrated form disintegrates while the other is not yet crystallized, we have seen that these transitional periods exhibited a variety of combinations of the elements of the main forms, and a dissimilarity from each other in a number of important aspects (centuries from the ninth to the eighth B.C., the sixth and the third B.C., the third and fourth A.D., the twelfth and fourteenth to the fifteenth A.D., and the present time).

Different, however, is the situation in regard to the main *integrated* forms. Their number — or possibilities — theoretically and factually, is much more limited.

In regard to the nature of the true reality — the main premise of each of these integrated forms — the number of possible answers is very limited and hardly goes beyond five fundamental solutions: first, the nature of the true reality is supersensory (Ideational premise); second, it is sensory (Sensate premise); third, it has both aspects inseparable from one another (Idealistic premise); fourth, it is entirely unknown and unknowable (premise of Scepticism); fifth, it is known only in its phenomenal aspect, while in its transcendental aspect (if it has such an aspect) it is unknowable (the premise of Hume-Kant's Criticism and Agnosticism). There exists hardly any solution of this problem essentially different from these five possibilities. There is a much larger possibility for various eclectic (unintegrated) mixtures of these five principles, but such eclectic solutions are not systems but congeries. As such they are not and cannot be a major premise of integrated forms of culture. Likewise, within each of these five fundamental forms, there is a large possibility of variation in the secondary details of the respective theories; the Idealistic philosophy of Plato differs — in a series of secondary traits — from that of

Plotinus, and both from that of St. Augustine or Hegel. The materialism of Leukippos is different from that of Lucretius, and both from the materialism of Lammetrie or Holbach or Marx. However, these are secondary differences which do not concern the main characteristics of Idealistic or Materialistic premises. From the standpoint of these main characteristics, there is hardly any other main possibility of the solution of the problem, except the above five answers. If there are one or two more possibilities, they would increase the five possibilities to six or seven forms only.

Since there are only five main possibilities, two of which are negative and can hardly serve as a basis for a long-existing integrated culture, by virtue of the principle of limit and immanent change, three of these, and two others as subsystems, cannot help being repeated in the integrated cultures that continue to exist after the first run of all the three or five fundamental forms. Hence repetition of these forms; hence our super-rhythm in the history of the cultures studied. What is said of the main postulate of these three main forms of cultural supersystems can be said of all the embraced systems and rhythms of which they are composed.

Theoretically, there are and can be only five or six main integrated systems of truth: 1, the truth of faith; 2, that of reason; 3, that of the senses; 4, that of their idealistic synthesis; and 5, an integrated sceptical and agnostic, or critical system.[1] The rest would represent merely an eclectic mixture of these systems. Since there is no other logical possibility for a fundamentally different integrated system of truth, it is but inevitable — logically and factually — that these systems should recur in any long-existing culture (in time) or in various cultures (in space). We have seen that they have indeed been recurring in their domination.

The same can be said of the main styles of art: Ideational (Symbolic), Visual (Sensate), and Idealistic (Integrated Symbolic-Visual).

There is no possibility of an additional fundamental integrated form. There is only a wide possibility of an eclectic and incoherent mixture of these elements. Hence a recurrence of these forms in the same and other cultures.

The same applies to much more detailed "patterns" of art generally, and to specific arts particularly. "Classic and romantic,"[2] "linear

[1] See *Dynamics*, Vol II, chaps i, iii

[2] See R. M. Waerner, *Romanticism* (New York 1910).

and malerisch," "religious and secular," "idealistic and naturalistic," "conventional" and "revolutionary," — these and hundreds of other forms so commonly used in the history and theory of art — whatever each of them means with different authors — all these detailed forms are again limited in the possibility of fundamental forms. Hence the logical and factual necessity of their recurrence.

So also in regard to the main forms of ethics. Any integrated system of ethics may be either that of Absolute Imperative (including that of Christian Love), or the ethics of Sensate Happiness in its eudemonistic, utilitarian, and hedonistic varieties, or an organic synthesis of both.

The rest (including the extreme moral nihilism) will be an incoherent mixture of these forms. Hence the recurrence of these integrated forms in time and in space. Hence the swings of the domination of each of these main forms, which we have traced in the preceding volumes.

And so on, in regard to even such more narrow and specified principles as atomism and anti-atomism in the natural sciences, as vitalism and mechanism. as the main conceptions of time, space, and other "first principles" of science and philosophy (see *Dynamics,* Volume Two, Chapters Eleven and Twelve).

Since the main forms of each of these integrated systems and subsystems have a limited range of variation, they cannot help recurring again and again in the life history of a culture whose existence exceeds the duration of the first run of all these main forms. Having occurred once, they cannot help being repeated for the second or third or more times.

So far as each of these systems of truth, of true reality, of forms of art, of ethics, of forms of social, economic, political and other relationships are but subsystems in our supersystem, and as such live and change together, their total co-ordinated recurrence gives the recurrence of the Ideational, Idealistic, and Sensate phases in the life process of our supersystem.

Thus the principles of immanent change and of the limited possibilities of the main forms give an adequate answer to the problem: Why do these phases of the supersystem, as well as the corresponding phases in all the subordinated systems of which the supersystem is made up, recur? These reasons are, however, not the only reasons for recurrence. There exists another, deeper, reason for that. Let us glance at it.

II. Inadequacy of Each of the Main Systems of Truth and Reality as a Reason for the Super-Rhythm of Ideational-Idealistic-Sensate Forms of Culture

The preceding volumes of *Dynamics* have shown [3] that at the basis of the Ideational or Idealistic or Sensate form of integrated culture lies, as its major premise, its system of truth and reality. It is this premise that, to use W. I. Thomas' term, "defines the situation" for the rest of the related compartments of each of these forms of culture.[4]

Art and philosophy, ethics and religion, science and forms of social organization of a Sensate supersystem are articulations of the Sensate system of truth and reality. In Ideational or Idealistic or Sensate cultures, these compartments articulate Ideational or Idealistic or Sensate systems of truth and reality.[5] *Now each of three main systems of truth and reality may be either entirely true, or entirely false, or partly true and partly false.*

A. If one of these systems is entirely true — is the only truth, the whole truth and nothing but the truth — then the other two systems of truth and reality are entirely or mainly false. Under such an assumption the true system of reality — and a corresponding form of culture — can exist and dominate forever, without any fear or possibility of being dislodged by the false systems. It is hardly possible that an entirely false, and inadequate, system of reality and truth can dislodge the entirely true system, or that complete ignorance can overthrow complete knowledge. Being true, it gives an adequate knowledge of the reality; through that it permits its human bearers to live a real life, to adapt themselves successfully to the adequately known environment; and, through all that, to enjoy a better social life and culture than a society and culture based exclusively upon error and ignorance. This means that under such an assumption, *a given system of true reality and knowledge can be expected to continue forever, without any rhythm of rise and decline of Ideational-Idealistic-Sensate forms.*

B. If we assume that each of these systems of truth and reality is entirely false — is nothing but an error and fallacy — none of them could dominate for any length of time, and still less could recur, because no human beings, no society, no culture can endure under the condi-

[3] See especially Vol. I, chaps. ii, iii, Vol II, chaps. i, ii, iii, *et passim.*

[4] See W. I Thomas, *Primitive Behavior* (New York, 1937), chap. ii.

[5] See the evidences in the preceding volumes of *Dynamics, passim.*

tion of complete ignorance and error. If human beings do not know what is eatable and what is not; and if they try mistakenly to eat "uneatables," and do not eat "eatables," and display similar folly in regard to other necessities and phenomena, they very quickly perish, and with them their society and culture. A minimum of true knowledge, of true reality, is absolutely necessary in order for any person or society to exist for some time; and a great deal of it is required in order to exist for decades and centuries.[6] If each of the three main systems of truth and reality were absolutely false, none of them could have dominated millions of human beings for centuries, as they did; and after their disappearance none of them could have had any chance to recur, as they did. Even from the standpoint of the theory of selection, such an entirely false system of truth and reality would be eliminated once and for all. This means that under this assumption, no rhythm of domination of Ideational, Idealistic, and Sensate systems of truth and reality — and a corresponding form of culture — is possible. Likewise, no durable domination of such an entirely false and inadequate form of culture is thinkable. Meanwhile, as a matter of fact, each of our three main systems dominated for centuries and recurred several times in the history of the Graeco-Roman and Western cultures. And so they did also in other cultures.

C. Hence the *super-rhythm studied seems to be possible only under the condition that each of the three main systems of truth and reality — and the corresponding form of culture — is partly true and partly false, partly adequate and partly inadequate.* Only because each of them contains a vital part does it give to its human bearers the possibility of an adaptation to their milieu — cosmic, organic, and social; gives them a minimum of real experience to meet their needs; and serves as a foundation for their social life and culture. But because each of the three systems has also an invalid part — error and fallacy side by side with truth — each of these systems leads its human bearers away from the reality, gives them pseudo knowledge instead of

[6] Even Lévy-Bruhl, in his later works, had to recognize an amount of true knowledge possessed by the primitive tribes, whose whole system of truth he was inclined to regard as "pre-logical" and devoid of real knowledge "No doubt they have also real experience [besides mystical or pseudo-experience, P.S.] whose function is to help them to adapt themselves each moment to their environment, under the penalty of disappearance It [real experience] is the first condition of existence for human beings as well as for other living creatures Sometimes, under the most unfavorable climate, the primitives succeed in deriving the most marvelous lessons from experience Esquimaux in the Arctic regions, the Blacks of the arid regions of Australia, and others." L. Lévy-Bruhl, *L'expérience mystique et les symboles chez les primitifs* (Paris, 1938), pp. 9–10, *et passim.*

real knowledge, and hinders their adaptation and the satisfaction of their physiological, social, and cultural needs. When such a system of truth and reality ascends, grows, and becomes more and more monopolistically dominant, its false part tends to grow, while its valid part tends to decrease. Becoming monopolistic or dominant, it tends to drive out all the other systems of truth and reality, and with them the valid parts they contain. At the same time, like dictatorial human beings, becoming dominant, the system is likely to lose increasingly its validities and develop its falsities. The net result of such a trend is that as the domination of the system increases, it becomes more and more inadequate. As such, it becomes less and less capable of serving as an instrument of adaptation, as an experience for real satisfaction of the needs of its bearers; and as a foundation for their social and cultural life. The society and culture built on such a premise become more and more empty, false, inexperienced, ignorant; therefore, powerless, disorderly, and base; nobody can build his or society's life and culture on error, ignorance, and pure illusion. The moment comes when the false part of the system begins to overweigh its valid part. Under such conditions, the society of its bearers is doomed either to perish, or it has to change its major premise — to "redefine the situation" — and with it, its system of culture. In this way the dominant system prepares its own downfall and paves the way for the ascendance and domination of one of the rival systems of truth and reality, which is, under the circumstances, more true and valid than the outworn and degenerated dominant system. The new dominant system undergoes again the same tragedy, and sooner or later is replaced by its rival; and so these *corsi* and *ricorsi* must go on, and have been going on. In other words, under this third assumption, the recurrence of our super-rhythm of Ideational-Idealistic-Sensate systems of truth and reality, and of corresponding systems of culture, becomes not only comprehensible but logically and factually inevitable. The only alternative to this inevitability is the perdition of the society and culture. Such is the deeper reason for the "why" of the super-rhythm studied.

The validity of this reasoning is almost axiomatic, if it can be shown that each of the three main systems of truth and reality is indeed neither wholly false, nor wholly true, but contains a part of truth and a part of error; and that with an increase of the domination of each system, its part of truth decreases while the part of error increases.

That each of the three main systems of truth — the truth of faith, of reason, and of the senses — is not the whole truth and nothing but

the truth, is almost evident. If it were so, its partisans would be the possessors of the absolute truth in all its manifold infinity. They would be the Omniscient God. No error, and no further progress of either religion or philosophy or science would be possible under such an assumption: the Absolute is absolute and does not admit any addition or improvement. There is hardly any intelligent religious thinker, or philosopher, or scientist who can claim or does claim such a possession of the Absolute — complete and pure — truth. For a religious man, such a claim would mean his pretension to be the Omniscient God, which none of the great religious thinkers has ever claimed. For a scientist, such a claim is excluded by the hypothetical, relativistic nature of scientific knowledge. For a philosopher, it is excluded by the philosopher's epistemology, no matter what it is.

In addition, the assumption of the absolute truth by the representatives of any of these systems of truth would mean a presupposition that the true reality is exhaustible and finite, in all its quantitative, qualitative, and other forms and contents. Such an assumption is also impossible.[7] No sensible man, still less a sensible thinker, can claim

[7] For science, the inexhaustibility and infinite manifoldness of the true reality is well voiced by the famous statement of its greatest representative, Sir Isaac Newton, shortly before his death. "I do not know what I may appear to the world; but for myself I seem to have been like a boy playing on the seashore and diverting myself now and then by finding a smoother pebble or a prettier shell than ordinary, *whilst the great ocean of Truth lay all undiscovered before me.*" L. T. More, *Isaac Newton* (New York, 1934), p 664 The very fact that the scientist regards all scientific theories as hypotheses, liable to be corrected or changed, and as only approximations to the truth, even in the field of science, testifies to the same assumption of inexhaustibility and infinite manifoldness of the true reality. For a thinker dealing with the true reality, or the Absolute, the very conception of the Absolute is equivalent to the inexhaustibility and infinite manifoldness of it. In different terms, this has been voiced by practically all the great thinkers, no matter to what philosophical school they belong from the *Upanishads*, Taoism, Plato, Aristotle, St. Augustine, down to Kant, Hegel, Comte, Spencer, and more recent philosophers Perhaps the best expression of this inexhaustibility and infinite manifoldness of the true or Absolute reality is given by Pseudo-Dionysius, Gregory Nazianzen, J. Scotus Erigena, Nicolas of Cusa, and their contemporary followers, in their theory that the Absolute or true reality is metalogical and metarational; that it embraces, unites and reconciles in itself the rational and irrational, the law of identity and contradiction, in brief, all the contraries, and is the "*coincidentia oppositorum.*" In this sense, it is "the infinitude of infinitudes." No category of our thought (logical laws, space, time, substance, causality, etc) is applicable to it. It is above all that and above all specifications and definitions. This is the reason for the famous statement of Erigena that *Deus itaque nescit se, quid est, quia non est quid* (God does not know *what* He is, because He is not a "*what*"); that God is "the similitude of the similar and the dissimilitude of the dissimilar; the opposite of opposites and the contrary of contraries." Since any specification and definition is a limitation, no limitation is applicable to the infinite and unlimited. The same principles were well expressed by Nicolas of Cusa, in his famous

that he or his brand of truth is already a possessor of the whole truth. Therefore this first assumption falls down.

Can we assume that each of the three systems of truth is entirely false and does not contain anything valid in it? Such an assumption is also impossible. Empirically, as we have seen, each of these systems of truth and reality dominated in Graeco-Roman and Western (and also in other) cultures for several centuries. As has been pointed out above, an entirely false system of truth and reality cannot dominate large masses, or even a single individual for a period of even a few days: persons devoid of the instincts of animals and controlled by entirely false conceptions of truth and reality would perish physically in a very short time. Still more so would a whole society. If each of these systems of reality and truth were wholly false, it could not dominate for centuries without leading to the perdition of all its bearers. Still less could each of these systems re-emerge and become dominant again and again.

Logically, the complete falsity of all or one of the three systems of truth is also ruled out. The major premises accepted, the great

definition of the Absolute as the *coincidentia oppositorum. Deus est supra nihil et aliquid: quia ipsi obedit nihil, ut fiat aliquid.* The Absolute is "the End ending all things, the End whereof there is no end, and thus an end without an end, or infinite. This eludeth all reason, because it implies a contradiction. Thus, when I assert the existence of an end, I admit darkness to be light, ignorance to be knowledge, and the impossible to be a necessity. . . . Thus we admit the coincidence of contradictories, above which is the infinite." Such a metalogical knowledge Nicolas called "wise ignorance" (*docta ignorantia*). See J S Erigena, *De Divisione naturae,* in Migne's *Patrologia Latina,* Vol. 122, edited by H. J. Floss, Bks. i and ii, or in German translation, J. S. Erigena, *Uber die Eintheilung der Natur* (Leipzig, 1870), Vol 1, *passim;* and especially Bk ii, chaps 27–32; Nicolas of Cusa, *The Vision of God* (London-Toronto-New York, 1928), pp. 12–13, 19, 26, 39, 43–44, 52–60, *et passim* His *De la docte ignorance,* translated by Moulinier (Paris, 1930), pp. 85 ff., 100 ff., 210–17 *et passim* About the modern development of this conception of the Absolute, and about the metalogical character of it, see especially S L. Frank, *Nepostiiimoie* (Paris, 1939); also his *La connaissance et l'être* (Paris, 1937); N. O. Lossky, *L'intuition, la matière et la vie* (Paris, 1928); and also his *Sensory, Intellectual, and Mystic Intuition* (in Russian) (Paris, 1938), especially pp 104 ff , 183 ff.

It is needless to add that in different forms, practically all the philosophical currents of thought recognize the inexhaustibility and the infinitude of infinitudes of the true reality; scepticism, by its explicit declaration that we cannot know it; criticism, by its Kantian conception of the impossibility of adequate knowledge of the *ding an sich und für sich;* idealism and materialism, positivism and empiricism, mysticism and fideism in their respective contentions of the inexhaustibility of their true reality. Contemporary phenomenologism (of E. Husserl and others) shares the thesis also, in its own way. In brief, there is hardly any serious scientist or philosopher or religious thinker who claims that the true reality — the world of God — is exhaustible and finite, and is already fully known.

theological, or philosophical, or scientific systems exhibit a creative, logical, and consistent thought; having little in common with the incoherency or absurdity of the illogical or nonlogical thinking. More than that, the great religious, philosophical, and scientific systems are the best and finest examples of human consistent thought — the standards for logic and refined thinking — and not something that needs an apology for poor logic or dialectic or illogicity. One may or may not agree with St. Augustine and St. Thomas Aquinas; with Kant or Plato; with Sir Isaac Newton or Darwin; but as soon as the major premises of these systems are admitted, one has to grant to these and to other great religious, philosophical, and scientific systems the humanly possible superlative coherency of thought.

III. The Integral Theory of Truth and Reality

In regard to scientific and philosophical systems of truth — the truth of the senses and of reason — this is hardly questioned nowadays. The systems are admitted with their sources of truth: the dialectic of human reason and the testimony of the organs of the senses. Mathematics and logic are mainly the system of truth of human reason; and the natural sciences are mainly the depository of the truth of the senses.[*] More questionable nowadays is the truth of faith derived

[*] Contrary to the philistine conception of some pseudo empiricists, the proportion of the propositions derived from the dialectic of human reason in the natural sciences, like physics and chemistry, not to mention mathematics, is enormous. Their main referential principles and main generalizations are first of all and most of all the results of the truth of reason in our sense One is not obliged to go in this direction as far as some of the most distinguished mathematicians and physicists, like Jeans, Eddington, E. Meyerson, and many others go, declaring that the laws of the exact natural sciences are not derived from physical nature, but "manufactured by the human mind" and imposed upon nature as mind's *a priori*, subscribing thus to the Kantian epistemology (see the survey of such conceptions of many scientists in E. Meyerson's *Identité et realité* and *Du cheminement de la pensée*, quoted, and Sir Arthur Eddington's *Philosophy of Physical Science*, quoted), but without going so far, one cannot deny the enormous role played and space occupied by the truth of reason in the natural sciences. They are full of the "unobservables," as Eddington says; their laws are not observational at all, but at the best "hypothetico-observational"; their "facts" and "evidences" are conditioned by the conceptual schemes of human reason; their most certain conclusions and generalizations, like those of mathematics, represent mainly the product of the pure human dialectic and logic, and so on. See H. O Taylor, *Fact: The Romance of Mind* (New York, 1932); E. Husserl, *Logische Untersuchungs*, quoted; G. Birkhoff, "Intuition, Reason and Faith in Science," *Science*, December 30, 1938; H. Dingle, *Through Science to Philosophy* (Oxford Univ. Press, 1937).

In this respect the positions of the great scientists like Galileo and Newton are again typical Like Galileo, Newton "said that he first proved his intentions by geometry and only made use of experiments to make them intelligible, and to convince the vulgar" L. T. More, *Isaac Newton* (New York, 1934), p. 610.

from such a source, which is called by diverse names as: "intuition," "inspiration," "revelation," "extra-sensory perception," "mystic experience," and so on. Does such a source, as distinct from discursive dialectics, or testimony of the organs of senses, exist?

The answer has to be positive. We may not know exactly the nature of this source of truth. We must also admit that, like observation in all its forms (experimental, statistical, clinical) and reasoning, it does not always guarantee the truth.[9] But any careful investigator of the history of human experience, science, philosophy, religion and truly creative cultural value, can hardly deny the existence of such a source of truth and its great and positive contributions to the history of human thought, science, art, philosophy, religion, ethics, technology, and even to economic and practical creative values.

First of all, for the reason that some kind of intuition is at the very basis of the validity of the systems of truth of reason and of the senses. *Second,* because intuition, as distinct from discursive dialectic and sensory experience, has been one of the most important and fruitful "starters" of an enormous number of the most important scientific, mathematical and philosophical discoveries and technological inventions. *Third,* because a variety of the religious and mystic intuition has been the main source and the main force for the creation of the greatest artistic, religious, and ethical systems of culture. *Fourth,* because there is a sufficiently large body of the testimonies of the great thinkers, creators of religion, of art values, of science, demonstrating the reality, the functioning, and the power of this source of truth. Let us elucidate these points briefly.[10]

A. That an intuition, a direct, self-evident, axiomatic, and often momentary experience different from either perception or sensation, or still more from imagination, memory, discursive thought and ordinary observation in all its forms, lies at the foundation of the validity

[9] The history of experimental and observational sciences, as well as logico-mathematical and dialectic disciplines, is full of mistakes, and is a veritable graveyard of erroneous observations, experiments, and misleading reasonings These mistakes do not hinder, however, observation, experiment, and reasoning, when adequately done, from being the source of valid conclusions. The same is true of intuition From the fact that sometimes it misleads and is inadequate, it does not follow that it never gives valid results and adequate knowledge.

[10] It is out of place in this work to take up the problem exhaustively or in a detailed form. However, at my disposal there is a sufficient body of well-tested evidence for each of these points to make my statement not a conjecture, but as valid as any empirical hypothesis in the field can be. The works referred to give an amplification of my statements.

of the basic propositions not only of religious and philosophical, but also of mathematico-logical [11] and empirical sciences and their truths, is nowadays well recognized by many a philosopher, scientist, thinker, and generally, investigator of this problem. Why do the basic postulates of any science, from mathematics to physics, appear to be unquestionably valid and their axioms axiomatic? Since by definition they are ultimate postulates and axioms, they cannot be based upon either logic or empirical experience; on the contrary all the subsequent logical propositions and empirical theories are based upon the postulates and axioms. The only source of the self-evident character of such postulates and axioms is intuition.[12] In this sense, it is not a

[11] For instance, the notion of geometric space is based on intuition. See H Poincaré, *Dernières Pensées* (Paris, 1913). See there his study, "L'espace et le temps"

[12] K W. Wild, after a survey of the meaning of intuition used by many thinkers, finds its common element in the form of the following definition of intuition "An intuition is an immediate awareness by a subject of some particular entity, without such aid from the senses or from reason as would account for that awareness" "There is undoubtedly an intuitive method and immediate intuitive awareness on which reason and all other forms of knowing are dependent. Intuition is not alternative to reason [or to senses, P.S.]; its minimum function is to form a basis for reason, and its wider functions (if any) to deal with what is inaccessible to reason . . . Intuition gives a peculiar feeling of unity between subject and object . . The intuition gives us insight into reality as opposed to, or supplementing appearance. . . . That [special forms of] intuition is an endowment of specially gifted people." See K W Wild, *Intuition* (Cambridge University Press, 1938), pp. 226 ff. These characteristics are indeed common to most of the thinkers who studied intuition, with a difference among these thinkers in a number of secondary points. H. Bergson, N O Lossky, A. H Whitehead, J S Mill, C. Jung, and many others (see further) stress indeed most of these characteristics of intuition as a *sui generis* method of cognition of the true reality.

Plato calls it "divine madness" (in contrast to reason, to senses, and the madness of infirmity) (See his *Phaedrus*) Mystics call it "mystic revelation" E. v. Hartmann calls it "the unconscious" Kant calls it *a priori* forms of our mind Thinkers like Ibn-Khaldun and Rousseau contrasted it with scientific (sensory and dialectical) methods of cognition and characterized it as "the sovereign intelligence which sees in a twinkle of an eye the truth of all things, in contradistinction to vain and deceptive knowledge" (J J. Rousseau, *Œuvres complètes*, Paris, 1873, Vol. V, p. 103), or as "the celestial inspiration" different from and superior to the observational and dialectic knowledge (Ibn-Khaldun, *Prolégomènes historiques*, Vol XIX of the *Notices et extraits*, quoted, Paris, 1862, pp 83, 184–253; Vol. XXI, pp 227 ff., 294 ff.). N. Lossky calls this kind of cognition by "mystic intuition" a special form of intuitive knowledge (N. Lossky, *Sensory, Intellectual and Mystical Intuition*, Paris, 1938); and E Husserl calls it by the term of "pure intuition" and "intuition" as the mode of cognition in which "essences are primordially given as objects, just as individual realities are given in empirical intuition." (E. Husserl, *Ideas: General Introduction to Pure Phenomenology*, New York, 1931, pp 80–96.) Mathematicians like G. Birkhoff call it "intuition" and "faith" in the sense of "certain elementary notions and concepts which come spontaneously" and "are generally accepted" and serve as "the foundation for the rational superstructure erected by means of deductive and inductive reasoning," and as "heuristically valuable, more general points

derivative of, but the condition and basis of the truth of reason and of sensory experience.[13]

The same conclusion is reached through consideration of the fact that language, as the indispensable condition of any thought, is not created through dialectic of human reason, but represents a product of intuition.[14] Some thinkers even go so far as to put intuition at the basis of our perception as a judge who decides whether the perception is real or illusory.[15]

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of view, which are beyond reason" and "of supreme importance." (G. Birkhoff, "Intuition, Reason and Faith in Science," *Science*, December 30, 1938, p. 603.) Scholastics like St. Thomas Aquinas and Nicolas of Cusa call it "divine revelation" or *"docta ignorantia,"* "the truth of faith" or "wise ignorance" that "goeth beyond all knowledge." See St. Thomas, *Summa contra Gentiles* (London, 1924) Bk. i, chaps iii, v, vi; *Summa theologica*, II, ii, q 9, a 2, ad 1; Nicolas of Cusa, *The Vision of God* (London-New York, 1928), pp. 26 ff ; *De la docte ignorance* (Paris, 1930), pp 210–17, *et passim* Other definitions of intuition of A. H Whitehead, B Spinoza, B. Croce, C. Jung, H. Bergson, see in K W Wild's *Intuition*, quoted For definition of mystic experience corresponding to intuition, see E. Underhill, *Mysticism* (London, 1931), W. James, *The Varieties of Religious Experience* (New York, 1928); R. Mukerjee, *Theory and Art of Mysticism* (London-New York, 1927) and other works quoted in *Dynamics*, Vol. I, p. 131.

In spite of the differences in secondary points among these and an enormous number of other thinkers and currents of thought, they all stress the peculiar nature of the intuitive method of cognition different from the truth of the senses and of reason, and characterize it as instantaneous, grasping the reality directly; in general form it is given to all of us; in special forms of mystic intuition it is granted only to the persons who have the charismatic gift or grace. Recent "extra-sensory perception" of J B. Rhine and others is also a variety of the generic intuitive method of cognition. See J. B. Rhine, *Extra-Sensory Perception* (Boston, 1935) and *New Frontiers of Mind* (New York, 1937).

[13] Already Hume has put the problem sharply in his famous "What is the foundation of all conclusions from experience?" Of our conviction that nature is uniform and that by induction we can arrive at a valid knowledge? As it is known, no satisfactory answer is given to the question, except intuition or its equivalents: "belief" (Whately and others); "instinctive law of belief" (Reid and others); "custom and habit" (Hume and others); "beliefs and intuition" (J. S Mill) Or, what amounts to the same, "I am very decidedly of the opinion that the difficulty does not admit of any *logical* solution. It must be assumed as a postulate that the belief in the Uniformity of Nature exists." J. Venn, *The Principles of Empirical or Inductive Logic* (London, 1907), pp. 129–133. See there an analysis of the problem. See R. Carnapp, *The Logical Syntax of Language* (New York, 1937), pp. 98–99.

[14] "As without language not only no philosophical, but no human consciousness at all is conceivable, the foundation of language could not have been consciously laid. . . . Its invention far surpasses in profundity those of the highest conscious product." Thus E Von Hartmann quotes Schelling's words, and proceeds to show that language, as the creation of the unconscious (Hartmann's "Unconscious" is very similar to the above definition of intuition) is the absolute condition of sensory and conceptual cognition. See E. von Hartmann, *op. cit.*, Vol. I, pp 293 ff.

[15] This role of intuition as the ultimate basis of any knowledge — of the truth of the senses and of reason — is recognized or clearly implied in the epistemology of the most different currents of philosophical and scientific thought First, in Kantian and neo-

Kantian philosophy and scientific knowledge: Kantian *a priori* categories of mind imposed by it upon anything we try to know is but another term for intuition as the ultimate basis of human knowledge in all its forms. It is the precondition of any perception and reasoning, and therefore of all the observational, experimental, and dialectic cognition. All the scientists who regard the laws of the natural sciences as the *a priori* forms of mind manufactured and imposed by it upon the physicochemical and other phenomena, rather than derived and discovered in nature itself, recognize intuition as the basis and source of any knowledge under the name of the *a priori* forms of our mind The number of such scientists is quite considerable, and many of them are great scientists. See the development of such a theory and interpretation of scientific laws, and the representatives of this current of thought in E Meyerson, *Identité et realité* (Paris, 1912) and his *Du cheminement de la pensée*, 3 vols (Paris, 1931). Also Sir Arthur Eddington, *The Philosophy of Physical Science* (New York, 1939); L Silberstein, *Causality* (London, 1933); M. Karinsky, *Self-Evident Verities* (*Ob istinakh samootchevidnykh*, St Petersburg, 1893); I Lapshin, *Laws of Thought and Forms of Cognition* (in Russian) (St Petersburg, 1906)

Then thinkers of very different philosophical schools state this role of intuition explicitly, in spite of their differences in many other respects. It is the basic statement of the theory of H Bergson, Spinoza, B Croce, C G Jung, A. H Whitehead See a detailed analysis of their theories from this standpoint in K W. Wild, *Intuition* (Cambridge University Press, 1938), part I To these names one can add from the past thinkers almost all the great philosophers: Plato, Aristotle, Plotinus, St Augustine, all the Church Fathers, all the Scholastics from Erigena to St Thomas and Nicolas of Cusa, Descartes, T. Hobbes, all the mystics, and so on See their names in the Appendix to Chapter One of Volume Two of *Dynamics;* all the names listed there under Mysticism, Criticism; and the greater part of the names under Rationalism, Fideism, and some of the names under Empiricism belong to the explicit partisans of intuition. Of the recent epistemological currents, besides those mentioned above, see the philosophies of the Unconscious represented by such thinkers as E von Hartmann (see his *Philosophy of the Unconscious*, London, 1931, *passim*, and especially Vol I. pp 184–372, Vol II, pp. 1–44); of the mystic intuitivism, represented by such thinkers as N O Lossky (see especially his *Sensory, Intellectual and Mystic Intuition*, Paris, 1938); of the (congenial to it) philosophy of S. L Frank, L. Shestov (see S. L Frank, *Nepostijmoie*, Paris, 1939; and his *La connaissance et l'être*, Paris, 1937); L Shestov, *Kierkegaard* and *Athens and Jerusalem* (to be published); the followers of the resurrected philosophy of Soren Kierkegaard (see especially his *The Point of View*, Oxford University Press, 1940); of the Husserlian and related phenomenologisms (see Husserl's *Logische Untersuchungen*, 3 vols, Halle, 1922; *Meditations cartesiennes*, Paris, 1931; and especially his *Ideas: General Introduction to Pure Phenomenology*, New York, 1931, *passim* and particularly pp 84–85, 87 *et passim*), J. Rehmke, *Logik oder Philosophie als Wissenslehre* (Leipzig, 1918), Max Scheler, *Wesen und Formen der Sympathie* (Bonn, 1923); also his *Wissenformen und die Gesellschaft* (Leipzig, 1926); P F Linke, *Grundfragen der Wahrnehmunglehre* (Munchen, 1929), E. Barthel, *Die Welt als Spannung und Rhythmus* (Leipzig, 1928); and *Vorstellung und Denken* (Strassburg, 1931).

Of the neo-Scholastic and neo-Thomist currents of thought see I. Gredt, *Unsere Aussenwelt* (Freiburg, 1921), also his *Die Aristotelische und Thomistische Philosophie* (Freiburg, 1935); J. Maritain, *Eléments de philosophie; Réflexions sur l'intelligence et sur sa vie propre;* and especially his *The Degree of Knowledge* (New York, 1938) and *Sept leçons sur l'être* (Paris, n.d), pp. 51 ff. Of several so-called Immanent philosophy leaders, see a survey of these in A. Krzesinski, *Une nouvelle philosophie de l'immanence* (Paris, 1931); of many scientists and philosophers see D. Draghicesco, *Verité et révéla-*

The intuition seems to be also the ultimate foundation of the beautiful,[16] and of the ethical or moral,[17] not to mention the religious — the

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tion, 2 vols. (Paris, 1934); L. Ollé Laprune, *Philosophie des temps présentes* (Paris, 1908); V. Soloviev, *La justification du bien* (Paris, Aubier), N. Berdiaeff, *Cinq méditations sur l'existence* (Paris, Aubier); A. H. Sertillanges, *Sources de la croyance* (Paris, 1934); E LeRoy, *Le Problème de Dieu* (Paris, 1937); *L'exigence idéalist et la fait de l'évolution* (Paris, 1927); *La pensée intuitive* (Paris, 1929); L. Labertonnièr, *Études sur Descartes* (Paris, 1935); M. Blondel, *La pensée* (Paris, 1934); *L'être et les êtres* (Paris, 1935); V Delbos, *De Kant aux post-Kantians* (Paris, 1939); J. Wild, *Science and Scientific Scepticism of Our Time* (Cambridge, Mass., n.d.); M. Sourian, *Le Temps* (Paris, 1937); G. Bachelard, *L'Intuition de l'Instant* (Paris, 1932); D. C Macintosh, "The Logic of Constructive Theology," *Science, Philosophy and Religion* (New York, 1941)

Even such pillars of the empirical method as J. S. Mill state that "The truths known by intuition are the original premises from which all others are inferred." A similar explicit statement is given also by A. Comte, not to mention his abundant use of the intuitive method throughout his work. See A. Comte, *Positive Philosophy*, translated by Martineau (New York, 1885), Vol I, pp 40–41; *System of Positive Polity* (London, 1875), Vol. I, pp. 9 ff., 257, 321; Vol II, pp 7 ff; W James (of the later period), S Bulgakov, H. Poincaré (quoted further), and many other thinkers, philosophers, and scientists stress also this role of intuition

In different forms and with divergent meanings, these and many other currents of the scientific, philosophical, and religious thought of the present time, all seem to be in agreement with the thesis that intuition lies at the foundation of either discursive or experimental and observational truths and validities. In this respect we observe a rather sharp change in comparison with the predominant beliefs of scientists and philosophers of the nineteenth century So, contrary to poorly informed pseudo empiricists, the intuitive method of cognition, as different from the purely sensory or rational, is acknowledged by an enormous number of thinkers, and by most of the currents of scientific and philosophical thought.

[16] "Aesthetic associations are intuitive in type Aesthetic judgment acts intuitively and rapidly" G. Birkhoff, *Aesthetic Measure* (Harvard University Press, 1933), pp 6, 216 *et passim*. "Art is perfectly defined when simply defined as intuition," B Croce, *The Essence of Aesthetic* (London, 1921), pp 33 *et passim*, K W. Wild, *Intuition*, chap viii, E. von Hartmann, *Philosophy of the Unconscious* (London, 1931), Vol I, pp. 269–293 This does not hinder the concrete forms of the beautiful from being conditioned by custom, mores, by considerations of our reason, feelings of pleasure and the like But all this is in a sense a "superstructure" upon intuition.

[17] Again not the concrete ethical and moral rules but the very fact of the apprehension that there is just and unjust, fair and unfair is based on intuition. Likewise, on intuition also is based the apprehension of the essentials of what is called natural law as *"aeternum quiddam, quod universum mundum regeret imperandi prohibendique sapientia,"* and *"quod natura omnia animalia docuit,"* as well as the categoric imperative, or the ultimate principle of ethics, which cannot be reduced to anything more ultimate. Almost all of the representatives of the ethics of Absolute Principles given in the Appendix to Chapter Thirteen, in Volume Two of *Dynamics*, belong to the supporters of this conception, in spite of the different terms they use More recently thinkers like Kant, Butler, Hutchinson, T. H. Green, A. H. Whitehead, N. Lossky, E. von Hartmann, P. Janet, and many others, admit intuition as the basis of ethics. The very fact that the moral commandments of all the great moral systems and great religions are practically identical, and that all the main crimes are also identical among the most different peoples and cultures,

sphere particularly dominated by the intuition and especially by the mystic intuition.

B. Still less questionable is the fact that intuition has been the starter of an enormous number of sensory and dialectic discoveries and inventions in all the creative fields of culture, beginning with science, from mathematics, technology and biology, to social and humanistic disciplines and philosophy, and ending with art, religion, ethics, and other cultural systems. That intuition plays an important part in mathematics and lies at the basis of the mathematical deductions, one of its most prominent representatives, G. Birkhoff, has already stated, as quoted above.[18]

is one of the evidences of the existence of such a moral intuition of "the right and wrong." Relativity of ethics and morals among different peoples and cultures has been greatly exaggerated. See the data on "absolute" crimes in *Dynamics*, Vol II, chap. xv. See some other considerations and theories of moral intuition in K. W Wild, *op. cit.*, chap. vii. See also E. von Hartmann's work, quoted, Vol I, pp 260–68.

As to the preponderant role of intuition in religious experience, in the generation and establishment of religion, it is evident and does not need to be emphasized All prophetic and great religions are based upon the truth of faith, or revelation This means supersensory and super-rational or mystic intuition. The truth of the senses and of reason are the second and subordinate forms of cognition in any great religion. They are mere "handmaids of the truth of faith." See *Dynamics*, Vol. II, chaps i, ii. See also K. W. Wild, *Intuition*, quoted, chap vi

[18] The intuitionist school in mathematics is becoming one of the most important at the present time, especially after the somewhat discouraging results of the anti-intuitional mathematicians and symbolic logicians to prove anything and everything in mathematics without any recourse to intuition. Originated by Boole, and continued by many others — in recent times through the works of Peano, Frege, Hilbert, B Russell, Whitehead, and others — the "demonstrated mathematics" aroused great confidence and still greater expectations of giving an irrefutable character to all its conclusions, and of delivering a super-new instrument (*Organon*) for scientific and valid discoveries. Subsequently its modern representatives themselves have undermined this confidence and expectation a great deal, by their mutual criticism, for instance, between Russell and Wittgenstein, and in a sense, have considerably demolished, as Brunschvicg says, their own constructions. On the other hand, the high hopes of giving a new instrumentality for discoveries have not been justified to any great degree H Poincaré said already in 1908: "Comment, voilà dix ans que vous [symbolic logicians or logistic mathematicians] avez des ailes, et vous n'avez pas encore volé" H. Poincaré, *Science et méthode* (Paris, 1908), p. 193; see also his *L'invention mathématique* (Paris, 1908). With still more reason, E. Meyerson adds: "More than twenty years elapsed since this diagnosis of Poincaré, and the situation remains the same." E Meyerson, *Du cheminement de la pensée* (Paris, 1931), Vol. I, p. 23. Where the problem could be demonstrated, the demonstration became exceedingly cumbersome. C. I Lewis shows that in Whitehead-Russell's *Principia Mathematica* it required some four hundred pages to demonstrate the properties of the cardinal numbers with the aid of very compact symbolic formulas. C. I. Lewis, *A Survey of Symbolic Logic* (Berkeley, 1918), p. 369. Farther on, Frege, Peano, Dedekind, Hilbert, Hardy, Cantor, Weierstrass, Fraenkel, and others, mutually find that the contended

That a large number of mathematical discoveries have been made by intuition — and not by following F. Bacon's or the Logistics' rules — is well demonstrated by the history of mathematics. H. Poincaré's personal experiences are typical in this respect.

During fifteen days I have tried to demonstrate that no function analogous to what later on I called *les fonctions fuchsiennes* could exist. All these days I sat down at my working table, and attempted a great number of combinations and arrived at no result. One evening, contrary to my habit, I took black coffee and could not fall asleep; ideas appeared in crowds; I felt as though they were pushing one another [*se heurter*] until two of them hooked, so to speak, one another, [*s'accrochassent*] and made a stable combination. In the morning I established the existence of the class of the *fonctions fuchsiennes*. All that I had to do was to repeat the results, which took only a few hours from me.

Another time he tells that the solution of another mathematical problem came to him instantaneously as he was stepping into a bus. Having arrived at Caen, he verified it and found it correct. He cites several other instances of this kind and stresses that in all of them the solution came always "with the same character of brevity, suddenness and immediate certitude" [*avec les mêmes caractères de brièveté, de soudaineté et de certitude immédiate*].[19]

Hardly different from this intuitional experience was Sir Isaac Newton's discovery of gravitation. "On one memorable day, an apple

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demonstrations are not satisfactory. The net result is that where the demonstration is impossible, or very cumbersome, the mathematical intuition does not find any embarrassment in solving instantaneously these enormous difficulties which discursive mathematical thought finds exceedingly difficult to overcome. As G. Hardy says, we know that two and two make four, not because we rely upon the *Principia Mathematica* of Whitehead and Russell. See G. Hardy, "Mathematical Proof" in *Mind*, Vol. XXXVIII, New Series, No 149, p. 17. Even Hilbert had to admit, at least implicitly, intuition as the last foundation of mathematical verities. D Hilbert and W. Ackermann, *Grundzuge der theoretischen Logik* (Berlin, 1928), p. 48 H Poincaré, I Hadamard, Kronecker, A. Fraenkel, P Boutroux, F. Gonseth, H. Weyl, Brouwer, and many others, simply state that the notion of number is an inherent property of our mind, without which no thought is possible, or, as Kronecker said: "Numbers have been made by Good God; all the rest is the work of man." See the details of the problem and of the polemic in E. Meyerson, *Du chemmement de la pensée*, Vol. I, chap. i; Vol. III, pp. 719–754; F. Gonseth, *Fondements des mathématiques* (Paris, 1926). Likewise, the leading mathematical physicists, like N. Bohr, W. Heisenberg, L. de Broglie, F. Klein, and others, explicitly stress the intuitional foundation of their theories. See, for instance, W. Heisenberg's "Uber den anschaulichen Inhalt der quantentheoretischen Kinematik und Mechanik," *Zeitschrift fur Physik* (1927), XLIII, pp 172–198.

[19] See H. Poincaré, *Science et méthode* (Paris, 1908), pp. 52–55, also his *Invention mathématique* (Paris, 1908).

falls with a slight thud at his feet. It was a trifling incident which has been idly noticed thousands of times; but now like the click of some small switch which starts a great machine in operation, it proved to be the jog which awoke his mind to action. As in a vision, he saw that if the mysterious pull of the earth can act through space as far as the top of a tree . . . so it might even reach so far as the moon." [20]

Not different is the case of Archimedes, with his famous "eureka" suddenly coming to him while he was stepping into a bath and making him forget to put on his clothes, in his excitement; of Galileo watching a swinging lamp in a church and by "short circuit" formulating the law of oscillation of the pendulum; of Robert Meyer, who, from two chance occurrences during a voyage, "with a sudden leap of thought . . . derived the law of the mechanical equivalence of heat." [21] And a large number of great and small discoveries in mathematics and physicochemical sciences were started in a similar intuitive manner.

The same is still truer of technological inventions. "The activities of our minds concerned with innovation . . . are more closely associated with the emotions than with reason and . . . are aesthetic and intuitive in character rather than rational." "Intuitive knowledge and the works of creative imagination are more or less directly associated with delvings into levels beyond the limits of our normally conscious life." [22] The statements of the inventors themselves make this quite clear. One says that when the need for a certain invention

[20] L. T. More, *Isaac Newton* (New York, 1934), p 288. See further testimonies on pp. 44 ff. Generally, the biographers of Newton characterize as "nothing short of miraculous" the three discoveries (mathematical method of fluxion, the law of the composition of light, and the law of gravitation) Newton made in two years; being a youth who did not distinguish himself in his college, immediately after graduation he retired into a lonely village and worked unaided. See *ibid*, pp. 41 ff. "As a mathematician he . . . seemed to grasp the solution of a problem immediately." *Ibid.*, p. 56.

[21] See F. Kretschmer, *The Psychology of Men of Genius* (London, 1931), p. 141. See there other examples. It is not surprising therefore that a large number of the greatest scientists, like Pascal, Kepler, Sir Isaac Newton, and, partly, Galileo, not to mention many other names, were not only "intuitionists" but mystics in the narrow sense of the term. We all know of the mystic experience of Pascal, after his vision of the blazing cross, exclaiming: "Not the God of philosophers and scholars! *Joie, joie, pleurs de joie! Renunciation totale et douce!*" Absolutely certain! It is enough to read Sir Isaac Newton's *Observations upon the Prophecies of Daniel and the Apocalypse of St. John* (London, 1733), chaps. i, ii, and to read some of his letters (one was quoted in Chapter Thirteen of this volume) to see the mysticism of Newton, and to understand why he himself regarded his theologico-mystical works as more important than his purely scientific works. It is also well known that among contemporary scientists a number of them are self-avowed mystics and intuitionists.

[22] A. P. Usher, *A History of Mechanical Inventions* (New York, 1929), pp. 28 ff.

comes, "I immediately eject it from the objective side of my mind, that is to say, I cease to labor over it, and consign it to the 'subjective department' of my mind." There it spontaneously ripens until it "comes out."

Another says, "Ideas come when I least expect them, often when I am half asleep, or day-dreaming." Others state that they either sometimes wake with a new idea, or it comes "in a flash," or it comes in "the period of relaxation," or "in the bathtub," or suddenly, when the inventor is engaged in a different kind of work, or "quite unexpectedly," and so on.[23]

No different is the situation in the other natural sciences.[24] Many of their greatest representatives testify, first, that hardly any important discovery has been made there by following the *schema* of F. Bacon; [25] second, the intuitive start or inspiration of many discoveries.

[23] See the statements of the inventors in J. Rossman, *The Psychology of the Inventor* (Washington, 1931), pp. 101–116 This is practically unanimously testified to by all the serious investigators of the problem. See J. M Montmasson, *Invention and the Unconscious* (London, 1932); W. Ostwald, *Grosse Manner* (Leipzig, 1909); H S. Hatfield, *The Inventor and his World* (London-New York, 1931); F. W Taussig, *Inventors and Money-Makers* (New York, 1915); S. C. Gilfillan, *The Sociology of Invention* (Chicago, 1935). See there other literature on this subject One of the evidences of the intuitive character of inventions is that most of the important inventions seem to have been made by outsiders to the given field of invention See about that in S. C Gilfillan's work, quoted, pp. 88 ff., and in W. Kaempffert, *Invention and Society* (Chicago, 1930); "Systematic Invention," *Forum*, 1923, pp. 2010–18, 2116–22; J. Rossmann, *op. cit*, pp. 31 ff., J. H. Leuba, "Intuition," *Forum*, May, 1928.

[24] For any inductive discovery the first condition is "a stroke of insight or creative genius demanded in order to detect the property to be generalized. . . . In really original inductions, this step may be one of the highest degree of difficulty." J. Venn, *op cit.*, p 352.

[25] J. de Maistre has given a devastating criticism of the pseudoscientific character of Bacon's *Novum Organum* and his mechanical theory of science, scientific discoveries and method See J. de Maistre, *Examen de la philosophie de Bacon* (Paris, 1836), 2 vols. He clearly formulated what the subsequent investigators of inventions and discoveries corroborated.

"It is impossible to have the method of inventions (contrary to Bacon's claim). The most important inventions are due to *accident*, and many of these were made in the centuries and among peoples little advanced and by almost illiterate individuals: one can cite the cases of the invention of the compass, gunpowder, printing, and spy-glass. . . . Mathematical problem, once set forth in equation, can be carried on by almost mechanical work and requires only patience, exercise and ordinary mental power; but the instinct which leads it to the equation cannot be taught; it is a talent and not science. . . . The veritable man of genius is he who acts by impulse. . . . And genius is a grace." Farther on, he gives a series of great discoveries and inventions made by "impulse" or through "grace" or intuition: Galileo, Newton, Black, Haller, and others. None of them made their discoveries by following Bacon's method, and all were started by intuition and the

As to the discoveries in the field of philosophical, humanistic, and social science disciplines, there the role of intuition has indeed been preponderant. This is objectively testified to by the fact that almost all the great discoveries — the main philosophies, the main humanistic and social science theories — were made a long time ago, when neither laboratories, nor statistics, nor systematic data of observation, nor any other material for an empirical or even rational generalization existed. The study of the relevant facts in these fields shows that many of these creations and theories were initiated by intuition.[26] It does not exclude the fact that in many cases the intuitional revelation comes after strenuous but fruitless work of the sensory or discursive mind. What is important is that the solution comes through intuition.

The process is well described in its extreme form, by one of the greatest philosopher-poets of the nineteenth century, F. Nietzsche. He thus describes the mental state in which he wrote *Also sprach Zarathustra:*

Has anyone at the close of the nineteenth century any clear perception of what the poets of strong ages called inspiration? If not, I will describe it. Possessing only the smallest remnant of superstition one would hardly be able to reject the idea that one is nothing but a medium for super-mighty influences. That which happens can only be termed revelation, that is to say, that suddenly, with unutterable certainty and delicacy, something becomes

genius of their mind. De Maistre, *op cit*, Vol I, pp. 67 ff. E. Mach and others confirm the important role of accident in discoveries and inventions, as well as the role of the outsiders to the field of invention. See E Mach, *Popular Science Lectures* (Chicago, 1898); J. Rossman, *op. cit.*, chap. vii E Meyerson, D Draghicesco, H. Bergson and others confirm the statement that discoveries and inventions are not made along the Baconian *schema* but represent the work of "mind and spirit" Berthelot, Liebig, Humphrey Davy and other great scientists explicitly denied that scientific discoveries are or ever have been the result of the mechanical induction of Bacon. See J. Liebig, *Reden und Abhandlungen* (Leipzig, 1897), p. 249. See a good collection of cases of this kind in E. Meyerson, *De l'explication dans les sciences* (Paris, 2d ed), pp. 597 ff , D Draghicesco, *Verité et révélation* (Paris, 1934), Vol I, chap. iii; E. von Hartmann, *Philosophy of the Unconscious*, quoted, Vol. I, pp. 243–372, Vol. II, pp. 1–44 Claude Bernard stressed the importance of "hunches" in scientific discovery. C. Bernard, *Leçon d'ouverture du cours de M. Claude Bernard* (Paris, 1857), pp 7, 36, 82. "It is impossible to establish an experiment without a preconceived idea" and "the idea serving as a point of departure or the *primum movens* of any scientific reasoning is the goal of the mind's aspiration to the unknown"; and such ideas often come accidentally, by the way of intuition. Still more explicitly is this stressed by Henri Saint-Claire-Deville, Constantin, and others. Actual study of the psychology of discovery and invention shows that the starting ideas often come suddenly, while one is in a day-dream, in a night dream, in an unconscious or semi-conscious state, and so on.

[26] See a series of facts in N. Lossky, *Sensory, Intellectual, and Mystic Intuition*, quoted, pp. 156 ff., I. Lapshin, *Philosophy of Invention and Invention in Philosophy* (in Russian) (Prague, 1924).

visible and audible and shakes and rends one to the depths of one's being. One hears, one does not seek; one takes; one does not ask who it is that gives; like lightning a thought flashes out, of necessity, complete in form — I have never needed to choose. It is a rapture, the enormous excitement of which sometimes finds relief in a storm of tears; a state of being entirely outside oneself with the clearest consciousness of fine shivering and a rustling through one's being right down to the tips of one's toes; a depth of joy in which all that is most painful and gloomy does not act as a contrast but as a condition for it, as though demanded, as a necessary colour in such a flood of light. . . . Everything happens in the highest degree involuntarily, as in a storm of feeling of freedom, of power, of divinity.[27]

Similarly, A. Strindberg says that poetical ecstasy was "a state of pure bliss while the writing continued."

As to arts, the creativeness there is mainly intuitional, whether it be poetry and literature, music or painting, sculpture or drama. The following self-description of the process of work by Mozart is typical. Answering the question, Mozart writes:

What, you ask, is my method in writing and elaborating my large and lumbering things? I can in fact say nothing more about it than this: I do not know myself and can never find out. When I am in particularly good condition, perhaps riding in a carriage, or on a walk after a good meal, and in a sleepless night, then the thoughts come to me in a rush, and best of all. Whence and how — that I do not know and cannot learn. Those which please me I retain in my head, and hum them perhaps also to myself — at least so others told me. . . .

Farther on, he describes how the "crumbs" spontaneously join one another into a whole, grow, and finally assume a finished form in his head.

All the finding and making only goes on in me as in a very vivid dream.

Finally, like Poincaré in the case quoted above, he puts the work on paper, and since it is practically ready in his mind, "it gets pretty quickly on to paper."[28]

[27] F Nietzsche, *Werke* (Taschenausgabe), Vol VII, pp. xxiv ff. J. Jorgensen and other investigators of mysticism rightly point out a similarity of this experience with mystic experience. See J. Jorgensen, *Saint Catherine of Siena* (London-New York, 1938), pp 15–16.

[28] O. Jahn, *W A. Mozart* (Leipzig, 1856–59), Vol. III, pp 423–25; E. von Hartmann, *op. cit.*, Vol. I, pp. 279–80. We have similar testimonies from many great poets and writers like A. Pushkin (his *"Mozart and Salieri"*), Schiller (his "Happiness"), Goethe (see his *Autobiography* and description of the process of creation of his *Egmont, Iphigenia, Werther*, amounting to mystic momentary vision); Wordsworth, Browning, Shelley, Spenser, and many other poets and artists. See about some of these in Chapter Eight of Wild's quoted work.

Similar is Schelling's dictum that "Just as the man of destiny does not execute what he wills or intends, but what he is obliged to execute through an incomprehensible fate under whose influence he stands, so the artist . . . seems to stand under the influence of a power which . . . compels him to declare or represent things which he himself does not completely see through, and whose import is infinite." [29]

Finally, so far as religious and moral creations are concerned, they are overwhelmingly intuitional. They profess the revealed truth of faith; they are based almost exclusively upon the super-rational, supersensory, superempirical, Absolute Truth and Reality-God. All great religions are founded by mystics endowed with the charismatic gift of the mystic experience. Such are Buddha, Zoroaster, Lao-Tze, the Hebrew prophets, Mahavira, Mohammed, Christ, St. Paul, St. Augustine, down to the more recent mystics of Christian and other great religions. When some pseudo religion is started "scientifically," "rationally," based upon "reasonable, empirically verified truths," such pseudo religion never gets anywhere and represents at the best a third-class, vulgarized social and humanitarian philosophy or pseudo science.

All great religions explicitly declare that they are the *corpus* of the revealed, super-rational, superempirical, supersensory truth granted by grace of the Absolute to charismatically gifted persons — prophets, saints, mystics, oracles, and other instruments of the Absolute. The experience of these instruments is always super-rational or mystic. And mystic experience has little, if anything, to do with the ordinary cognition given through the organs of the senses or rational discourse. Without mystic intuition, mankind could hardly have any great religion. And any great religion means the creation of the truth of faith revealed through mystic experience.[30] Since religion generally (and the great world religions particularly) has been one of the most important creations of human culture, this very importance testifies in favor of the most important role played by intuition gen-

[29] "The state of poetical enthusiasm is the state of dream. . . . Something is being prepared in the soul of the artist — he himself does not know what. . . . Each aesthetic invention germinates in an unconscious excitation, mysterious, approaching to a dream." In such a day-dream, Wagner conceived his prelude to the *Rheingold*. . . . "Artistic inspiration is not devoid of any of the aspects of religious inspiration because it has the same psychological character. . . . It is something that passes in ourselves, without us and sometimes against us." H Delacroix, *Psychologie de l'art: essai sur l'activité artistique* (Paris, 1927), pp 189–198 ff

[30] See a brief description of mystic experience and the works on mysticism in the preceding volumes of *Dynamics*, especially Vol. I, pp. 112–134.

erally, and mystic intuition particularly, in the history of human thought and culture. Religion, particularly, with its super-rational and supersensory intuition, puts us in touch with an aspect of the true and manifold reality which is inaccessible to us through the ordinary avenues of the truth of the senses and the truth of reason. The founders, prophets, apostles, and mystics of the great religious systems, together with the great artists, who also, are, in their own way, instruments of the mystic intuition, are the great instrumentalities of the truth of faith that puts us in touch with the superempirical and metalogical aspect of the Infinite Manifold, the *coincidentia oppositorum* of Erigena and Nicolas of Cusa.[31]

If intuition thus plays a decisive role in any field of creativeness, it follows that it is the decisive factor in cognition, because *any genuine creation is a real cognition as any real discovery is a creation.* When Mozart or Beethoven, Phidias or Shakespeare, Buddha or St. Paul, Raphael or Dürer, Plato or Kant created their artistic or religious or philosophical systems, they actualized the hidden potentiality existing in the reality; they discovered it and brought it from the hidden state of potentiality into the actual reality. They opened out what was concealed, and disclosed to us what we did not see and did not know. In this sense, any creation is a cognition and discovery — the discovery of a new combination of the sound values (as in great music), or of the new values of architectural forms disclosed to us by a new combination of stone-marble-wood and other elements of architecture; or of new aspects of the reality opened to us by painting, literature, religion and ethics. If, for a moment, one can imagine all artistic, religious, philosophical, ethical values eliminated, and all our knowledge reduced to strictly "scientific discoveries" formulated in dry propositions, how greatly our cognition of the world and reality would be impoverished and diminished! From millionaires we would be turned into beggars.[32]

[31] Besides the works on mysticism and the truth of faith quoted above, and in the preceding volumes of *Dynamics*, see, about intuition in religion and ethics, Wild's *Intuition*, chap. vi; E. von Hartmann's work quoted, Vol. I, pp. 354 ff., N. Lossky, *op. cit.*, chap viii; J Maritain, *The Degrees of Knowledge* (New York, 1938), part II; H. Bergson, *Creative Evolution*, translated by Mitchell, (London, 1913); *Les deux sources de la morale et de la religion* (Paris, 1932).

[32] F. Nietzsche was right in calling the fine arts "the joyful science." In social science, one often learns more and better sociology from a great novel than from most of the texts of sociology, or economics, or psychology, or political science. One religious experience often gives a better cognition of religion than most of the books on psychology, history, and sociology of religion, and so on.

On the other hand, any scientific discovery is also a creation, not necessarily in the sense of an imposition upon nature of what is manufactured by our mind, as Kantians and their followers say, but in the light of actualizing the hidden potentiality in nature, bringing it to the light, and thus enriching our knowledge. In this sense, Newton created his law of gravitation, R. Meyer his law of preservation of energy, Lavoisier and Lomonosoff their law of conservation of matter, and so on.

Since intuition plays such a decisive role in any creativeness, it plays this role also in any cognition and discovery.

This cursory survey explains why the thinkers of the most divergent currents of thought recognize intuition — and as its result the truth of faith — as the source and *corpus* of truth of *sui generis*, different from the source and *corpus* of knowledge given through the organs of the senses, and through dialectic of our mind. It is, likewise, the reason why they ascribe to intuition the most important role in the generation and starting of even sensory and rational cognition. After the above, the following statements of thinkers in different currents of thought will be comprehensible.

The Unconscious often guides men in their actions by hints and feelings, where they could not help themselves by conscious thought.

The Unconscious furthers the conscious process of thought by its inspiration in small as in great matters, and in mysticism guides mankind to the presentiment of higher supersensible unities.

It makes men happy through the feeling for the beautiful and artistic production.[33]

New directions of thought arise from the flashes of intuition.[34]

In mathematics, the positive integral numbers 1, 2, 3, . . . are found to be subject to certain simple arithmetic laws, and these laws are regarded as intuitively true. . . . There are many other abstract mathematical structures besides those just alluded to. In all cases it is found that they are made up of certain accepted intuitions (or postulates) and their logical consequences. . . . Now what I desire particularly to point out is that the mathematician goes far beyond such generally accepted clear-cut assumptions, in that he holds certain tacit beliefs and attitudes which scarcely ever find their way onto the printed page. . . . For instance, he believes in the existence of various infinite classes such as that made up of all the integers. . . . Such ideas . . . I call mathematical faith. . . . Nearly all the greatest mathe-

[33] E. von Hartmann, *op. cit.*, Vol II, p. 39.

[34] A. H. Whitehead, *Adventures of Ideas* (New York, 1933), p 138

maticians have been led to take points of view in this broad category and have attached the deepest significance to them. . . . The beliefs involved have been of the greatest heuristic importance as instruments of discovery.[35]

Still more emphatic in this respect are such scientists as Eddington, Jeans, Drisch, and others.

Human spirit as "something which knows" is not quite so narrow a description as "the observer." Consciousness has other functions besides those of a rather inefficient measuring machine; and knowledge may attain to other truths besides those which correlate sensory impressions. . . . Deeper than any "form of thought" is a faith. . . . In the age of reason, faith yet remains supreme; for reason is one of the articles of faith.[36]

Thus there is hardly any doubt that intuition is the real source of real knowledge, different from the role of the senses and reason. If so, then the truth of faith, derived from and based upon intuition, is the genuine truth as much as the truth of the senses and of reason. It is especially indispensable in the apprehension of those aspects of the true reality which are inaccessible to the senses and to reason. This explains why the truth of faith has been able to dominate for centuries, and why the super-rational religions have been eternal concomitants of the development of human culture. If the truth of faith (and intuition as its source) were entirely false, such a fact could not be. In the light of the above statement, the important and often indispensable role played by intuition in the cognition of true reality explains the perennial fact of the immortality of religion and arts, and the domination of the truth of faith over long periods; and this immortality of supersensory religion and super-rational arts and ethics and the domination of the truth of faith for long periods corroborates the important role of intuition as the source of truth, knowledge and creativeness.[37]

[35] G D Birkhoff, "Intuition, Reason and Faith in Science," *Science*, December 30, 1938, pp. 603–4 Birkhoff points out further the role of intuition in great discoveries made by Newton, Faraday, E H Moore, by himself, M. Planck, and others. He rightly indicates that "there has always been an abundance of faith among the physicists," and that such principles as time, space, conservation of forces, and so on, are, in fact "acts of faith"

[36] Sir Arthur Eddington, *op cit*, pp 221–23.

[37] I foresee the vigorous clamor which will be raised by different Liliputian "free-thinkers" and pseudo scientists that such an admission of intuition and truth of faith leads to a justification and validization of all the prejudices, superstitions, and ignorance; and that we cannot rely at all upon intuition and should eliminate it entirely from the sources of truth and knowledge; and so on My answer to all such — too familiar — clamor is simple. First, since intuition as a source of truth and cognition really exists

For the above reasons then, the *integral truth is not identical with any of the three forms of truth, but embraces all of them.* In this three-dimensional aspect of the truth of faith, of reason, and of the

and plays a most important role, any elimination of such a *datum* — even empirically observable *datum* — is but an anti-scientific negation of what is given. Therefore, it is but blind politics, having nothing in common with science Second, yes, not every intuition is valid; most of them probably are misleading and produce error rather than truth. But not every sensory observation or discursive reasoning — deductive or inductive — is valid, either As a matter of fact, most of these have been misleading and giving error rather than valid knowledge. Otherwise, the history of human thought would not have been in a large degree "history of human stupidity," and of innumerable errors of observations and dialectic conclusions. Otherwise, the history of philosophy and science would not have been an ever-expanding graveyard with progressively increasing corpses of sensory and dialectic constructions believed to be true for a moment and found to be inadequate by further experience In other words, intuition, sensory experience, discursive reasoning, each may be true and false, and nobody has shown as yet that the proportion of the false intuitional propositions is larger than the false sensory and dialectic propositions.

Sponsoring intuition and the truth of faith generally is not equivalent to sponsoring *any* intuition and *any* intuitional belief The same is exactly true of the sensory and dialectic conclusions

Finally, if some one should say that the truths of the senses and of reason are testifiable and verifiable, while the truths of intuition and faith are not, such an objector again is wrong Some simple elementary truths of the senses and reasoning are indeed verifiable by almost anyone. So also are the simple intuitions and the conclusions given by them — beginning with either "Cogito, ergo sum," or simply with "I exist" and ending with most of the axioms and postulates of most of the sciences; most of the basic principles, like time, space, connection of events, and so on, not to mention the intuitions in the field of moral, aesthetic and other values On the other hand, the most complex truths of senses and of reason, like the principles of relativity, of quantum theory, of many other propositions of the natural and social sciences, can be verified and testified to by only a handful of competent specialists! The rank and file of the people can — and do — take it by *faith* in the authority of this handful of competent experts. Similarly, some of the supreme forms of intuition, like the mystic intuition, can be verified directly by only those few who have the adequate charismatic grace of such an experience The mass of the people can verify it only indirectly, through a comparison of the testimonies of the mystics, and through the sensory-rational study of the results of such an intuition So, in this respect, the intuitional truth is in no way less testifiable than the sensory and dialectic truths or propositions. Further, as to the concordance and agreement of the testimony of the intuitional mystics of various periods and countries, they seem to be more in agreement than the complex sensory and rational truths or propositions of the great scientists and scholars Finally, as to the results and products of the intuitional experience, like great religions, the sublimest creations of art and all the other values created by intuition, they are as perennial and as important values and as necessary for sociocultural life as science, mechanical technology, or business created mainly through sensory-rational methods. So, from whatever standpoint the correct comparison between the truths of the senses and reason and that of faith is made, the latter has as much validity and value as the former. Hence the position taken in this work. It is more adequate and more rigorous than the position of the one-sided partisans of only one variety of truth, be it sensory, or rational, or intuitional.

senses, the integral truth is nearer to the absolute truth than any one-sided truth of one of these three forms. Likewise, the reality given by the integral three-dimensional truth, with its sources of intuition, reason and the senses, is a nearer approach to the infinite metalogical reality of the *coincidentia oppositorum* than the purely sensory, or purely rational, or purely intuitional reality, given by one of the systems of truth and reality. The *empirico-sensory aspect of it is given by the truth of the senses; the rational aspect, by the truth of reason; the super-rational aspect by the truth of faith.* The threefold integral system of truth gives us not only a more adequate knowledge of the reality, but a more valid and less erroneous experience, even within the specific field of each system of truth. *Each of these systems of truth separated from the rest becomes less valid or more fallacious, even within the specific field of its own competence.* The organs of the senses, not controlled by reason or intuition, can give us but a chaotic mass of impressions, perceptions, sensations, incapable of supplying any integrated knowledge, anything except disorderly bits of pseudo observation and pseudo impression. They can give at the best but a mass of meaningless "facts," without any coherence, relevance, and comprehension. Deprived of the co-operation of the truth of reason and of intuition, these organs of the senses are very limited instrumentalities, in the cognition of even a sensory aspect of the reality. In perception of sound, smell, sight, our organs of sense are poorer than the sense organs of a dog, as I. Pavlov's experiments show. For thousands of years such energies as radio and electricity were lying "under their nose"; and yet they were unable to see, to hear, to smell, to touch these sensory forms of the reality. For thousands of years many empirical uniformities of natural phenomena were lying under "the eyes and ears" of the organs of the senses; and yet they were unable to grasp them. When they were "discovered," they were discovered only through the co-operation of other sources of cognition: logic and intuition. When these elementary verities are understood, it becomes clear how limited, poor, incoherent, and narrow would be our knowledge, if it were limited only to pure sensory cognition, and if it were dependent only upon our organs of sense in their ordinary functioning. Likewise, mere dialectic speculation cannot guarantee to us any valid knowledge of empirical phenomena. It can give us an unimpeachable syllogism or a mathematical deduction, but such a syllogism or deduction will be empirically valid only when its major and minor premises are empirically valid. And this empirical

adequacy cannot be derived from and by the truth of reason. Finally, intuition uncontrolled by the truth of reason and the senses goes very easily astray, and gives us an intuitive error instead of the intuitive truth. Each of these sources and systems of truth misleads us much more easily when it is isolated from, and unchecked by, the other sources and systems of truth than when it is united into one integral whole with the others.

Hence the greater adequacy of the integral system of truth and reality compared with partial or one-sided truth and reality of each of these systems.

IV. Return to the Argument

After this all too short, and also all too long, deviation, we can return to our problem. The above explains what is meant by the inadequacy of each system of truth; and how and why, with a growing domination of one of the systems, the society, culture, and human beings are more and more carried away from the true reality and from the real knowledge of it. Suppressing the other systems of truth, and the aspects of reality they give, the dominant system of partial truth begins, under the disguise of truth, to lead the society more and more toward ignorance, error, hollowness of values, aridity in creativeness and discovery of the aspects of reality, and poverty of social and cultural life. Adaptation becomes less and less possible. And life itself becomes less and less rich in the real values and creative experience. Hence the dilemma for the respective society and culture: either to continue such a dangerous drift, and dry up and perish, or to make a great effort and restore a fuller and more genuine truth and system of values. Such a restoration means a reintroduction of the other systems of truth, reality, and value. And such a reintroduction is a new phase in the great rhythm of the system of truth, reality, value, and in the dominant form of the cultural supersystem.

Some cultures, like the Graeco-Roman and the Western, have been able to make such a shift several times; some others could not. The first cultures continued to live and to pass through the recurrent rhythm studied; the others either perished and disappeared, or were doomed to a stagnant, half-mummified existence, with their hollow and narrowed truth, reality, and value becoming a mere "survival" or "object of history," instead of being its creative subject. Such cultures and societies turn into mere material for other — more creative and alive — cultures and societies. Those who limit the reality-value

by only one of the above three aspects — whether empirical, or rational, or supersensory — needlessly impoverish themselves, their reality, knowledge, and values. This applies equally to an understanding of man, society, and culture. Such an exclusive *Weltanschauung* is never adequate, and invariably falls victim to its own narrowmindedness. So also do the cultures dominated by such one-sided mentalities. The exclusively theologico-supersensory mentality of medieval culture that emerged and developed as a remedy to the hollow Sensate culture of the late Graeco-Roman period, after several centuries of domination, also dried up, failed, and buried itself in the catastrophes of the end of the Middle Ages. So also did the one-sided rationalistic mentality of the culture of the sixteenth to the eighteenth centuries (the mentality of the Renaissance and the Enlightenment). It went down in the social conflagrations at the end of the eighteenth and the beginning of the nineteenth centuries. Finally, the one-sided empirico-sensory mentality of our own culture is failing before our eyes, together with the culture dominated by it.

The theoretical failure of our predominant Sensate system of truth, reality, value and culture manifests itself in many ways, described in detail in the preceding volumes of *Dynamics*. First, in a progressive obliteration of the boundary line between truth and falsehood, reality and fiction, validity and utilitarian convention. When one examines the contemporary dominant scientific and philosophical empiricism in all its variations — empiricism, positivisms, neo-positivisms, Kantian or pseudo-Kantian criticism of the *als ob* or "as if" fictions, pragmatism, operationalism, empirico-criticism, instrumentalism, and so on — one cannot fail to see how they all together tend to obliterate the difference between truth and falsity, reality and fiction, validity and mere expediency. When these dominant currents declare that scientific propositions are mere "conventions," and of several different conventions that which under the circumstances is most convenient, or most "economical," or expedient, or more useful, or more "operational," for you or me is most true (Poincaré, K. Pearson, E. Mach, W. James, and others), they obliterate the boundary between the true and the false, undermine the truth and knowledge itself. According to this criterion, all the dogmas of Stalin or Hitler or Daladier are true, because they are most convenient to them. When scientists declare they are not concerned with reality and make their schemes "as if they were corresponding to the reality," they turn reality, science, and truth into mere fiction, into a mere *als ob*, a mere expedient and arbi-

trary "construct." If science is not concerned with the reality, then what is it concerned with? What then is the difference, besides expediency, between the "as if" construct of the patient of an insane asylum and that of the scientist; between mere fiction and reality? What a distance have we traveled from the truth as *"adequatio rei et intellectus"* of St. Thomas! [88]

Pragmatism leads to the same result, with its cult and criterion of the useful as equivalent to the true, as do also operationalism, instrumentalism and other similar "isms." Not different is the fruit of the current pseudo-Kantian conceptions of the laws of nature, formulated by science as mere manufactured products of our minds, imposed by us upon "nature," or upon something that we call "nature," though nobody knows what it is, or whether it exists or not. The result of such a conception is that we do not know what "mind" is, still less what it imposes upon what, in what way and why. The whole of science and truth turn into one question mark. Still truer is this of the neo-Positivist movements, of the type of the Vienna Circle, and others, which identify thought with mere language, logic with the mere syntax of language; truth with a pure tautology ("analytic proposition" of Kant); and proclaim any nontautological proposition, including all the laws of the sciences, as an uncertain arbitrary belief. Representing empiricism and scepticism in its most sterile, arid, and senile form, these currents destroy also the landmarks between knowledge and error; reality and fiction; and leave us indeed a lifeless, spiritless, thoughtless, dry and hollow world of mummified reality, reduced to a Talmudic exegesis of symbols of nobody knows what. Being the epigoni of the previous full-blooded empiricism, like any epigoni,

[88] It is indeed symptomatic in its tragic significance that such nonsense as "science is not concerned with reality," that "it is not for us as scientists to worry about 'reality'" becomes a kind of tabloid phrase senselessly repeated by grown-ups and by young epigoni of science, in our days, as something self-evident, axiomatic, and needing no proof. (This typical phrase is taken from E D. Chapple's *Measuring Human Relations* (Provincetown, 1940), p. 13, a study very typical of the epigonic stage of a pseudo science.) Such epigoni on the same page talk of the "facts" they study, of the validity of their procedure, and of the relevancy of their results, and thus themselves at once repudiate their senseless proposition. But the fact that such declarations are fashionable is symptomatic of the present obliteration of the boundary between truth and falsity, reality and fiction, science and pseudo science, prepared by the immanent development of empiricism's domination during the last few centuries. If indeed science were not concerned with "reality" and "truth" it would be indistinguishable from ignorance, or from the "as if" schemes of the patients of an insane asylum In that case, society would be perfectly justified in prohibiting any science as a useless, expensive, and often dangerous preoccupation.

having lost its spark of creativeness, they compensate for it by the most meticulous research of the symbolic signs, with the most precise method of scholars, of whom Lao-Tze said: "Wise men are never scholars and scholars are never wise men." The old sage exaggerated the situation, but his formula well fits these scholars.

Moving in this fatal direction, empiricism tragically narrows the realm of the reality to a mere empirical aspect of it; and in this aspect to a more and more narrow and more and more superficial "knowing more and more about less and less." Losing its creative genius and replacing it by "mechanicalness," it discovers less and less because it creates less and less, and because any real creation is discovery and any real discovery is creation.

In spite of an enormous collection of so-called facts, neither our understanding of sociocultural phenomena nor our ability to foresee their future course has increased. Amid the vast ocean of "facts" we are lost as much as ever. The empirical social theories emerge, enjoy their heyday, and after a few months or years are "gone with the wind" as failures. As to the validity of empirical forecasts of future trends of sociocultural phenomena — almost all the empirical theories of the nineteenth and twentieth centuries, from business forecasting to the theories of "progress," "sociocultural evolution," "laws of the three stages," "social and cultural trends" — all are washed out by history. The fact that with the approach to the end of the nineteenth century we discovered a tendency to a slowing of the rate of discoveries, even in the natural sciences and technological inventions (see *Dynamics*, Vol. II, chap. iii) may be a sign that such a sterility begins to appear also in the natural sciences.

Divorcing the empirical aspect of reality from its other aspects, the contemporary dominant empiricism tragically narrowed also the world of the meaning-values and in this way enormously reduced all the infinite richness of sociocultural and cosmic reality. In this manner it has been the factor in the impoverishment of our life, of its creativeness, fullness, its infinite value, and even its Sensate happiness.

Through this divorce it separated the truth from goodness and beauty, and made empirical science indifferent to these values. It generated an amoral, even cynical science. As a result of this, empirical science has become an instrumentality ready to serve any master, Mammon as well as God, any purpose, no matter whether socially good or disastrous, constructive or destructive. Having created a world full of the most beneficial gifts, at the same time it created the

most devilish means for the destruction of human life, of culture, of society. Poisonous gas, bombs, explosives are as much the children of empirical science as a refrigerator, medicine, a tractor, or similar invention. By letting loose these destructive monsters, empirical science produced the children which began to devour science itself.

On one half of this planet, the liberty of study and of scientific thought is already muzzled by those who have specialized in the control of the destructive forces created by empirical science; only what they want is permitted to be studied; what they do not want is prohibited. In this way, science itself is degraded to the role of a mere "handmaid" of the contemporary "Barbarians," who have well learned the motto of empiricism: Truth is what is convenient and useful; and of several possible conventions, that which is most convenient for me is most true. In this way, the extreme empirical science has prepared its own downfall and degradation.

The practical failure of the excessive empiricism of our culture is demonstrated by our increasing inability to control mankind and the course of sociocultural processes. Contrary to the hopeful empiricistic *"savoir pour prevoir, prevoir pour pouvoir,"* we control them as little as we did many centuries ago. Like a log in Niagara Falls, we are carried by unforeseen and uncontrolled sociocultural currents, and helplessly drift from one crisis to another, from one catastrophe to another. Neither happiness, nor safety, nor security, promised by the excessive empiricism of modern times, is realized. There were few periods of human history when so many millions of human beings were so unhappy, insecure, and miserable, hungry and destitute as they are now, from China to Western Europe. The "blackout" of culture is the sign of our time. No better evidence of its practical failure is needed.

More than that. This exclusive empiricism is responsible, to a great extent, for these catastrophies, and for the contemporary degradation of man and sociocultural values. Stripping man and values of anything absolute, superempirical, divine and sacred; reducing them to a mere "electron-proton complex," or "complex of atoms," or "reflex-mechanism," or "psychoanalytical libido," or a "sex-stomach mechanism," or mere "stimulus-response relationship," the one-sided empiricism has tragically narrowed the world of true reality-value, and degraded man and culture to the level of these "complexes," "atoms," and "mechanisms." The practical result of such a *Weltanschauung* has been the contemporary cruel treatment of man, the

current catastrophes, and the current triumph of rude force in national and international human relationships. If man is a mere electron-proton complex or atom, why have any ceremony with him? If truth, justice, beauty, and other values are perfectly relativistic conventions, why hesitate at the disposal of those which are inconvenient for a given individual or group, and why not dictatorially order those which are convenient for them? In this way, the degradation of man and cultural values was begun, and progressed until, as at the present time, man and all values are relativized to such an extent that nothing absolute and sacred is left, and everything is ground into dust. Hence the contemporary triumph of rude coercion; the contemporary crisis of our society and culture; wars and revolutions; the mental, moral, and social anarchy of our time. These are the children generated by the one-sided empiricism of our culture. They now begin to devour their parent, preparing for the downfall of such a culture mentality.

Such are the consequences and such is the Nemesis of the more and more one-sided system of truth, reality, and value. And such is the suicidal way in which this one-sided system suffocates itself and opens the way for the ascendance of other systems of truth-reality-value that correct the outworn system. Such a shift becomes an absolute necessity, the condition without which the existence of creative culture becomes impossible. As such it can only be welcomed.[39]

This reason for the succession of the phases of the supersystem of truth-reality-value–culture is the deepest and most important. It alone is sufficient to explain the super-rhythm studied. Together with the above principles of immanent change and of limited possibilities, it makes the super-rhythm perfectly comprehensible. It accounts also for the degradation of those societies and cultures which have not been able to make this shift to another system of truth-reality-value when it became necessary. For such persistence in the path of a partial and increasingly sterile system of truth, they are condemned to this degradation and to their uncreative and vegetative stagnation.[40]

[39] See P Sorokin, "The Tragic Dualism of Sensate Culture," *Science, Philosophy and Religion* (New York, 1941) In Volume Two of *Dynamics*, pages 53–55, the figures were given which show that for the period of 580 B.C. to A.D. 1900, the total sums of the indicators of the truth of faith, the truth of reason, and the truth of the senses were fairly close to one another. This suggests not only the fact of the alternation of domination by each of these main systems of truth, but even their somewhat equal importance and indispensability.

[40] This is my answer to the thoughtful criticism of L. von Wiese and a few others, who rightly remarked that in the preceding three volumes of *Dynamics*, I have not answered this question. Why do these forms of culture recur, and why must they recur?

V. Why the Order of the Phases: Ideational, Idealistic, Sensate

This "why" answered, there remains another subordinated problem, namely: Why have these main forms recurred in the same order: Sensate-Ideational-Idealistic, or, what is the same, Ideational-Idealistic-Sensate? Does this mean that I claim such an order of succession as a universal uniformity to be expected *urbi et orbi*, whenever and wherever such a rhythm takes place? If so, then what are the reasons that make such an order universal, especially that the Idealistic phase comes after the decline of the Ideational, but not after that of the Sensate phase?

First of all, let me remind the reader that in the preceding volumes I nowhere claimed that such an order of succession is a universal uniformity.[41] On the contrary, in several places I stated that "the sequential order of these alternations in most of the cases is probably such as described, but it is not to be assumed that in some cases the sequence cannot be different."[42] Or, "I do not think the sequence observed in the history of the Western society is universal or uniform for all societies and at all times."[43] These remarks, and those in several other places make my position clear. I do not have any sufficient logical ground on which to contend that the observed order is invariable. Theoretically, it is possible, and if other cultures are studied from this standpoint more carefully, it is probable that some other order of recurrence of these main forms can be found.[44]

The answer to this, and several other fundamental problems raised in the preceding volumes, has been reserved for this volume. See L. von Wiese, "Ideenkultur und Sinnenkultur," *Archiv fur Rechts- und Sozialphilosophie*, Vol. XXXI, pp. 371–385 (1938), and also his "Ideenkunst und Sinnenkunst," *Zeitschrift fur Aesthetik und allgemeine Kunstwissenschaft*, Heft 2, 1938, Vol. XXXII, pp. 97–109. Also E. Diaconide, "Sociologie et méthaphysique," *Revue Internationale de sociologie*, Nos. 1–11, pp. 71–84 (1938). Several other critics seem to have criticized me on this point either without reading my volumes and therefore ascribing to me something that I never have said, or without the slightest understanding of the nature of the problem involved.

[41] Such a claim is unwarrantedly ascribed to me by some critics, among them the eminent sociologist, L. von Wiese. See his "Ideenkultur und Sinnenkultur," quoted, pp. 376 ff.; H. Hart, "Sorokin's Data versus His Conclusions," *American Sociological Review*, October, 1939; see in the same issue my "Rejoinder."

[42] *Dynamics*, Vol. II, p. 122.

[43] *Ibid.*, Vol. III, p. 131.

[44] Especially when one considers that much simpler chemical systems, even those of one component, like water, can have and do have different co-existing "phases" in the system: liquid and vapor, ice and water, ice-water-vapor; and the system can pass and does pass indeed from one state to another not in one but in several different orders.

The more so, that some cultures never reach an integrated level from this standpoint, while some others like, for instance, the Brahmanic culture of India, have remained in the Ideational phase far longer than either the Graeco-Roman or the Western cultures.[45] Finally, observation shows that the tempo and the sharpness of the mutations from one type to another vary from culture to culture; some shift from one type to another within narrower limits than the others, and therefore give always a less pure type of domination of one form than the others.

The only reason why the sequence of succession in domination of these forms in the Western and Graeco-Roman cultures has been such

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This is still truer in regard to the so-called "bivariant," and "multivariant" systems. See A. Findlay, *The Phase Rule*, quoted, chaps II, III, *et passim* In biological systems likewise, as has been shown above, the order of the "biological phases" very often is also not uniform We have seen in Chapter VIII that many sociocultural processes have varying orders of their "stages" or "phases," contrary to the claim of many a social scientist who imposes unduly a uniformity of sequence upon them

[45] A prominent Hindu scholar, Benoy Kumar Sarkar, somewhat misread my statements in regard to the Brahmanic-Hindu culture He ascribed to me the contention that it is fundamentally different from the Western and has always been and is Ideational, without any shifts and fluctuations of its forms, while the Western culture has tended to be predominantly Sensate. Respectively he imputed to me, as well as to practically all the Occidental and partly even to the Hindu Indologists, the claim that in the Hindu culture there was no Sensate culture and none of its elements. See B K. Sarkar, *The Positive Background of Hindu Sociology* (Allahabad, 1937), chap. xii, "The Sensate and the Ideational," pp 631–67 I am at a loss to understand why such a position should be imputed to me by Prof. Sarkar. Throughout all the three volumes there runs the central idea that the Graeco-Roman and Western cultures have known all the main types of culture, and for centuries have remained in the stage of the dominant Ideational culture, and not once, but at least twice On the other hand, in my concise statements regarding the Hindu-Brahmanic culture (not the whole culture of India, but only its Brahmanic or Hinduist aspect) I indicated time and again that even it has known similar fluctuations, and, though remaining predominantly Ideational, it has known periods of an increase and decrease of its influence upon the whole culture of India (including all the non-Brahmanic varieties of it). I stressed furthermore that many elements of the Sensate culture, like materialism and so on, were present in that culture, and in some periods rose, while at others declined in their influence. Finally, when I study the relationship of the mentality and overt behavior of the bearers of these different cultures (Vol. III, chap xv), I indicate clearly that the difference in the behavior of the members of the opposite cultures is far less than in their mentality. When all these things are considered, I can hardly be accused of the shortcoming ascribed to me by my learned friend. On the other hand, what I said of the Brahmanic culture seems to stand. The only explanation of this criticism I can imagine is perhaps the strong — too strong — zeal of Prof Sarkar in emphasizing the presence and domination of the Sensate forms in the total Hindu culture I think he sometimes exaggerates these "positive backgrounds" of the total Hindu culture, but even if he does not, the dominantly Ideational character of the Brahmanic stream of the total Hindu culture remains unquestionable. To that extent, the criticism of Prof. Sarkar misses the points at which it is aimed.

that the Idealistic stage used to come after the Ideational, but not after the Sensate, is the consideration of the empirical nature, namely: in the overripe stage of Sensate culture, man becomes so "wild" that he cannot — and does not want to — "tame himself" and, like a reckless driver, can be brought to his senses only by catastrophic tragedy and punishment, as immanent consequences of his "folly." These call for "the policeman of history," who imposes, first, a hard and purely physical coercion upon him, as the contemporary totalitarian policemen of history do; and then, gradually, after this strenuous taming, he is put into the strait-jacket of the Ideational culture for a constructive and real "re-education" and "re-orientation" in regard to himself as well as toward the world of values and the total reality. In other words, the too wild Sensate man is less able to turn spontaneously into an Idealist, and to create an Idealistic culture, after the crumbling of the over-Sensate, than is an Ideational man — say, a monk — who comes out of his cell and the supersensory world, and begins to discern the noble beauty of the magnificent world of the senses, begins to grasp it, understand it, and value it, so far as its noblest and sublimest aspects are concerned. It is easier to descend from the heights of the Ideational snow peak to the beautiful plateau of Idealistic reality than to ascend from the plane of the over-ripe Sensate culture to that Idealistic plateau. Here we have, perhaps, something reminiscent of E. Mach's principle of "the least resistance." Going down is easier than climbing up, when going down and climbing are considered as free and spontaneous, and not forced, as is the case with the passage from the Sensate to the Ideational, imposed by calamity and enforced by the rude coercion of the "policemen of history." [46]

This consideration perhaps helps us somewhat to understand why the sequence in the cultures studied has been such as it is; and why such a sequence probably will be found — though hardly universally — in the life history of other cultures. However, the consideration is purely empirical, and as such it does not imply any necessity for such a sequence to be universal in time or space.[47]

[46] See a series of thoughtful considerations in J. Dowd, *Control in Human Societies* (New York, 1936), chap xxxi.

[47] Here in another form we have the old problem of invariability and variability of the sequence of certain social "phases." One of the earliest cases of the problem has been the problem of the order of change in the main political regimes, amply discussed already by Plato, Aristotle, Polybius, not to mention poetical expressions of it, like the regressive order of Hesiod and others. As is known, Plato discusses, in the eighth book of his *Republic*, the order of the change of the political regimes from his ideal regime of

The above answers the question of why our super-rhythm and its numerous subordinated rhythms recur; and why there has been and will continue to be a rhythm of the Ideational-Idealistic-Sensate forms of culture.

VI. The End of the Road

We have reached the end of our analysis of the "What, How, and Why" of sociocultural change. The first three volumes of *Dynamics* laid the foundation, supplied a vast amount of the relevant facts, and erected the frame of the theory of sociocultural change. This volume finished the work by an orderly analysis of the basic problems involved in such a theory. Starting with an investigation of a sociocultural system and its properties, we have studied systematically the structure and composition of the total culture; the main "how's" of its change, of its space and time uniformities, of the rhythms, periodicities, tempi and other basic aspects of sociocultural Becoming. Having clarified the main "how's," we passed to a study of the "why's" involved: Why the change? Why the rhythms, periodicities, and tempi? Why the fluctuations, trends, and cycles? And, finally, why the super-rhythm of Ideational, Idealistic, and Sensate phases? These problems answered, our study nears its close.[48]

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perfect aristocracy to that of timocracy, then oligarchy, then democracy, and then tyranny. Aristotle, in his *Politics*, criticizes Plato's theory on several points, and among these, Plato's alleged assumption of the existence of a uniformity in the sequence of the forms, passing from one to the next most congenial. Aristotle stresses that the order of the sequence may vary, and as a general rule, though not invariably, he sets forth the rule opposite to Plato's, "for, in general, when governments alter, they alter into the contrary species to what they were before, and not into one like their former. And this reasoning holds true of other changes· for he [Plato] says that from Lacedaemonian form it changes into an oligarchy, and from thence into a democracy, and from a democracy into a tyranny" [Meanwhile the facts show that] "sometimes a contrary change takes place, as from a democracy into an oligarchy, rather than into a monarchy. . . . [Likewise] one tyranny often changed into another . . . or into an oligarchy, or into a democracy, or into an aristocracy." The same is true of other forms. (*Politics*, 1316 a, b, in Everyman's Library Edition) Later on, Polybius, having taken the Aristotelian six forms of government, imposed upon them, contrary to Aristotle, a universal uniform sequence of their change. In this old dispute, as the reader can see, I am following the Aristotelian position, but not Plato's (though Plato does not strongly stress that his order is universal and uniform) and not especially Polybius', who imposed a false uniformity upon the processes that do not have it.

[48] A still deeper layer of the problems underlying these "how's" and "why's" — a study of the fundamental categories of sociocultural cognition, sociocultural causality, time, space and other categories is reserved for a special monograph on *Sociocultural Causality, Time, and Space*.

In a profound peace of mind, we approach the end of the long and arduous pilgrimage of our analysis of the structure and change of culture. All that remains now is to cast, from the lookout attained, the last glance at the tragic scenery of the twilight of the Sensate phase of our culture. Let us do it with all the compassion of a participant in the tragedy and all the unshatterable hope of him who sees beyond the near horizon.

Chapter Seventeen

THE TWILIGHT OF OUR SENSATE CULTURE AND BEYOND

CRISIS . . . CATHARSIS . . . CHARISMA . . . AND RESURRECTION

THE present status of Western culture and society gives a tragic spectrum of the beginning of the disintegration of their Sensate supersystem. Therefore, their nearest future, measured by years and even a few decades, will pass under the sign of the *dies irae, dies illa* of transition to a new Ideational or Idealistic phase, with all the satellites of such a process. In a terse delineation the following trends[1] will prevail in this period.

Crisis. 1. Sensate values will become still more relative and atomistic until they are ground into dust devoid of any universal recognition and binding power. The boundary line between the true and false, the right and wrong, the beautiful and ugly, positive and negative values, will be obliterated increasingly until mental, moral, aesthetic and social anarchy reigns supreme.

2. These progressively atomized Sensate values, including man himself, will be made still more debased, sensual and material, stripped of anything divine, sacred, and absolute. They will sink still deeper into the muck of the sociocultural sewers. They will be progressively destructive rather than constructive, representing in their totality a museum of sociocultural pathology rather than the imperishable values of the Kingdom of God. The Sensate mentality will increasingly interpret man and all values "physicochemically," "biologically," "reflexologically," "endocrinologically," "behavioristically," "economically," "psychoanalytically," "mechanistically," "materialistically," as a universe of atoms and electron-protons with human robots enmeshed in their huge and inert web.

[1] See a more substantial unfolding of these trends in P Sorokin, "The Tragic Dualism of Contemporary Sensate Culture Its Roots and Way Out," *Science, Philosophy and Religion. A Symposium* (New York, 1941) P Sorokin, "Chaotic Syncretism, Quantitative Colossality, and Diminishing Creativeness of the Contemporary Sensate Culture," *Catholic Sociological Review*, March, 1941 In a still more complete form they will be given in my forthcoming book *Contemporary Social and Cultural Crisis*

3. With all values atomized, any genuine, authoritative and binding "public opinion" and "world's conscience" will disappear. Their place will be taken by a multitude of opposite "opinions" of unscrupulous factions and by the "pseudo consciences" of pressure groups.

4. Contracts and covenants will lose the remnants of their binding power. The magnificent contractual sociocultural house built by Western man during the preceding centuries will collapse. With its crumbling, the contractual democracy, contractual capitalism, including the private property, contractual free society of free men, will be swept away.

5. Rude force and cynical fraud will become the only arbiters of all values and of all interindividual and intergroup relationships. Might will become right. As a consequence, wars, revolutions, revolts, disturbances, brutality will be rampant. *Bellum omnium contra omnes* — man against man, class, nation, creed and race against class, nation, creed and race — will raise its head.

6. Freedom will become a mere myth for the majority and will be turned into an unbridled licentiousness by the dominant minority. Inalienable rights will be alienated; Declarations of Rights either abolished or used only as beautiful screens for an unadulterated coercion.

7. Governments will become more and more hoary, fraudulent, and tyrannical, giving bombs instead of bread; death instead of freedom; violence instead of law; destruction instead of creation. They will be increasingly shortlived, unstable and subject to overthrow.

8. The family as a sacred union of husband and wife, of parents and children will continue to disintegrate. Divorces and separations will increase until any profound difference between socially sanctioned marriages and illicit sex-relationship disappears. Children will be separated earlier and earlier from parents. The main sociocultural functions of the family will further decrease until the family becomes a mere incidental cohabitation of male and female while the home will become a mere overnight parking place mainly for sex-relationship.

9. The Sensate supersystem of our culture will become increasingly a shapeless "cultural dumping place," pervaded by syncretism of undigested cultural elements, devoid of any unity and individuality. Turning into such a bazaar, it will become a prey of fortuitous forces making it an "object of history" rather than its self-controlling and living subject.

10. Its creativeness will continue to wane and wither. The place of Galileos and Newtons, Leibnitzes and Darwins, Kants and Hegels, Bachs and Beethovens, Shakespeares and Dantes, Raphaels and Rembrandts will be increasingly taken by a multitude of mediocre pseudo thinkers, science-makers, picture-makers, music-makers, fiction-makers, show-makers, one group more vulgar than the other. The place of moral categoric imperatives will be occupied by progressively atomistic and hedonistic devices of egotistic expediency, bigotry, fraud, and compulsion. The great Christianity will be replaced by a multitude of the most atrocious concoctions of fragments of science, shreds of philosophy, stewed in the inchoate mass of magical beliefs and ignorant superstitions. Constructive technological inventions will be supplanted progressively by destructive ones. More specifically:

a. Quantitative colossalism will substitute for qualitative refinement; "the biggest for the best"; a best-seller for a classic; glittering externality for inner value; technique for genius; imitation for creation; a sensational hit for a lasting value; "operational manipulation" for an enlightening intuition.

b. Thought will be replaced by "Information, please"; sages by smart Alecs; real criteria by counterfeit criteria; great leaders by frauds.

c. Even the greatest cultural values of the past will be degraded. Beethovens and Bachs will become an appendix to the eloquent rhapsodies of advertised laxatives, gums, cereals, beers and other solid enjoyments. Michelangelos and Rembrandts will be decorating soap and razor blades, washing machines and whiskey bottles. Reporters and radio babblers will once in a while condescend to honor Shakespeares and Goethes by permitting them to "make a line" in their papers and talks.

11. In the increasing moral, mental, and social anarchy and decreasing creativeness of Sensate mentality, the production of the material values will decline, depressions will grow worse, and the material standard of living will go down.

12. For the same reasons, security of life and possessions will fade. With these, peace of mind and happiness. Suicide, mental disease, and crime will grow. Weariness will spread over larger and larger numbers of the population.

13. Population will increasingly split into two types: the Sensate hedonists with their "eat, drink and love, for tomorrow we die"; and, eventually, into ascetics and stoics indifferent and antagonistic to Sensate values.

Catharsis. In this way Sensate culture and man will drift to their bankruptcy and self-destruction. With material comfort vanished, liberties gone, sufferings increasing at the cost of pleasures; Sensate security, safety, happiness turned into a myth; man's dignity and value trampled upon pitilessly; the creativeness of Sensate culture waned; the previously built magnificent Sensate house crumbling; destruction rampant everywhere; cities and kingdoms erased; human blood saturating the good earth; all Sensate values blown to pieces and all Sensate dreams vanished; in these conditions the Western population will not be able to help opening its eyes to the hollowness of the declining Sensate culture and being disillusioned by it. As a result, it will increasingly forsake it and shift its allegiance to either Ideational or Idealistic values. By tragedy, suffering, and crucifixion it will be purified and brought back to reason, and to eternal, lasting, universal, and absolute values. The atomization of values will be replaced by their universalization and absolutization. Sensate values will be supplemented and subordinated to the Ideational and Idealistic values. The major premise of Sensate culture and the Sensate supersystem will be progressively replaced by the Integralistic or Ideational premise and supersystem.

Such a shift will be led, first, by the best minds of Western society. Its best brains will increasingly become again new Saint Pauls, Saint Augustines, and great religious and ethical leaders. Their lead will be followed by the masses. When this stage of catharsis is reached, the crisis is ended.

Charisma and Resurrection. Purified by the fiery ordeal of catastrophe Western society will be granted a new charisma and, with it, resurrection and the release of new creative forces. They will usher in a constructive period of a new — more integralistic — supersystem of culture and a noble society built not upon the withered Sensate root but upon a healthier and more vigorous root of integralistic principle. In this way a new era of Western culture will open.

This uniformity — *crisis-catharsis-charisma-resurrection* — is the way in which most of the previous great crises were overcome. In ancient Egypt the crises at the end of the Old Kingdom, of the Middle Empire, of the New Empire, and twice later on, in the Saice and Graeco-Roman periods; in ancient Babylon the crisis around 1200 B.C.; several great crises in the Hindu culture, each ended by a revival of Hinduism or the emergence of Buddhism. In China the crisis of the sixth century B.C. terminated with the emergence of Taoism and Confucianism, and

several later catastrophes; in the Hebrew culture, the crises of the centuries from the ninth to the third B.C. with the emergence of the prophetic religions of Elijah and Elisha, of Amos, Hosea and Isaiah, of Ezekiel and Jeremiah, up to Esdra and his successors. Finally, to mention only a few cases, in the same way the great crisis of the Sensate Graeco-Roman culture was ended through the emergence and growth of Christianity and the great Christian culture of the Middle Ages.

Ahead of us lies the thorny road of the *dies irae* of transition. But beyond it there loom the magnificent peaks of the new Ideational or Idealistic culture as great in its own way as Sensate culture at the climax of its creative genius. In this way the creative mission of Western culture and society will be continued and once more the great socio-cultural mystery will be ended by a new victory. *Et incarnatus est de Spiritu sancto . . . et homo factus est . . . Crucifixus . . . Et Resurrexit . . . Amen.*

INDEXES

Index of Names

Aaron, 414
Abelard of Bath, 489
Abelard, P., 489
Abraham, 414, 457
Ackermann, W., 753
Adam, 413, 459, 509
Adams, B., 406, 436
Adams, H., 172, 418, 419, 561, 564
Adrian, F. von. See Von Adrian, F.
Afanassieff, 536
Aftalian, A., 661
Agathon, 514
Ageorges, J., 514
Albertus Magnus, 307, 459, 490, 648, 654
Albright, W. F., 95, 232, 287
Al-Byroun, 444
Alcmeon of Crotona, 469
Alewyn, R., 514
Alexander III, 134, 135, 249, 258, 281, 284, 358, 491
Alexander, Bishop of Lykopolis, 487
Alexander of Hales, 648
Alexandri Aphrodisiensis, 455
Alfred, 435
Alkindi, 488, 489
Amalricus, 648
Amenhotep III, 123, 404
Amos, 779
Anaxagoras, 307
Anaximander, 307, 469
Anaximenes, 469
Anchitas, 307
Anderson, C. A., 281
Anesaki, M., 284, 287
Anne, 250
Antipater, 479
Appel, P., 199, 671, 680
Apuleius, 455
Aquinas, St Thomas. See St Thomas Aquinas
Araskraniianz, A., 536
Archelaus, 651, 652
Archimedes, 754
Archinapolus, 479
Architas of Tarent, 93, 446, 469
Aristarchus of Samos, 469, 470, 477
Aristotle, 50, 118, 121, 174, 175, 178, 181, 184, 199, 210, 256, 263, 273, 297, 307, 405, 424, 445, 446, 447, 450, 451, 452, 453, 454, 471, 474, 477, 489, 491, 511, 515, 587, 596, 598, 603, 607, 625, 633, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 647, 648, 649, 656, 700, 701, 705, 712, 713, 728, 733, 744, 750, 772, 773
Arnobius, 456, 652, 653
Arnold, T., 62, 612
Arrhenius, S., 460
Artaxerxes, 508
Asclepius, 622
Ashley-Montagu, M. F., 291
Ashmand, J. M., 464
Asoka, 250
Athenagoras, 650
Augustine, St. See St Augustine
Augustus Caesar, 134, 250, 325, 358, 402, 417, 479, 480, 491, 511, 663
Aurelius, Marcus, 486, 626
Ayer, A. J., 12, 27, 28

Bach, J. S., 13, 20, 83, 180, 181, 182, 184, 185, 240, 260, 263, 271, 272, 273, 274, 777
Bachelard, G., 751
Bacon, F., 137, 155, 156, 157, 159, 162, 163, 203, 753, 754, 755, 756
Bacon, R., 307, 490
Baikie, J., 123, 404
Baillie, J. B., 415
Bair, R., 659
Bainville, J., 514
Bakunin, M., 225
Baldwin, F. E., 203
Ball, F., 514
Barbarossa, F., 497
Barber, G. I., 511
Bardesanes, 487
Barnes, H. E., 72, 153, 242, 276
Bartels, A., 514, 520, 523
Barthel, E., 67, 381, 612, 750
Barthelemy, J., 454
Bartholomew of England, 490
Basilides, 487
Batault, G., 460
Baudin, L., 220
Baudrillart, H., 223
Bazard, 401
Becker, H., 72, 153, 242, 425
Bede, 648
Beethoven, L., 20, 21, 34, 51, 61, 83, 84, 86, 153, 166, 180, 181, 182, 184, 185, 192, 199, 208, 240, 256, 260, 263, 271, 273, 274, 309, 560, 616, 750, 777
Bell, W. G., 204
Below, G. von. See Von Below, G.
Benedict, R., 103
Benedict, St. See St Benedict
Benloew, L., 514, 525, 526
Berdiaeff, N., 751
Berger, C., 135, 168, 173, 174, 253, 394, 420, 544
Bergson, H., 172, 400, 442, 748, 749, 750, 756, 759
Berkeley, G., 181
Bernard, C., 299, 402, 436, 675, 756
Bernini, J., 522

Bernouilli J. 689
Berosos, 461, 474, 479, 480
Berr, H., 180 402, 436, 520
Berthelot, M P E., 756
Bett, H. 459 655
Beveridge, W H., 502, 533 537, 660
Bichat, M F X., 299
Bierstedt, R., 17, 32
Birkhoff G D., 22, 28, 111, 740, 748, 749, 751 752, 761
Black, 755
Blondel, M 751
Boas, F., 206
Bodin, J 492 512 628
Boethius 648
Bogardus, E S., 659 707
Bohr N 753
Bois P du See Du Bois P
Boldyreff, J W 323, 352, 355
Boll F 462
Boole G., 752
Booth, C., 203
Bossuet W 134
Botero, G., 405 493 504 512 628
Bouglé, C., 169
Bouniatian M 661
Boutroux, P 753
Bovet, E., 408, 410
Bowers R V 204 278
Brahe, T 492
Brahms, J., 181, 274
Brinckman A E 514 520 522
Brinton C., 425 438 666 667 734 735
Broglie L de See De Broglie L
Brouwer 753
Browning R., 757
Brown F J., 285
Brownlee J 204
Brück R 500
Brückner E 502 533
Brunetière F 514
Bruno, G 493
Brunschvicg L 752
Brutus 417
Buchanan J R 463
Bücher K 705
Buck S J 281
Buddha 358 758 759
Budge, E A W 482
Bühler, C 275
Bulgakov S., 751
Bullock, C J., 123 405
Burckhardt, J., 411
Burdin, C., 414
Burgess, E., 285, 707
Bury, J. B. 428, 719
Butler, D., 751

Caesar, C., 481
Caligula, 214
Callipus Cyzicenus, 477
Calvin, J., 353, 647
Campan, Madame, 216
Campanella, 157, 401, 436, 644, 645
Cannon, W B., 685, 686
Cantor, G., 752
Caracalla, 214
Cardanus, 492
Carleton, P., 47
Carlyle, T., 134
Carnap, R., 12, 27, 749
Carneades, 474
Carnot, N L S., 28, 716
Carter, T F., 187, 231
Cassandrus 477
Cassel, G., 679
Catherine II, 250
Celsus, 488
Censorinus, 419 464, 469 470, 471, 472, 474, 475, 476 477, 478 479 508 509, 511, 519
Chalcidius 455
Challamel, A., 203, 215, 223
Chambers F P 404
Chang Chen Huang 444
Chapin F S 162 280 293, 304, 409
Chapple E D 766
Charlemagne 134 223 248 250 358 458
Charles 435
Charles V 250 493
Chase S., 12
Chateaubriand F R., 522
Childe V G., 182 229
Chorsnard P 466 467 500
Choukas M 311
Christ 358 486, 458 459, 488, 549 653, 655 656 758
Chrysippus 455
Chrysostom J 488
Cicero, 103, 480 491
Cimabue 567
Clark J B 670 682
Claudius, A 417
Clausius R 716 717
Clayton H H 502 660
Cleanthes 455 474
Clement of Alexandria 488 640 650
Clement St See St Clement
Cleombrotus 484
Cleopatra 103 370
Coellen, L 404
Cohn L 453
Cohn Wiener, E 404
Colby, C W., 627
Collatinus, 417
Colophonius 474
Colson, E H., 548
Columbus C 243 297
Commodus, 214
Commons J 117
Comte A 6 121 130, 184, 259, 306, 320, 406, 408, 411, 414, 424, 438, 512, 514, 515 602 603, 687, 744 751
Condorcet, M 184 408, 411, 414
Confucius, 192, 358, 408, 412, 424, 684
Conington, J., 479
Constantine, 458, 524, 526, 756
Coolidge C., 79
Copernicus N., 299, 470
Corneille, P., 519, 522
Cornelius, F., 419

Cornford, F M., 451, 587, 596, 637, 639, 642, 701
Coste, A., 137, 155, 156, 159, 160, 162, 163, 164, 171, 172, 177, 251, 283, 293, 299, 305, 306, 617
Cottrell, W F., 543, 551
Coulanges, F de See De Coulanges, F
Cournot, A A., 133, 512, 514, 518, 520, 671, 689, 690
Cousin, V., 449
Creighton, C., 204, 281
Crew, H., 680
Croce, B., 22, 416, 632, 749, 750, 751
Cromwell, O., 735
Cruet, J., 383
Crum, W L., 537
Cumont, F V., 205, 229, 461, 488
Curschmann, F., 536
Cusanus, N., 67, 142, 307, 459 654, 655, 728, 744, 745, 749, 750, 750
Cyprian, 456, 651
Cyrus, 250
Cysarz, H., 514, 541

Da Gama, V., 299
David, 458
Da Vinci, Leonardo, 157, 522
Davis, W H., 281
Davy, H., 756
Dawson, C., 527
De Broglie, L., 753
Debussy, C A., 51
De Coulanges, F., 130 152, 169, 175, 273, 357
Dedekind, R 28 752
De Flore J 408 411, 413, 414, 438, 456, 457, 458, 459, 511
De Goncourt, E 216
De Goncourt J 216
Delacroix, H., 758
De la Grasserie, R., 203
De la Porré, G., 648
De Lasso, O., 240
Delbos, V., 751
Delvaille, J., 719
De Maistre, J., 184, 755, 756
De Mau, H., 172
Demetrius, 484
Democritus 297, 307, 469 474, 477
De Morgan, A., 27, 206
Denéréaz, A., 353
Deonna, W., 152 153, 206, 221, 225 226 262, 301, 404, 707
De Pres, J., 240
Dermenghen, E., 463
De Roberty, E., 33, 116, 120, 130, 243, 292, 293, 294, 296, 297, 298, 300, 301 302, 306, 307, 320, 663
Descartes, R., 121, 157, 181, 240, 250, 263, 424, 519, 589, 750
Descaves, L., 226
Devereux, G., 291
Dewey, J., 28
Diaconide, E., 770
Didot, 455
Diel, E., 455
Diels, H., 182, 307, 445, 469, 622, 625
Dill, S., 214
Dilthey, W., 411, 514, 705
Dinant, D., 648
D'Indy, V., 274
Dingle, H., 746
Diocles, 471
Diodorus of Sicily, 453, 508, 511
Diogenes of Babylon, 469, 474, 483
Dion, 477
Dionysius, 456, 474, 651, 744
Dixon, R., 206, 230, 231
Dodd, C H., 259, 287
Donatello, 522
Dostoievsky, T., 231
Dowd, J., 357, 772
Draghicesco, D., 750, 756
Drisch, H., 761
Dromel, J., 514, 518, 520, 525
Drost, W., 392
Du Bois P., 174
Du Bois-Reymond, E., 514, 519
Dubreuil, H., 172
Duhamel, G., 172
Duhem, P., 215, 442, 444, 449, 455, 488, 716
Du Nouy, L., 62, 593, 703
Duns Scotus, J., 307
Duplan, J ., 172
Duprat, G L., 686
Dupuis, J., 449
Durant, W., 272
Durer, A., 25, 181, 260, 379 522, 759
Durkheim E., 15, 43, 05, 119, 175, 357, 528, 663
Dvorak M., 274 404
Dykmans, G 4

Eckhart, J 655, 728
Eddington A S 28 29, 94, 442, 598, 605, 746, 750, 760 761
Edgeworth, F Y., 683, 686
Edison, T., 290, 325
Eggan, F., 286
Einstein, A., 28, 172, 182, 263, 307, 693
El Greco, 522
Elijah, 414, 779
Elisha, 414, 779
Elizabeth, 250, 435, 457
Ellis, W., 506
Ellwood C A., 175, 357, 405, 707, 719
Empedocles, 307, 400, 469, 471, 625
Engels, F., 225, 304
Enriques, F., 182
Ephorus, 511
Epicurus, 38
Epigenes, 471, 474
Epranger, E., 411
Eratosthenes 474
Erigena, J S., 67, 142, 307, 424, 456, 459, 644, 648, 654, 655, 728, 729, 744, 745, 750, 750
Erman, A., 482
Ermatingen, E., 514, 541
Esdra, 779

Espinas, A., 182
Essex, 435
Esther, 458
Eubank, E. E., 659
Euclid, 21, 34, 49, 50, 61, 147, 491
Eudoxis Gnidius, 477
Evenor, 471
Ewald, O., 459
Ezekiel, 779

Faraday, M., 298, 299, 761
Faure, G., 502
Fechner G T, 672
Feldhaus, F M, 182 307
Felix, M., 215 455 456, 650, 651
Ferguson A, 277 405 512 629
Ferrari, G., 418, 514 516 518, 519, 521, 523, 524, 530
Ferreira, P 603
Fetter, F., 682, 683, 687
Findlay, A., 5 8 62 671, 697, 703, 715, 735, 771
Findlay, W, 671
Fisher, H., 134 136, 137
Fisher, I., 661
Florus, L. A., 86, 417, 504
Floss H J 654 745
Folsom, J K 304
Forster, E S, 417
Fourrier, F M C 225 402 476
Fraenkl, A., 28 752 753
France, A., 276
Frank S L., 655 745 750
Frankl, 404
Frazer, J G 160 175 357, 463
Freeman, R A, 172 187
Frege, G., 752
Freyer, H 33
Friedrich J, 493
Funck-Brentano, F, 216
Furier, 520

Galen, 487, 491
Galileo, 297, 746 754 755 777
Galpin, C., 205, 209, 224 229 417
Galton, F, 153
Garcia-Mata, C 502 503
Gayton, A. H, 257
Gelderen, J. F van See Van Gelderen, J F
Genghis Khan, 250, 281, 325, 580
Georgias, L., 307
Gershwin, G, 86 99 309
Gibbon, E., 186, 272
Gibbs, W., 5, 6 56 62 418 696 702 715, 735
Gilbert, W., 490
Gilboy E W, 686
Gildebrandt, 371
Gilfillan, S C., 182, 206, 311 527, 561, 755
Gini, C, 689
Ginsberg, M., 193, 314, 432, 705
Ginzberg, L., 259 287
Giraud, V, 514, 536
Glotz, G., 707
Gluck, C. W., 274
Gobineau, J. A., 153
Goblot, E., 28
Goethe, J W., 153, 167, 251, 273, 757, 777
Goldenweiser, A, 23, 72, 201, 292, 438, 660, 708, 709, 710
Gonseth, F., 28, 753
Gooch, G P, 134
Goodwin, W W, 445, 474, 476, 483
Gordon, J., 493
Gough A B, 409 500
Graebner, F, 105
Grande Mademoiselle, 522
Granet M 624
Grasserie, R de la See De la Grasserie, R.
Gratian, 214
Gredt I 750
Green T H 751
Greenfield K R, 203 223
Greenwood M Jr 204 281
Gregory the Great, 371, 524, 526
Gregory Nazianzen, 744
Grosseteste R, 490
Guerry, R, 528
Gugnebert C 224 229, 409
Guillon M N S, 353
Guthrie, E F, 736
Guye C E, 593 598

Haberlandt A, 709
Hackmann H 444 624
Hadamard I, 753
Hahn H 28
Hale M 402
Haller, A, 755
Hallowell A I, 286
Halma N B 462
Hals, F., 522
Hamann R 514
Hampton 625
Handel, G F, 180, 184, 274
Hannon J D 209
Hansen A H 304 660 661
Harding, R E M, 390
Hardy G 752 753
Haret S C, 682, 689
Hart C W, 304
Hart H, 562, 563 565 575 710, 736, 770
Hartmann E von See Von Hartmann, E
Hartmann G W 276
Hatfield, H S., 755
Hawkins D J B, 12
Hawthorne, N, 99
Hawtrey, R G, 661
Hayden, F J, 153 180, 182, 184, 274
Healy, J, 456
Hegel G W F, 31, 67, 74, 116, 121, 130, 153 181, 184, 263, 381 408, 410, 411, 414, 415, 416, 424, 437, 594, 630, 631, 632, 633, 634 635, 636, 638, 700, 701, 728, 738, 744, 777
Heine, H., 153
Heisenberg, W, 753
Henderson, L J, 5, 62, 672

Heraclitus, 307, 469, 476, 477, 478, 483, 484, 509, 510, 587, 622
Herder, J. G von. See Von Herder, J. G.
Herma, 650
Herman, A., 311
Herodicus, 509, 510
Herodotus, 450, 474, 476, 508, 509, 510, 511
Herskovits, M J., 104, 111, 277
Hertzler, J O, 719
Hesiod, 180, 307, 365, 444, 445, 474, 483, 484, 510, 772
Hevner, K, 275
Hibbert, M., 28
Hilbert, D, 752, 753
Hildebrandt, G, 705
Hill, G, 203, 223
Hiller, E. T, 304
Himilcon, 299
Hipparchus, 477
Hippocrates, 471, 473, 491
Hitler, A, 39, 103, 765
Hobbes, T., 118, 121, 424 750
Hobhouse, L T 193, 314, 705
Hoernes, 206
Hoff, van't, 671, 697
Hoffding, H, 5, 26, 29
Holbach, P H D 739
Hollis, A C, 506
Holwell, J, 492
Homer, 21, 25 51, 180, 210, 297, 307, 365
Hoover, H, 79
Horace, 103
Horney, K, 614
Hosea, 779
Hsi Chu, 624
Hugh of St Victor, 489
Hugo, V, 410
Hull, G H 661
Hume, D, 121, 181, 182, 240, 401, 512, 738, 740
Hunter W S 12
Huntington, E, 502, 503, 534, 660
Hunziker J, 449
Husserl, E, 20 22, 25, 745, 746, 748, 750
Hutchinson, 751
Huxley, J S, 184 593
Huygens, C, 157
Hyppolitus, 455, 487, 651

Ibn-Abi Watil, 411
Ibn-Khaldun 175, 405, 412, 418, 424 474, 504, 511 626, 627 748
Ignatius, 649
Inge, W R, 172
Ion of Chios, 445
Irenaeus, 456, 488, 649, 650
Isaac, 414, 457
Isaiah, 779
Isidore of Seville, 648
Isocrates, 474

Jablochkoff, P, 290
Jacob, 457, 458
Jacoby, F J., 511
Jacoby, P., 405
Jaeger, W., 643
Jahn, O, 757
Jamblichus, 455
James I, 435
James, W., 488, 749, 751, 765
Janet, P, 751
Jannet, C, 514
Jaurès, J, 225
Jeans, J J, 400, 442, 598, 761
Jellineck, G, 118
Jenning H., 595
Jensen, H., 231
Jeremiah, 779
Jevons, H S, 502, 533
Jevons, W S, 502, 533, 660, 679, 682
Jodl, F, 392
Joel, K, 407, 513, 520, 522, 523, 524, 630, 705
John the Baptist, 457, 458, 487
John, Saint See St John
Johnston, W H, 415, 631, 632
Joly, J, 597
Jorgensen, J., 757
Joshua, 458
Jowett, B., 447, 448, 449, 450, 454, 635
Julian the Apostate, 158
Julius Firmicus Maternus, 455, 488
Jung C G, 222, 748, 749 750
Justinian of Byzantium, 123, 250, 404, 458, 463
Justin Martyr, 649

Kaempffert, W, 182, 755
Kalbfleisch, C, 446
Kant, I, 21, 23, 24, 26, 27, 38, 40, 50, 54, 64, 118, 121, 147, 153, 181, 182, 240, 250, 251, 253, 263, 271, 272, 273, 386, 424, 738, 744, 745, 746, 748, 749, 750, 751, 759, 765, 766, 777
Karinsky, M, 750
Karsten, 445
Kautsky, K, 304
Keller, A G, 33, 156, 167, 169, 283, 303, 304
Kemmerich, 407
Kepler, J, 299, 492, 500, 754
Kidd, B, 175, 357
Kierkegaard, S 750
Kistiakowski, B, 5, 8
Klein, F, 753
Knolles, R, 628
Knorr, L., 696
Koffka, K, 302
Kondratieff, N, 538
Koussevitsky, S A, 474
Kraemer-Raine, P, 203 223
Kretschmer, F, 754
Kroeber, A. L, 528, 707
Kroll, J, 481
Kronecker, L., 753
Kropotkin, P., 225
Krzesinski, A 750
Kublai-Khan, 250
Kummer, F., 410, 514, 516, 520, 522, 523
Kuznets, S S 537, 538, 662

Labertonnier, L., 751
Lactantius, 215, 417, 455, 652, 653
La Farge, J., 734
Lagrange, J. L., 680
Lalo, C., 152, 153, 180, 221, 226, 245, 246, 301, 410, 564, 664
Lammetrie, 739
Lampson, H. D., 209, 224, 285
Lao-Tze, 326, 424, 758, 767
LaPiere, R. T., 224, 284
Laprade, V., 410
Lapshin, I. I., 353, 750, 756
Lasaulx, E. von See Von Lasaulx, E
Lasbax, E., 686
Lashley, K. S., 12
Lassalle, F., 225
Lasso, O de See De Lasso, O
Laswell, H. D., 276
Latourette, K. S., 232, 287
Lavoisier, A. L., 760
Le Bon, G., 175, 400, 442
Le Chatelier, 671, 675, 697
Lecornu, L., 199
Lederer, E., 661
Lee, M. P. H., 536
Leibnitz, G. W., 26, 28, 121, 157, 263, 693, 777
Leicester, 435
Leisegang, H., 705
Lenin, V., 55, 135, 199, 225, 736
Leo H., 411
Leo X, 402
Le Play, F., 130
Le Roy, E., 751
Lescure, J., 536, 537
Lessing, G. E., 153, 251
Lestrade G. P., 111
Leuba, J. H., 755
Leukippos, 307, 739
Lévy-Bruhl, L., 114, 414, 742
Leyburn, J. G., 283
Lewis, C. I., 753
Liberius, 458
Liebig, J., 756
Ligeti, P. 320, 410, 514, 520, 523, 525
Li-Ki, 413, 444
Lincoln, A., 79
Lindpaintner, P. 275
Linke, P. F., 750
Lins, M., 693
Linton, R., 269, 283, 286
Linus, 477
Lippmann, W., 528
Liszt, F., 274
Littré, M. P. E., 512
Lobatchevsky, N. I., 50, 71
Locke, J., 157
Loewenberg, J., 632
Loisy, A., 509
Lombroso, G., 172
Lomonosoff, M. V., 760
Loomis, C. P., 417
Lorenz, A., 514, 520, 522, 523
Lorenz, O., 514, 515, 516, 518, 519, 520, 521, 523, 524, 539
Lorrain, 51
Lossky, N. O., 20, 27, 745, 748, 750, 751, 756, 759
Louis XIV, 123, 250, 402, 404
Lovejoy, A., 287
Lowes, J. L., 403
Lowie, R. H., 507, 660, 708, 709
Lucian, 174
Lucretius, 103, 479, 511, 622, 626, 738
Lundberg G., 12, 35
Lunden, W. A., 281, 380
Luther, M., 157, 353, 402, 519
Lycurgus, 511

Macdonald, D. B., 463
Mach E., 671, 680, 756, 765, 772
Machiavelli, N., 174, 175, 400, 418, 424, 436, 493, 512, 627
Macintosh, D. C., 751
MacIver, R., 137, 155, 156, 157, 159, 160, 161, 162, 163, 164, 171, 172, 173, 174, 175, 177, 183, 283, 293, 305, 306, 311, 659
Macrobius, A., 455
Magellan, F., 299
Magus S., 487
Mahatma Gandhi, 172
Maimonides, M. 480
Maire A. W., 445
Maistre J. de See De Maistre, J
Makaroff, A. N., 416
Malebranche N. 181
Malgaud W. 33
Malinowski B., 103
Malthus T. R. 57
Manilius M., 464, 467, 485
Mannheim K. 262, 514, 515, 522
Marcus, 487
Maritain J. 750, 759
Marshall A., 679, 680, 681, 683, 684, 687, 689
Marsilio of Padua 174, 175
Martin, E. W., 281
Martineau, M., 603, 715
Marx, K., 57, 71, 123, 130, 137, 152, 153, 155, 156, 163, 164, 165, 167, 225, 259, 263, 283, 292, 294, 302, 303, 304, 305, 306, 312, 319, 320, 424, 736, 739
Masaryk T. G., 304
Massoudi 444
Mata, C. G., 534
Mathetes, 649
Mathis, R. 414
Matthew, T., 653
Maunier, R., 224, 257, 259, 277, 287
Maupassant H. 276
Mauss, M., 105, 106, 193
Maxwell, J. C., 199
May, R. E., 661
Mayer, J., 693
Mayreder, R., 409
Mazzarella, J., 193
McTaggart, J. M., 416, 632
McVoy, E. C., 206
Mead, M., 103, 229, 257
Meinecke, F., 134, 445

Melissus, P., 598
Mendelssohn, J., 153, 274
Mentré, F., 402, 450, 506, 509, 512, 513, 514, 515, 516, 517, 518, 519, 520, 522, 523, 539, 541
Merrill, E D., 230
Merton, R K., 165, 176, 291, 311, 548, 549
Messalina, 214
Metalnikov, S., 503, 595
Methodius, 455, 487, 651
Meton of Athens, 477
Meumann, E., 392
Mewes, R., 206, 418, 463, 494, 535
Meyer, E., 411, 705
Meyer, R., 754, 760
Meyer, R M., 514
Meyerson, L., 5, 28, 29, 674, 717, 735, 746, 750, 752 753, 756
Michelangelo, 184, 186, 261, 379, 522, 77,
Michelet, J., 645
Migne, J P., 456, 654 745
Mill, J S., 24, 28, 118, 5'2, 748, 749, 751
Millard, E., 499, 528
Mills W., 276
Mills, C A., 502
Milner G., 527
Miner, H 286
Minkowski, 693
Mitchell V., 759
Mitchell, W C 538, 660 661
Mohammed, 134, 135, 358 758
Mommsen T., 136 180 272
Monet, C., 51, 181
Montelius, 206
Montesquieux C L., 134, 424
Monteverde C., 180
Montmasson, J M., 755
Moore, E H., 761
Moore, G F 359
Moore, H L., 502, 533, 537, 538, 679, 686, 689
More, L T., 744 746, 754
Moreau, F., 502
Moreaux 407
Morgan, M H., 479
Mosca, G 206, 405
Moses, 358 413 414 458, 459, 473
Mougeolle, P., 206, 527
Moulinier, R., 745
Mozart W A., 25 153 180, 182 184, 240, 273 274 757, 759
Mueller, J H., 275 311
Mukerjee, R., 749
Muller, H von See Von Muller, H
Muller, S., 206
Muller-Frienfels, R., 392
Mumford, L., 172, 311, 732, 733
Murillo, 522

Napoleon, 20, 24, 39, 134, 325, 616
Natorp, P., 22
Nebuchadnezzar, 123, 404
Neckam, A., 489
Nemesius, 455
Nero, 214, 481
Nevins, A., 134
Newton, I., 21, 34, 50, 59, 64, 182, 263, 299, 459, 521, 589, 744, 746, 753, 754, 755, 760, 761, 777
Niceforo, A., 203, 564
Nietzsche, F., 442, 459, 756, 757, 759
Nilsson, M P., 506, 548
Noetling, F., 496
Nogue, A., 514
Nordenskiold, E., 313
Nouy, L du. See Du Nouy, L
Novatian, 651
Novicow, J., 562, 563, 565, 566, 567, 575
Novosadsky, P., 536
Nystrom, P H., 223, 528, 707

Ogburn, W F., 23, 33, 137, 155, 156, 162, 163, 165, 167, 185, 283, 293, 302, 303, 304, 305, 306, 308, 309, 311, 312, 317, 318, 319, 409, 561, 575
Oldfather, C H., 453, 511
Ollé Laprune, L., 751
Olorinus, J., 512
Olympiodorus, 455
Oman, Sir C., 134, 135, 137
O'Neill, E G., 276, 309
Origen, 215, 455, 456, 488, 651
Orpheus, 477, 484
Ostwald, W., 65, 671, 755

Painlévé, P., 28
Palestrina, 240, 271
Panofsky, E., 404
Panunzio, C M., 285
Papini, 616
Parenton, V J., 286
Pareto, V., 5, 43, 175, 296 405, 409, 679, 681, 682, 683, 684, 689, 692
Park, R., 285, 7?7
Parsons, E C., 257, 285
Parsons, T., 168
Pascal, B., 512, 754
Passarge, W., 404
Paton, W R., 625
Paul, St See St Paul
Pavlov, I., 763
Peano, 752
Pearl, R., 405, 722
Pearson, K., 153 765
Pemberton H E., 278, 279, 280
Pergamon, 567
Pericles, 123, 402, 511, 735
Perry, W J., 187
Peter of Abano 491
Peter the Great, 220, 233
Petersen, J., 514, 520, 541
Peterson, H C., 276
Petrajitsky, L., 117, 119, 168, 169, 357, 382, 383
Petri, 320
Petronius, 214
Phaedrus, 446
Phidias, 25, 184, 759
Philo Judaeus, 453, 486, 487
Philolaus, 93, 307, 445, 469, 470, 477

Philopon, J., 455
Picasso, P., 51, 181
Pigou, A. C., 537, 660, 662, 681, 689
Pinder, W., 514, 515, 518, 520, 522, 523, 539
Planck, M., 605, 693, 761
Plato, 13, 41, 50, 93, 118, 121, 147, 174, 175, 178, 181, 184, 192, 208, 210, 263, 271, 272, 273, 280, 297, 307, 371, 405, 424, 444, 446, 447, 448, 449, 450, 453, 454, 469, 473, 474, 478, 491, 510, 515, 506, 625, 636, 643, 648, 649, 656, 705, 706, 712, 738, 744, 746, 748, 750, 759, 772, 773
Pliny, 480
Plotinus, 121, 297, 455, 738, 750
Plutarch, 445, 455, 469, 472, 474, 476, 478, 482, 483, 508, 511
Poincaré, H., 28, 62, 703, 716, 748, 751, 752, 753, 756, 765
Polo, M., 722
Polybius, 220, 419, 450, 453, 478, 511, 625, 626, 627, 685, 705, 772, 773
Porphyry, 455
Porré, G. de la. See De La Porré, G
Portuendo y Barcelo, A., 689
Pottier, E., 221, 225
Pres, J. de. See De Pres, J
Proclus, 455
Protagoras, 297, 307
Ptolemy, C., 463, 464, 465, 466, 467, 468, 491
Puchta, G. F., 664
Puis Servien, 392
Pushkin, A., 757
Pythagoras, 21, 297, 307, 444, 445, 446, 450, 469, 471, 487, 488, 649

Quetelet, A., 527
Quintus Fulvius, 417

Rabelais, F., 25
Radcliffe-Brown, A. R., 103
Radin, P., 257
Raff, J. J., 275
Ramoff, T., 685, 692
Ranke, L. von. See Von Ranke, L.
Rankine, M., 460
Raphael, 59, 86, 181, 184, 186, 379, 759, 777
Razumovsky, I. P., 260
Redfield, R., 285
Rehmke, J., 750
Reid, 749
Reinach, S., 206
Reinaud, J. T., 442, 444
Reitzenstein, R., 481
Rembrandt, 181, 184, 186, 522, 777
Renard, G., 514
Renoir, F. A., 86, 522
Renouvier, C., 460, 705
Reuter, E. B., 304
Rey, A., 182, 307
Reymond, A., 182
Rhabanus Maurus, 648
Rhine, J. B., 749
Rice, S. A., 561
Richardson, J., 528
Rickert, H., 22, 726
Riegl, A., 392, 404
Riemann, G. F. B., 50, 71, 693
Rivers, W. H. R., 105, 187, 507
Robin, L., 307
Robsart, A., 435
Rockefeller, J. D., 325
Roger of Hereford, 489
Roosevelt, F. D., 103, 549
Rops, D., 172
Ross, E. A., 285, 357, 381, 707
Ross, W. D., 199, 451, 452, 640
Rossman, J., 174, 755, 756
Rostovtzeff, M. I., 205, 229, 232, 260, 315, 388, 536, 708, 710
Roucek, J. S., 285
Rousseau, J. J., 215, 512, 748
Rubens, 522
Rubinstein, A. G., 275
Rumelin, G., 509, 514, 518, 520
Ruskin, J., 172
Russell, B., 28, 617, 618, 752, 753
Russell, J., 492
Rykatchev, P., 13

St. Augustine, 182, 215, 297, 325, 371, 424, 455, 456, 459, 640, 651, 652, 655, 738, 744, 746, 750, 758, 778
St. Benedict, 413
Saint-Claire Deville, H., 756
St. Clement, 215
Saint-Hilaire, 454
St. John, 458
St. Paul, 103, 326, 371, 758, 759, 778
Saint-Simon, C. H., 157, 184, 216, 225, 401, 408, 411, 414, 436, 437, 512
St. Thomas Aquinas, 61, 71, 118, 121, 175, 184, 263, 307, 371, 372, 424, 459, 460, 648, 654, 656, 657, 746, 749, 750, 766
Samuel, 458
Santillana, G. de. See De Santillana, G
Sara, 457
Sardou, G., 502
Sarkar, B. K., 373, 771
Sarton, G., 182
Sasse, E., 206, 497
Savigny, F. C., 664
Sayce, R. U., 205, 230
Schaffner, F. J., 534
Schapera, I., 229, 285, 286
Scheffler, K., 404
Scheidt, W., 514
Scheler, M., 67, 612, 750
Schelling, F. W. J. von. See Von Schelling, F. W. J.
Scheltemas, 404
Schiller, F. C. S., 251, 757
Schmarsow, A., 404
Schmidt, W., 105
Schmoller, G., 405, 705
Schnabel, P., 461
Schneider, H., 418
Schneider, K. G., 411, 527
Schopenhauer, A., 153

Schubert, F. P., 274
Schuhl, P M, 57, 157, 172, 307
Schumann, R O, 153, 274
Schumpeter, J, 537, 538, 571, 660, 661
Schurtz, H., 507
Scott, M., 489
Scott, W, 481, 623
Scott, W. R., 537
Seek, O., 214, 215
Seligman, E, 304
Seneca, 417, 480
Sertillanges, A H, 751
Servius Tullius, 473, 478
Severinus, 483
Sextus Empiricus, 174
Shaffner, F I, 502, 503
Shakespeare, W, 13, 25, 51, 192, 208, 260, 273, 309, 759, 777
Shapley, H, 72, 201
Shaw, W H, 502, 533, 660
Shelley, P B, 757
Shestov, L, 750
Shih Hu, 232 258, 278, 287
Shirokogoroff, S M, 102
Sibley, E B 402
Sibree, J, 415, 633
Siger of Brabant, 490 648
Sigwart, C, 4
Silberstein L 750
Simmel, G, 5, 13 43 80
Sims N L, 37 38 48 120 130, 131, 304, 561, 733, 734
Slane, Baron de See De Slane, Baron
Smith A, 424
Smith, E C, 206, 707, 710
Smith, G E, 105
Smith, K K, 680
Smith, T L, 286
Smith, W C, 285
Smuts, J C, 503
Socrates, 21, 27, 93 307 371, 445, 453, 455
Soddy, F, 566 597
Solomon, 123, 250 404, 458
Solon, 471, 473
Solovjev, V 751
Sombart, W., 304, 705
Sorel, G, 175
Sorokin P A v, vi vii 4 8, 12, 13 17 20 22, 23, 25, 32, 35, 41, 46, 57 60, 63 70 75, 80, 87, 92 94, 99 104, 110 111 112 116, 117, 120, 123 125, 128, 129, 130, 131, 133, 135, 151, 153, 155, 156, 157, 163, 166, 168, 173, 174, 175 176, 182, 188, 197, 199 203, 205, 206, 209, 216, 223, 224 229, 237, 238, 240, 251, 252, 253, 264, 265, 266 291, 301, 302, 304, 305, 311, 312, 313, 314, 315 316, 317, 320, 321, 326, 353, 361, 362, 366 373, 380, 384, 386, 387, 394, 395, 399, 405, 409, 410, 416, 417, 418, 420, 425, 434, 438, 442, 443, 444, 461, 492, 494, 495, 501, 502, 503, 504, 527, 528, 529, 532, 533, 534, 535, 537, 544, 547, 548, 549, 553, 560, 571, 580, 581, 589, 609, 610, 611, 614, 617, 623, 624, 660, 662, 663, 664, 669, 677 681, 685, 690, 707, 714, 717, 719, 721, 722, 734, 731, 736, 739, 740, 751, 752, 758, 767, 769, 770, 773, 775
Soulaire, J L G, 514, 525
Sourian, M, 751
Souter, R W, 679, 680, 682
Spangenberg, H, 411
Spencer, H, 6, 121, 184, 400, 402, 405, 424, 435, 459, 670, 671, 672, 673, 674, 675, 677, 678, 679, 687, 725, 744
Spengler, O, 88, 172, 225, 373, 405, 407, 417, 418, 505, 525, 629, 733, 734
Spenser, 757
Spier, L, 257
Spiethoff, A, 661
Spinden, H J, 444
Spinoza, 23, 118, 748, 750
Spranger, E, 514
Squires, D, 276
Stace, W T, 416, 632
Stalin, J, 23, 30 55, 79, 735 765
Stammler, R, 22, 117, 169, 357
Stantz, 182, 184
Stoicus Peripatetic 473
Steffansson V 206 527
Steinhousen, G, 512
Stephen 400
Stobaei J 445
Strache, L, 612
Straton 471
Strauss, R, 703
Stravinsky 51 80
Streller R, 602
Strindberg A 757
Stromer-Reichenbach, F, 200, 495, 496
Strowski, F, 514
Struthers, L G, 415 631, 632
Sumner, W G 130 156, 107, 283, 303, 664
Sutherland R L 561
Sydonarius Appolinarius, 224
Sylvain S, 111
Sylvester, B, 480
Symonds, J A, 479

Tacitus, 486
Taine, 152 153, 216
Tamerlane 250, 281, 493, 580
Tannery, P 440, 461, 470
Tarde, G, 22, 24, 25, 32, 33, 58, 79, 101, 102, 110, 112, 113, 191, 203, 210, 213, 219, 226, 227 243, 265 266, 269, 277, 278, 282, 288, 402, 403, 409, 436, 564, 575, 664, 707, 710, 720
Tatianus 455 487 650
Taussig, F W, 174, 755
Tawney, R H, 362
Taylor C C 432
Taylor H O, 215, 746
Terpander, 248
Tertullian, 215, 456 650
Thales of Milet, 307
Thaumaturgus, G, 456
Theophilus 488, 650
Theophrastus 453
Thierry de Chartres, 648
Thomas of Cantimpré, 490

Thomas, W. I., 205, 230, 259, 277, 278, 285, 507, 509, 660, 741
Thompson, S., 259
Thomson, J. W., 380
Thorndike, L., 462, 463, 487, 488, 489, 490, 491, 492
Thucydides, 136
Thurnwald, R., 708, 709
Timasheff, N. S., 117, 119
Timoshenko, V. P., 502, 537, 660
Tintoretto, 522
Titian, 522
Tolstoi, L., 172
Tönnies, F., 126, 564
Toutain, J. F., 205, 229
Tovnbee, A. J., 47, 72, 80, 81, 87, 88, 104, 150, 151, 172, 175, 188, 190, 205, 213, 214, 215, 216, 219, 220, 231, 236, 238, 248, 249, 251, 283, 314, 315, 316, 317, 357, 373, 381, 405, 409, 418, 436, 527, 614, 620, 630, 660, 687, 708
Trajan, 417
Trasymachus, 225
Trotsky, 225
Tschaianoff, 416
Tschaikovsky, 274
Tschuproff, A. A., 5, 6, 147, 428, 726
Tugan-Baranovsky, M. I., 137, 155, 156, 161, 162, 163, 171, 661
Turgot, 184, 408, 411, 414
Twain, M., 99

Uebinger, J., 459
Underhill, E., 749
Usher, A. P., 733, 754

Vallot, J., 502
Valois, G., 514
Van Gelderen, J. F., 538
Varro, 419, 472, 473, 475, 511
Vasiltschikoff, 416
Veblen, T., 130, 153, 155, 156, 159, 163, 164, 167, 293, 302, 303, 305, 306, 308, 309, 311, 317, 319
Venn, J., 5, 6, 27, 29, 735, 749, 755
Verhulst, P. E., 405, 722
Vettius, 475
Vico, G., 65, 175, 253, 326, 405, 411, 412, 414, 424, 437, 512, 644, 645
Virgil, 103, 473, 478, 479, 491, 511
Vitet, L., 153
Vitruvius, 479
Vittoria, 240
Vogel, W., 418
Voltaire, 134
Von Adrian, F., 463
Von Below, G., 134
Von Hartmann, E., 22, 748, 749, 750, 751, 752, 756, 757, 759, 760
Von Herder, J. G., 251, 411
Von Lasaulx, E., 500
Von Müller, H., 514, 518, 520, 522, 523, 530
Von Ranke, L., 411, 519
Von Schelling, F. W. J., 749, 758
Von Wiese, L., 425, 707, 760, 770
Von Wilamowitz-Moellendorf, U., 411, 527

Wade, J., 203, 223
Wagemann, E., 537, 538, 661
Wagner, R., 25, 181, 246, 274, 758
Wallis, W. D., 103, 185, 206, 230, 311, 312, 719
Wang, C., 224
Wardwell, C., 538
Warner, W. L., 500
Washington, G., 39, 225, 735
Waterman, E. L., 203, 223, 265
Watson, J. S., 479
Watson, W., 276
Webb, W. M., 203, 210
Weber, A., 137, 155, 156, 157, 159, 160, 161, 162, 163, 171, 172, 177, 195, 283, 203, 305
Weber, L., 137, 155, 156, 157, 158, 159, 160, 162, 163, 167, 100, 283, 305, 306, 400, 407, 436
Weber, M., 69, 123, 130, 169, 175, 312, 357, 362, 612
Wechsler, H., 463
Wechssler, E., 514, 516, 519, 523, 534, 539, 541, 705
Weierstrass, 752
Weiss, A. P., 12
Wells, H. G., 272
Wenger, L., 258, 287
Wernaer, R. M., 404, 739
Wesley, E. A., 204
Wesley, J., 353
Westermarck, E., 193
Weyl, H., 28, 753
Whately, 749
Wheeler, G. C., 193, 314
Wheeler, R. H., 503, 705
Whitehead, A. N., 28, 402, 403, 706, 748, 749, 750, 751, 752, 760
Wicksteed, P. H., 451, 587, 596, 637
Wiese, L. von, See Von Wiese, L.
Wieszner, G. C., 527
Wilamowitz-Moellendorf, U. von, See Von Wilamowitz-Moellendorf, U.
Wild, J., 751
Wild, K. W., 748, 749, 750, 751, 752, 757, 759
Willcox, W., 564
Willey, M. M., 561
William of Auvergne, 489, 648
William of Conches, 489, 648
Williams, C. F. A., 390, 391
Williams, R. H., 67, 612
Wilson, E. B., 380, 300, 537
Wilson, R. H., 442
Wissler, C., 103, 206, 230, 283, 660
Wittgenstein, 752
Wolff, S. de, See De Wolff, S.
Wölfflin, H., 404
Woodward, J. L., 561
Woodward, W., 185, 311
Woolner, A. C., 75, 218
Wordsworth, 757

Worringer, W., 404
Wulff, O., 410
Wundt, W., 22, 43, 392

Xenocrates Platonicus, 474
Xenophanes, 93, 445, 474
Xenopol, A. D., 134
Xerxes, 250, 508

Yen, Ching-Yueh, 284
Young, G. C., 440
Young, K., 304, 707
Yule, G. U., 405, 722
Yung, S., 624

Zachariah, 457
Zachary, 458
Zawadski, W. I., 679, 680, 682
Zeller, E., 449
Zeno, 297, 307, 453, 455, 476, 509, 510
Zimmerman, C. C., 203, 205, 209, 224, 229, 417
Znaniecki F., 285, 659, 660
Zoroaster, 758

Index of Subjects *

* Unless stated otherwise, such terms as change, congeries, process, system and so on mean socio-cultural change, congeries, process, system.

Absolute, as *coincidentia oppositorum*, 142, 728–29, 744–45, 763, as infinite manifold, 744–45, idea of Hegel, 633–34; inexhaustible, 744–45; reality, 743–45; truth, 743–45

Absolutization versus relativization of values, 775–78

Acceleration, and retardation, 561–65, 568–69; fictitious, 566–68; in sensate culture 568–71, 573, law of, 561–64

Accident, in discoveries and inventions, 755

Accidental, character of congeries, 32, 137 146–47, 374, characteristics of system 728–29; in historical events, 134–37, synchronicity of change, 4–5, 68–70, 376, traits of individual, 98–100

Accumulation in material and nonmaterial, technological and nontechnological culture 156, 158, 160–63, 179–89, 351–55, 723–25 See also Dichotomic theories, Inventions, technological

Action and reaction, law of, 671, 674

Actuality and potentiality, in Aristotle, 638–39

Adaptation, and cultural lag, 162–63 303–19, and truth, 741–42, and utility, 743–45 See also Maladjustment

Adequatio rei et intellectus, as knowledge, 766

Adjacency in space-time, and causality, 4–5, 68–70, 72, 376, and congeries, 4–5, 23 68–70, 376–77

Aesthetic, consistency, 21–22, 25; logic, 21–22; system, 21–22, 25, 114–15; unity, 25

Aetas, as a time unit, 508–10, 519

Affirmation, as negation in Hegel, 631

Age-continuum of population, 517–18

Age-factor, in change, 505, 509, 513–14, influence upon creativeness of, 522–23. See also Generation

Age, of gods, heroes, men, recurrence of, 411–12, 645; of law, grace, spirit, sequence of, 413–14

Agents human, as component of system, 46–47

Agnosticism, 738, 765

Ahura Mazda and Angra Mainyu, struggle between, 400

Allegiance, shift of population's, 777–78

Als ob truth, 765

Alternation of, analysis and synthesis in science, 402; anarchy and unity, 402, atheism and religion, 401, 645, atomization and universalization of values, 778, binding and loosening in society, 407, challenge and response 405 concentration and equalization of wealth, 405, convention and revolt in literature, 403, critical and organic periods 401, custom and fashion, 403; dissolution and integration, 400, expansion and contraction of government regimentation, 405, growth and decline of aristocracy, 405, 626, growth and decline of civilization, 405, 626, intuitive and eruditional periods, 402–03, materialization and de-materialization, 400 424 order and disorder, 400–02, 627, progress and decline of science 401, prosperity and impoverishment, 405, splendor and decay, 404, strife and love 400, 625 technological and ideological periods 404, withdrawal and return 405

Alternations of other processes, 404–07 See also Rhythm, Rhythms

Analytical and synthesizing periods in science 402

Analytical judgments, 26, and mathematical propositions, 27, and tautology, 26–28, Kantian, 26

Anarchy, and truth, 741–42, contemporary 774–77

Annus magnus, length of 442–45, 449, 452 461, 469, 470, 476–78, 482–83, 487, 488, 490–91 See also Periodicities

Anomie, contemporary, 774–76

Antagonism of meanings, in concepts, 31, 631–32 in congeries, 21–22, 31, in systems, 66–67, 74, 78 See also Congeries

Antagonisms social, 17, 24–25, 32–33, 775–77

Antihumanitarianism, contemporary, 775–77

Antithesis, Hegelian, 31, 631–32. See also Dialectical method

Appearance, and reality, 26–29, 734–35, 765–66

Area, individual as smallest culture, 98–100

Aristocracy, rhythm of rise and decline of, 405

Aristotle on, concept of change, 637–40, cycles, 643; fourfold causes, 639; immanent change, 636–644; order of change of government, 772–73, periodicity, 450–54; potentiality and actuality, 638

Arts, fine, accumulation in, 180–81, 351–53, 383–84, decay of contemporary, 776–77, movement in history of, 365–66; number and per cent historical persons who distinguished themselves in, 328–51, 354, 365–66; technique and technical aspect of, 171

As if. See *als ob*
Ascetics, split of population into hedonists and, 777
Association between movement of historical persons in business, fine arts, philosophy, religion, science, statesmanship, technological inventions, 355–66
Association in shift of political power, technology, science, 249
Association of variables: accidental and causal, 4–5, 23, 32, 39, 68–70, 137, 146–47, 374–76, 728–29, causal and meaningful, 11–13, 18–19, 34–36, 39–40, 45–46, 49–51, 56, 68, 375; in idealistic, ideational, sensate superrhythm and supersystem, 424–32 See also Accidental, Causal, Congeries, Meaningful, Cultural systems
Associations, as end and means values, 161–62, 171, 174, 177–78
Astrological theories of periodicity, 460–69, 485–500; criticism of, 531–38, geographical theories as variety of, 500–03 See also *Annus magnus*, Cosmic factors
Astronomical theories of rhythm and periodicity See Astrological theories
Atheism, alternation of religion and, 645
Atomistic conception of culture and history, 98–99, 102–06, 129–33, 433–35
Atomists, sociocultural See Atomistic conception
Atomization of values, contemporary, 775–76
Austria-Hungary and Bohemia, statistics of historical persons in history of, 343–44
Autonomy marginal of sociocultural systems 73–74, 602–05, and equilibrium, 690–91, factors of degree of, 615–18
Averages and periodicity, 551–54

Barbarian stage in A Ferguson's theory, 405–06
Barbarism, contemporary, 775–77
Bearers of culture, human beings as, 47–48
Beats in rhythm, 398–420
Behavioristic interpretation of culture, 589, 775
Bellum omnium contra omnes, 776
Best brains, the fields of activity entered by, 371–72
Best sellers, cultural, characteristics and factors of, 268–78
Biological interpretation of culture, 775
Bio-organismic theories of periodicity, 503–05
Birth and death as factors of change, 505–08
Birth of system, 62–63
Bivariant system, 715
Brahmanic culture, 771
Business leaders, number and per cent among historical persons of, 328–51, opposite movement with religious leaders, 361–62

Caesura, in processes, 421–23
Calendar, as social organization of time, 546–47
Carpe diem, 259
Casual elements in, systems, 728–29; historical process, 134–37
Casual nature of congeries, 32, 137, 146–47, 374
Catastrophe, contemporary, 775–77
Categories of mind, as intuitions, 748; inapplicable to the Absolute, 744–45; role in natural sciences of, 746
Catharsis in crisis and ordeal, 778
Causal-meaningful relationships, definition of, 34–37, 39, 40–41, dynamic, 431–32; static, 429–30
Causal-meaningful system, sociocultural systems as, 34–37, 39, 40–41, 424–32
Causal relationships, definition of, 131–33, dynamic, 431–32, limits in, 694–99; pure, 3–4, 39–40; static, 429–30, transformation by meanings, 40–43
Causal system, definition of, 4–5; difference from pure meaningful system, 11–17, discrete and concrete, 6, durable and short-living, 6, homogeneous and heterogeneous, 7–8
Causes, Aristotle's fourfold, 649
Causes of change, Aristotle's, 636–44; external, 588, 590, 594–98, 627–29; immanent, 590–92, 599, 627–29, mixed, 592, 599
Causes of periodicity, biological, 503, cosmic, 460–69, 485, 500–03, generational, 505–17, sociocultural, 542–45
Causes of rhythm, physico-mechanical, 670–77, principles of immanent change and limit, 711–13
Causes of superrhythm of idealistic, ideational, sensate phases, 737–45
Centers of great cultures, factors of emergence of, 236–38; shift of, 244–49
Chance See Accidental, Congeries
Change, sociocultural, causes of See Causes of change
Change of system, deterministic and indeterministic aspects of, 604–50; external factors of, 599–600, immanent forces of, 590–92; immanent generation of consequences, 601–02; in togetherness, 68–70, 145–46, 373–75, limited possibility of variation of, 76–77, 701–02, 704–11; margin of autonomy in, 73–74, 607–09; selectivity in, 74; temporal order of change of components in, 377–84; three aspects of, 66–67; unfolding potentiality in, 375–76; uniformities in, 197–98, 374. See also Culture-change
Chaos, contemporary, 775–77
Charisma in overcoming great crisis, 778
Charismatic intuition, 758
Chinese theories on, immanent change, 624; periodicity, 444, rhythm, 400, 412
Christian thinkers on immanent change, 646–58

Circular processes. See Cyclical
Circulation of cultural values, 200; as congeries, elements, systems, 230–34; direction of, 207–08, lag in infiltration of lower-rural-uncivilized groups of, 221, nature of, 207–13, routes of, 202; transformation in, 252–55 See also Diffusion
Civilization and culture, in dichotomic theories, 159–61, criticism of, 171–78 See also Dichotomic theories
Civilization as destiny of culture, in Spengler, 407
Classes, creating and importing new values, 227–29, lagging in diffusion, 221–27
Classification of, components of system, 46–49; factors of emergence of great culture 237, factors of power of system, 615–18, forms of interrelationship of systems, 56–57; main cultural systems, 110–24, phases in emergence of system, 62–64, rhythms 395, 396, 398, supersystems, 137, 139–41; theories of periodicity, 441, types of dichotomic theories, 137, 155, 156; types of immanent change 622, 623, 635, 646
Coercion as factor of diffusion 208, 217–20 279, contemporary 775–76
Cognition as creation 759, integral, 739 762–64 intuitional 739, 741 747–62; rational, 739, 741, 747, sensory, 739, 741 747 See also Intuition, Truth
Cognitive value of intuition, 739, 747–62, meaningful method of supersystem and superrhythm 423–30
Coincidentia oppositorum, Absolute and God as 744–45, 763, culture and man as 42 128, 142
Colossality versus quality, 776
Compatibility, aesthetic, 21 logical, 21–22 rhythms 394 social, 25, 32, systems 60
Complete integration of culture, 102–06 128–32
Complexity, as factor of diffusion, 257 262–64, 270
Compulsion, contemporary 775 See also Coercion Force
Conception, mental, as phase in emergence of system, 62–63
Conditions of, continuity of system, 65–67 cultural creativeness, 236–38 243, power of system 615–18, success of diffusion 268–78
Conductors of interaction, as vehicles, 12–13, 15–16, 31–32, 40–41, 46
Conductivity in system, differential and general, 49–50
Conflict, contemporary, 775–77, in concepts, 31, 631–32; in congeries, 21–22, 31–32, in social life, 17, 24–25, 32–33; in system 66–67, 74, 78, 86
Congeniality, as factor in diffusion, 265–66, 275–77
Congeries, accidental nature of, 32, 137, 146–47, 374; causal, 4–5; causal-meaningful, 31–32; meaningful, 21–22; relationship, 56–58
Congeries, in individual, 98–100; systems, 66–67, 74, 78, 84, total culture, 97–98
Consensus, in systems, 9–10 See Consistency
Consistency, aesthetic, 21; in man and society, 17, 24–25, 32, 142; logical, 21–22, strain towards, 33
Continuity of system, conditions of, 65–67
Control of, meanings by vehicles, 41, vehicles by meanings, 40–41
Convergence of cultures, 708
Co-operation of meanings in system, 26
Co-ordinated, meanings, 26, systems, 56, 97
Correlation of variables See Association of variables
Corsi and *ricorsi*, 411–12, 743
Cosmic factors of periodicity and rhythms, 460–69, 485, 500–03 531–38 See also Astrological theories
Creation as discovery and discovery as creation 759, role of intuition in 402–03 752–61
Creativeness, cultural centers of 236–38 243 factors of 236–38, 243 739–47 shifts of centers of, 244–49
Crisis, contemporary v 775–77 way out of 776–78
Criticism Kantian 765–66
Criticism of, atomistic and completely integralistic conceptions of culture, 102–06 129–37, 433–35 biorganismic cosmic generational theories of periodicity 531–38 dichotomic theories 137 164, 195 293 305 equilibrium theories 677–91 mechanistic and naturalistic interpretations of culture 35–40, 433–35, 668–77
Cross-currents cultural as factor of creativeness 239
Cultural convergence 708
Cultural creativeness See Creativeness cultural
Cultural congeries See Congeries
Cultural superrhythms 423–30
Cultural supersystems classification of, 137 139–41 155–56 quest for 128
Cultural systems as causal-meaningful, 34–37, 39 40–41, classification of main, 110–24, components of 46–47 composite, derivative, mixed 120–24, concrete discrete, homogeneous, heterogeneous, 6–7, conductivity in, 49–50, co-ordinated and subordinated, 56, 97, decline of, 85, difference of social from 124–25, dissolution of, 88; growth of, 83, individuality of, 58–59, interdependence of components in 49–57; interrelations between, 56–57 limited variation of, 76, phases in emergence of, 62–64, reality of, 60–61, resurrection of, 92; selectivity of, 74; self-directing unity of, 73–74, 602–05; span of life of, 91; spatial compatibility of, 60, togetherness of change in, 68–69, 145–47 See also Congeries, Cultural systems
Culture and civilization, in dichotomic theories, 159–61, 171–78, 407

Culture-change, accelerating, constant, retarding, 561–68, 571; accidental and casual, 134–37; accumulative and nonaccumulative, 156–160, 163, 179–89, 351–55; cyclical, 730–31, deterministic and indeterministic, 604–05, ever new, 726–30; intermittent and nonlinear, 355, 699–701; limited possibilities of, 76–77, 701–10; linear, 716–26, periodic and nonperiodic, 460–69, 485, 500–03, 542, rhythmical, 393, 395–98, 711–14, selective, 74, self-directive, 73–74, 602–03, togetherness of, 68–72, 145–46, 374–75, 425–30
Culture-change, as unfolding of potentialities of systems, 375–76
Culture-change, causes of, accidental, 4–5, 68–70, 376, external, 599–600; immanent, 590–600 See also Causes
Culture-change, different in congeries and systems, 32, 68–72, 137, 146–47, 374, 425–30, 579
Culture-change, tempo of, 561, 566–68, 573, temporal order in, 292–95, 302, 304, 306–10, 319, 351–55, 367–70, 377–81, 770–73, uniformities in, 196–99 See also Culture-lag, Tempo, Uniformities
Culture-diffusion See Diffusion
Culture-lag, criticism of theories of, 293–302, 306–20, 355–59, 361, 367–70; theories of, 292–93, 302–06, 377–81, 385–88 See also Dichotomic theories, Temporal order
Cultures, national, differences and spectra of, 372–73
Curve, normal, of diffusion, 270–82
Cyclical processes, impossibility of, 730–31
Cyclical theories, Aristotelian, 450–54, Babylonian, 461, Censorinus on, 470–82, Chinese, 400, 412, 444, 624, Graeco-Roman, 444–46, 454–68, 484–86, Hindu, 442–44, Medieval, 450–88, Modern, 459–60, 492–500, Patristic, 455–56, 487, Platonic, 446 See also Astrological theories, Cosmic factors, Generation, biological

Dead systems, 47
Death of system 88–01
Decay of system, qualitative, 86, quantitative, 85
Decline of, contractualism, 775–76, creativeness, 776–77
Definition, as limitation 631, 744
Degradation of man and culture, contemporary, 775–77, in science, 768–69
Dematerialization of, Brahma, 400, 424, of matter, 400
Democracy, sequence of change among other regimes, 625, 772–73
Dependence and interdependence, accidental, 4–5, 32, 137, 146–47, 324; causal, 4–5, 10, 34–35, 37–39, 40–41, causal-meaningful, 34–37, 39–41, meaningful, 20–22, 25, 30
Dependence and interdependence between, components of system, 46–49, 51–53, 67–69, 78–82, 83, 85, 87, 376–85; movements of art, business, philosophy, religion, science, statesmanship, 355–61; systems, 56–57, 97–98, 379–386, variables of idealistic, ideational, sensate supersystems and superrhythms, 424–432. See also Causal, Causes, Cultural systems, Meanings
Demoralization, contemporary, 775–76
Depression, rhythm of prosperity and, 405
Derivative systems, 120–24
Descriptive method, in social sciences, 102–03, 136
Determination as negation, 631
Determinism and indeterminism, in change of system, 604–05, in Patristic literature, 646–49, 758–59
Dialectical method of Hegel, 414–15, 630–32
Dichotomic theories of, civilization and culture, 159–61, 630–32, material and nonmaterial culture, 160–64, 302, social and ideological culture, 155–56, 302; technological and nontechnological culture, 157–58, 302
Dichotomic theories, criticism of, 164–95, 305–20, 353–57, 361, 366–67
Differential conductivity in systems, 49–50
Differential self-determination of systems, factors of, 605–15
Differential spectra of national cultures, 372–73
Difficulty in discovery, of causes, 147–48; of congeries and systems, 145–47
Diffusion of culture, and multiplication, 200
Diffusion of culture, as congeries and systems, 230–34, concentric, northward, westward, 206; curve of, 279–82; direction of finished and raw values in, 207–08; gradual, 265; horizontal and vertical, 202–03, two-sided, 207, universal and nonuniversal, 191–95
Diffusion of culture, factors of successful, 268–78; lag in, from civilized-upper-urban groups towards lower-rural-uncivilized groups, 207–08, 213, 217, 221, 229, 282–86, role of force in, 208, 217–20, 279; role of lower and upper classes in, 221–29; role of means of communication in, 202, 278; transformation of values in, 252–55
Diffusion of, civilizational and cultural values, 157–61, 191–95; ideological and social values, 156, 191–95; material and nonmaterial values, 157–62, 191–95; technological and nontechnological values, 157–59, 163, 191–95. See also Culture-change
Direction of change of parts in system, 375
Direction of sociocultural processes, cyclical, 730–31, ever new, 716, 726–30; intermittent, 355–56; linear, 699–700, 716–26; varyingly rhythmical, 711–14
Directions of spread of culture, 202–08, 213–17, 279–82
Discrepancy between, objective course of cultural processes and subjective aims, 43;

social and individual logic, 43; socialized and pure meanings, 43
Disintegration, contemporary, 775–77; of system, 85–86
Disorder, alternation of order and, 400–02, 627; contemporary, 775–77
Discovery, as creation, 759–60
Discoveries, in applied and theoretical disciplines, 179–91, 297–99, 306–08, 319, 352, 355, 367–68. See also Accumulation, Dichotomic theories, Historical persons
Discoveries, role of intuition in, 752–61
Dissolution, alternation of integration and, 400, of system, 88–89
Distortion of meanings by agents and vehicles, 41–43; subjective aims by objective processes, 43
Domination of systems of truth, rhythm of, 742–43
Duration, of life of systems, 91–93, 550–81, of periodic and nonperiodic processes, 386, 726–27. See also *Annus magnus*, Periodic rhythms
Dyad, as a rhythm, 398
Dynamic, causal relationships, 431–32; equilibrium, 681–84

Eclectic, cultures, 30–32, 97–100, 150–51, 738; mentalities, 98–100 See also Congeries
Economic activity, definition of, 161
Economic factors, of change, 130–31, 150, 160–67, 179–84, 191, 302–03; of integration, 130–31
Economic leaders, number and per cent among all historical persons, 328–50, positive and negative association of movement of religious leaders with, 361–62
Economic system as derivative, 122–23
Economy and conveniency, as criteria of truth, 765–69
Emergence of system, phases in, 62–63
Empirical sociocultural system, difference from pure causal and meaningful systems, 32–34. See also Cultural systems
Empirical truth and reality, partly true, partly inadequate, 741–45, 763, 765–69, 766
Empiricism, contemporary epigoni of full-blooded, 765–69, 766
Encyclopaedia Britannica, 363, 365, 369, 723
End and means cultural values, 158, 160–61, 171–78
England, statistics of historical persons in history of, 341–42
Equilibrium, conceptions of social, 677–92; criticism, 678–692
Ethics, as a system, 117–20. See also Law
Evolution, multilinear, 189–90, 733
Expressive consistency, 21–22
External factors, in decline of cities, 628, of change, 588, 590, 594–99, 627–29; of conformities, 643
Externalization, objectification, and socialization of meanings, 13–15

Fact-finding, alternation of the period of synthesis in science and of that of, 402; and "illustrative method," 370, philistinism of, 433–34, 658, 746, 766–67
Factors. See Causes
Faith, truth of, 743
Fashion, alternation of custom and, 403
Fiction theory of truth, 765
Fine arts, as a system, 114–16; number of historical persons in the field of, in Austria-Hungary and Bohemia, 345–46; England, 340–41, France, 338–39; Germany, 343–44; Greece, 333–35, Rome, 334–35; Russia and Poland, 347–48; the United States, 349–50, the world, 328–31, positive and negative association of the movement of creativeness in other fields of culture with that in, 365–66
Fluctuation See Alternation, Direction, Rhythm, Rhythms
Fluctuation of domination of three systems of truth, 742–43
Force, as factor in diffusion, 207–20, 279; contemporary rule of, 775–77
Form and matter, in Aristotle, 637
France, statistics of historical persons of, 338–39
Free will in Patristic literature, 646–50
Freedom, decline of contemporary, 775–76
Functional See Causal, Causal-meaningful
Future sociocultural trends, 775–78

Generation, biological, as basis of differentiation and stratification, 505, as factor of change, 513–14, as time unit, 505, 513–17
Generational periodicities, 505–26, criticism of, 538–40
Generations, rhythm of three, 409–10, of four, 418
Genius See Historical persons
Geographical factor of periodicities, 500–03, criticism of the theories of, 531–38
Germany, statistics of historical persons in history of, 343–44
God, as Absolute reality, 744–45, as *coincidentia oppositorum*, 728–29, 744–45
Gradual character of vertical diffusion, 265
Greece, statistics of historical persons in history of, 333–34
Group real, as social system, 124–25, specialized and encyclopedic groups, 125–26
Growth of knowledge, historical trend in, 719, 722–23
Growth of population, historical trend in, 719–22
Growth of social differentiation and integration, 719, 725
Growth of system, forms of, 82; qualitative, 83; quantitative, 82

Harmony, as characteristic of system, 9
Hedonists, split of population into ascetic and, 777

Heterogeneous and homogeneous systems, 7–8
Heterogeny of purposes, 43
Heuristic value of, meaningful-causal method, 12–18, 33–39, 66–67, 423–32, 728–29; of superrhythm, 423–32; of supersystem and systems, 107–19, 128–29, 138–40, 433–35
Hierarchy of end-means values in system, 177–78
Hindu Brahmanic culture as predominantly ideational, 771
Hindu theories of, immanent change, 624, periodicities, 442–44; rhythms, 400
Historical persons, number by countries and periods in history of, Austria-Hungary and Bohemia, 345–46; England, 340–41; France, 338–39, Germany, 343–44, Greece, 332–33; Rome, 334–35; Russia and Poland, 347–48; the United States, 349–50; the world, 328–31
Historical persons, who became historical through their achievements in, business, 328–50, 361; fine arts, 328–50, 354, 365–66, humanities, 328–50, 366–67; literature, 328–50, 365–66; music, 328–50, 365–66, philosophy, 328–50, 366–67, religion, 328–50, 356, 359–61, 362–63; science, 328–50, 366; statesmanship, 328–50, 358, 362–63
Historical process. See Process
Historical trends See Direction of sociocultural processes, Process
History, as theodicaea, 634
History, atomistic approach of, 98–99, 102–06, 129–31, 433–35
Humanities, movement of natural sciences and, 352–54; statistics of historical persons distinguished in, 328–50, 366–67

Idea absolute of Hegel, 633
Idealistic, Ideational, sensate supersystems of culture, essentials of, 137–42; difference from other supersystems, 138–41, major premise of, 741
Identifiability of system, and equilibrium, 690
Ideological, Organizational, power phases, rhythm of, 409
Identity, meaningful, and physical diversity, 12–18
Identity of meaning in system, 26–30
Identity of system, conditions and meaning of, 65–66
Identity of the opposites, according to N. Cusanus and Erigena, 744–45, 763; Hegel, 630–32
Identity versus perceptional diversity, 26–29, 734–35, 765–66
Illusionistic conception of truth, 765
Imitation, of civilized-upper-urban culture by the noncivilized-lower-rural classes, 207, 221–29; the reverse, 213–16
Immanent change, and determinism, 604–05; and generation of consequences, 603–04; and margin of autonomy, 73–74, 607–09; and self-determination, 603–04; as unfolding potentiality, 375–76
Immanent change, four types of theories of, 622, 623, 635, 645; in modern anthropology, 659–60; economics, 660–62; social sciences, 663–67
Immateriality of meanings, 12–15, 20–31
Imperative-attributive nature of law, 119
Impoverishment, contemporary, 775–77; of reality caused by inadequate truth, 739, 741–42, 767–69
Indeterminism and determinism of system, 604–05. See also Cultural system
Individuality of system, 58–59
Individuals as components of system, 46–48
Industry See Business leaders, Economic
Insecurity, contemporary, 775–77
Integral truth, 762–64
Integration, by co-ordination and subordination, 56, 97, 109
Integration, causal, 4–5, 11–17, 21–22, 31–32, 131–32, causal-meaningful, 34–37, 39, 40–41; meaningful, 20–31
Integration of culture, complete and totalitarian, 97, 102, 104, 129–33
Integration of person, 98–100
Integration of system, and equilibrium, 690; and plasticity, 613–14, and success, 79; optimum of, 78–80
Interaction, and integration, 48, 129–30. See also Causal, Cultural systems, Dependence
Interdependence See Dependence
Intermittent character, of discoveries, 186–87; of processes, 355, 699–701
Interrelationship between cultural and social systems, 124–27. See also Association, Dependence
Intuition, as basis of validity, 747–51; as source of creativeness, 759–61; as starter of discoveries and inventions, 747, 752–57; definition of, 747–48; truth of, 762–63; validity of truth of, 762–64
Intuition, periods of domination of erudition and, 402–03
Invariant systems, 715
Invention, and intuition in, 752; centers of, 236–43, 244–49; movement of inventions in all fields of culture represented by movement of historical persons, 328–50, 351–69
Inventions, technological, and scientific discoveries, 298–301, 303, 313, 317, 354; and musical creativeness, 354; and philosophical creativeness, 307–08, 354; and theological creativeness, 307–08, 313, 354
Inventions, technological, lag of, 314–320; lead of, 298–301, 302–05
Irrational and nonrational in culture and man, 98–100, 142. See also Congeries

Judgment, analytical, 26; mathematical, 27; synthetic *a priori*, 26–27; tautological:

sterile and fruitful, 26–28; normative and teleological, 22–25, 32
Judgment, as a meaningful system, 23–24, 29
Juridical system, consistency of, 29; reality of, 117–20

King, as organism and as sociocultural meaning, 39
Knowledge See Cognition, Intuition, Truth
Kopierenden style, 419
Kultur und *Kulturbewegung*, 159–60
Kulturkreise anthropolgy, inadequacy of, 105–06

Lag, De Roberty's theory of, 293–94, dichotomic theories of, 308–04, errors of these theories of 293–301, 304–19, 352–53, 355–56, 367–69 See also Culture-Lag Diffusion Temporal order
Lag of lower-rural-uncivilized classes compared with upper-urban-civilized classes in diffusion of culture, 207–08, 213, 221, 229 282–286 the reverse 221–29
Lag of vehicles compared with meanings in a change of system 377–81
Language as cultural system 110–11 as conductor of interaction and vehicle, 12–13, 15–16 31–32, 40–41, 46, political power and diffusion of, 217–19
Law, as cultural system, 117–18, defining economic political, social systems, 117–19, imperative-attributive nature of, 119
Law, contemporary decline of, 775–77
Lead of component of meaning in change of system 377–81 See also Culture-lag, Lag Temporal order
Leaders See Historical persons
Liberty, contemporary decline of, 775–76
Limit in causal relationship, 694–95; in direction of change, 699–700, 715–16; in possible forms of systems, 701–2; in variation of system, 76–77
Limited possibility of forms in, direction of processes, 707, economic organization, 704, family and marriage, 705 philosophical systems, 705–06, political organization, 705; scientific categories, 706, 740; systems of ethics, law, fine arts, 706, 739–40; systems of truth, 736, 739, types of society, 706–07
Limited possibility of variation, and rhythm, 711–14
Linear accumulation, 179–91 See also Dichotomic theories, Linear process
Linear process, conditions of possibility of, 699–700, 715–17; in growth of social differentiation, 719, 725, of knowledge, 719, 722–23; of population, 719–22; limits in, 699–700; short and long-time, 717
Logic, difference in individual and social, 48–43, 74–75; of pure meanings, 20
Logical aspect of, ethics and law, 23–24, 117–20; fine arts, 25, 114; language, 110; person, 98–101; philosophy, 29, 121; religion, 29, 112; science, 23, 111; sociocultural system, 16–17, 24–25, 32, 78, 142; system of pure meanings, 21–22
Logico-meaningful compatibility and consistency, 21–22
Long and short-time rhythms, 395
Loose relationship between, components of system, 49–55; meanings and vehicles, 13–15
Loosening and binding, rhythm of, 407

Major premise, of idealistic, ideational, sensate cultures, 738, 741
Maladjustment, and decay, 85–86, as discrepancy in speeds of change, 303, 310; as result of error, 742–44
Man, as *coincidentia oppositorum*, 142; as component of system, 46–47, as smallest culture area, 98–100, consistent and inconsistent, rational and nonrational, 98–100, 142
Man, contemporary degradation of, 768–69, 775–77
Marriage, contemporary degradation of, 776
Material and nonmaterial aspects, of components of system, 46–47, of sociocultural phenomena, 12–18, 162–67 See also Dichotomic theories
Mathematical judgment, nature of, 27
Mathematics intuition in, 746, 752–53; order of change among other sciences, 306
Meaning, and symbol, 12, as component of system 46–47 as ultimate concept, 12, different from material vehicles, 12–16; transforming physical vehicles and being transformed by them, 17–19, 40–43
Meaning, grounded and pure, 31–32, socialized, 30–32
Meaningful, and causal relationship, 34–37, 39, 40–41, 131–33, 429–32
Meaningful, and causal systems, 31–37, 39–41, 424–32 See also Causal
Meaningful-causal method, heuristic value of, 12–18, 33–39, 66–67, 429–432, 728–29
Meanings, congeries and system of, 20–23; co-ordinated and subordinated, 25–27; main systems of, 120–25 See also Congeries, Cultural systems
Means and end values, 160–61, 171–78
Mechanistic and naturalistic sociologies, criticism of, 35–40, 433–35, 668–77
Mental integration, as phase in emergence of system, 62–63; favorable factors of, 236–43
Mentality, integrated and unintegrated, 98–100
Metaempirical theories of periodicity, 441–60
Metasensory and superrational aspect of reality, 728–29, 744–45, 763
Methods in study and interpretation of culture, atomistic, 98–99, 102–06, 129–31, 433–35; causal, 4–5, 5–10, 131–35; causal-meaningful, 12–13, 33–39, 66–67, 429–

32, 728–29; descriptive, 102–03, 136; empirical, 370, 433–34, 658, 741–45, 763, 765–69; integral, 762–64; intuitional, 747–57; mechanistic and naturalistic, 35–40, 433–35, 668–77, totalitarian-integralistic, 97, 102, 104, 129–33
Might as right, 775–76
Migration of culture. See Circulation, Diffusion, Shift
Milieu. See External factors
Mind See Meaning
Mixed systems, 120–24, theories of periodicity, 526–27
Mobility of culture See Circulation, Diffusion, Shift
Monarchy, order of change among other regimes, 625, 772–73
Mores, maintenance, 169
Motives, relationship between overt actions and, 173–74
Multiplication of culture, and diffusion, 200–01 See also Accumulation, Best sellers, Diffusion
Multivariant system, 714
Music, number and movement of historical persons distinguished through, 328–51, 354
Musical creativeness, role of intuition in, 757
Mystic intuition, creative role of, 758–59, 761; validity of, 762–63
Mystic number of Plato, 449
Mystic numbers in theories of periodicity 445

National cultures, differential spectra of, 372–73
Natural law, as intuitional 751
Natural properties, transformation by meanings of, 17–19, 40–42
Natural sciences, discoveries in, 298–301, 303, 313, 317, 354
Naturalistic and mechanistic methods See Mechanistic and naturalistic sociologies, Methods
Nature, mixed, of sociocultural phenomena, 34–37, 39, 40–41
Nemesis, of extreme empiricism, 766–68, of sensate culture, 775–76
Nihilism, contemporary, 775–76
Nominalism, sociological, 60–61
Nominalistic conception of system, 60–62
Nonmaterial component of system See Meaning
Nonmaterial culture See Dichotomic theories, Material
Norms of law, as conditioning economic, political, and social systems, 117–20
Numbers, mystic. See Mystic numbers
Numerical and generic recurrence in Aristotle, 451–52

Objectification of meanings, as phase in emergence of system, 62–63
Objective empiricism, inapplicable to sociocultural phenomena, 12–19, 31–36
Oligarchy, order of change among other governments, 625, 772–73
Opposition, rhythm of invention, imitation, and, 409
Optimum integration of system, 78–80
Ordeal, catharsis by, 778–88
Order and disorder, rhythm of, 400–02, 627
Order temporal, in change of: components of system, 377–81, culture, 292–95, 302, 304, 306–10, 319, 351–55, 367–70, 377–81, 770–73; forms of government, 625, 772–73, succession of phases in system, 376, 770, succession of supersystems, 770–74 See also Lag, Rhythm, Rhythms, Tempo
Organismic theories, of cultural rhythms, 417; of periodicity, 503–05, 531–32, 539–41 See also Generation, Generational
Organizational phase in emergence of social system, 409
Organized social systems, difference from cultural systems, 124–27
Oscillation See Alternation, Rhythm, Rhythms

Parallel accumulation, of material and nonmaterial, technological and nontechnological values, 298–301, 303, 307–08, 313, 317, 320, 354
Parallel and nonparallel movement of historical persons in various fields of culture, 351–371 See also Historical persons
Parts, change in togetherness of, 68–69
Pendulum principle See Alternation, Rhythm, Rhythms
Perceptional diversity versus identity, 26–29, 734–35, 765–66
Periodic rhythms, annual, 545; daily, 543; hourly, 543, monthly, 544, seasonal, 545; weekly, 543–44, sociocultural nature of, 546–47
Periodic rhythms, 390, 441; theories of, bioorganismic and generational, 503–05, 531–32, 539–41, cosmic, 452–503; metaempirical, 441–42, mixed, 526–29; sociologistic, 542–50
Periodicities and averages, 551–54
Personality See Man
Phases, and rhythm, 389–392; forms of, qualitative, quantitative, spatial, 393; number of, in rhythm, 398–99, temporal order in succession of, 376
Phases, in emergence of system, 62–63. See also Rhythm, Rhythms
Philosophy, as system, 29, 121–22; limited number of types of 705–06; number of historical persons distinguished in, 328–50, 354, 367
Physical, and meaningful aspects of sociocultural phenomena, 12–18, 165–67
Physical properties modified by meanings, 17–19, 40–42
Plato on, cycles and periodicities, 446–50; immanent change, 635–36; order of change of political regimes, 449, 636

Political activity, number of historical persons distinguished in, 328–50, 355–58
Political regimes, succession of, 625, 772–73
Political system, as derivative, 123–24
Population as component of system, 46–47
Positivism and neopositivism, as theory of truth, 766; failure of, 765–69
Potentiality and actuality, in Aristotle, 638
Potentiality, and indeterminacy, 606
Power of sociocultural system, factors of, 611, 615–18
Pragmatism, as theory of truth, 766; failure of, 765–69
Predestination, and immanent change, 647
Principle of immanent change. See Immanent change
Principle of limit. See Limit, Limited
Process, cyclical, 730–31, ever new and ever old, 716, 726–30; intermittent, 355–56, linear, 699–700, 716–20; varyingly rhythmical, 711–14. See also Change, Diffusion, Rhythm, Rhythms
Pure, causal relationships and systems, 4–5, 5–10, 131–35; meaning, 20, meaningful relationships and systems, 12, 17–19, 31–35. See also Causal, Meaningful
Purposes, heterogeny of, 43
Purposes subjective, discrepancy between social processes and, 43
Purposive actions in man, 168–69

Qualitative, change of culture, 197; decline of system, 86; growth of system, 83; phase, 393
Quantitative, change of culture, 197, decline of system, 85; growth of system, 82, phase, 393
Quantitative colossality versus quality, 776
Quest for supersystems in orientation in cultural jungle, 128–29

Rational aspect, in culture, man, and processes, 16–17, 24–25, 32, 78, 98–100
Rational concepts in natural sciences, 746
Reaction, law of action and, 671, 674
Realism, sociological, 60–61
Reality absolute, as *coincidentia oppositorum*, 728–29, 744–45, 763–67; as infinite manifold, 743–45; rational and superrational, sensory and supersensory aspects of, 728–29, 744–45, 763–67
Reality of system, 60–62
Reality, science, and truth, 765–66
Reason, truth of, in natural sciences, 746. See also Truth
Recurrence. See Rhythm, Rhythms
Relativization of values, contemporary, 769, 775–76
Religion, as a system, 23–24, 29, 112–113; as truth of faith and intuition, 758
Religious activity, number of historical persons distinguished by, 328–50, 355–61; trends in historical movement of religious leaders, 355–61
Religious leadership and business leadership, 361
Replacement of systems in history, 726–27
Resurrection, of culture, 777–78, of system, 92
Retardation of tempo, in ideational culture, 568–69
Rhythm, and disequilibrium, 671–77; and limited possibility of variation, 693, 699, 701–06, 737–39, and periodicity, 389–90, 441; and phase, 392, and system of truth, 741–43, 764–65; and tempo, 389–90
Rhythms, compatibility of, 394
Rhythms, sociocultural, embraced and embracing, 396, 423–28; long and short-time, 395; periodic: annual, 545; daily, 543; hourly, 543; monthly, 544; seasonal, 545, weekly, 543; with two phases, 398–408; three phases, 408–15; with four phases, 416–18; with five and more phases, 419–20. See also Alternation, Periodicity
Rhythms, tidal, cognitive value of, 423–32
Rome, number of historical persons in history of, 334–35
Routes of diffusion of culture, 202–04
Russia, number of historical persons in history of, 347–48

Savoir pour prevoir, prevoir pour pouvoir, failure of, 569, 598, 768
Science, as a system, 111–12, beneficial and destructive, 767–68
Scientific activity, number of historical persons distinguished through, 328–50, 366–67
Scientific discoveries, movement of musical, philosophical, technological creativeness and of, 298–301, 303, 313, 317, 354; role of intuition in, 744, 752–57; role of reason in, 746; shift of centers of, with shift of centers of military power, 250–51
Scientific empiricism, 743, 748; failure of, 598, 768
Scientific truth, integral, 762–63; intuitional, 747–51, 752–57, rational, 746; sensory, 111–12, 743–48
Selectivity of system, 74
Self-regulation of system, 73, 375–76, 604–09
Sensate, idealistic, ideational, superrhythm, 424–32, 742–43; supersystem, 138–42, tempo of change in, 568–70
Sensate truth, inadequacy of, 742–43, 763; practical failure of, 768, 776–78; theoretical failure of, 765–67
Sensate values, relativization of, 775–77
Sense perception, limitation of, 763
Sensuality, contemporary, 775–77
Sequence temporal of, conception, objectification, socialization, 64–65; crisis, catharsis, resurrection, 778–79; political regimes, 449, 625, 636, 772–73; supersystems of

sensate, ideational, idealistic culture, 770–73. See also Lag, Temporal order, Rhythm, Rhythms
Shift from one to other systems of truth as a condition of creative survival, 769
Shift of centers, of great culture, 243–44, 247; of economic empires, 245; of political and military empires, 245, 249; of musical, scientific, technological creativeness, 244–45
Shift of cultural values. See Circulation, Diffusion
Simultaneity. See Synchronicity
Social classes, innovating and importing new values, 221–29
Social process. See Change, Diffusion, Process
Social systems, difference from cultural systems, 124–25
Socialization of meaning, as phase in emergence of system, 64–65
Socialization, rhythm of conception, objectification and, 64–65
Sociocultural phenomena, distinct from physical and biological, 12–18, 34–37, 39, 40–41, 429–32
Sociocultural variables, distinct from physical and biological, 34–37. See also Causal, Causal-meaningful
Space adjacency, and causality, 68–69, 72
Span of life of systems, 91–93, 580–81
Spatial change of culture as simplest, 198–99. See also Diffusion
Spatial compatibility of systems, 25, 32
Speculation, inadequacy of, 763
Spread of culture See Diffusion
Statesmen, number among historical persons of, 328–50, relationship to religious historical persons, 356–58
Static, causal-meaningful relationship, 429–32
Stratification, and diffusion of culture, 264–66
Structure of total culture of area, 97–98, of man, 98–100
Subordinated and co-ordinated meanings, 26; systems, 56, 97
Substitution of systems as source of novelty, 726–27
Subsystems, 107–08
Supersystems, 128–30, 137–39
Symbol, and meaning, 12, 15
Synchronicity of change, and causality, 69–70; arbitrariness of time-unit in, 290–91, relationship to togetherness of change, 69–70, 290–91
Synthesis in science, rhythm of fact-finding and, 402
System. See Cultural systems
Systems of truth, 739; as major premises of integrated culture, 738, 741; fluctuation of domination in history of, 741, 748; fluctuation of supersystems of culture and, 741–42. See also Truth

Tautological judgment, 26–28
Tautology, fruitful and sterile, 26–28
Technical aspect in, fine arts, 171; religion, 170; science, 170
Technological culture. See Dichotomic theories
Technological inventions. See Inventions, technological
Technological lead and lag. See Lag
Tempo, accelerating, constant, decelerating, 561, 568, 577; and average duration, 559–60, 580–81; and periodicity, 392; and rhythm, 389–90; applicability of, 556–57; definition of, 556–57; inapplicability of, 560, 569; law of acceleration of, 561–67
Tempo in, change of congeries, 579; change of embracing and embraced systems, 582; ideational, idealistic, sensate cultures, 568–72, transitional periods, 579
Temporal order in change of culture, 292–95, 302, 304, 306–10, 319, 351–55, 367–70, 377–81, 770–73 See also Dichotomic theories, Lag, Order temporal, Sequence
Theodicaea, history as, 634
Theological writers, statistics of, 354. See also Religion, Religious
Time-adjacency, and causality, 45, 68–72, 376; and change in togetherness, 69–70, 290–91
Time-system as social convention, 546–47; mirroring social rhythms, 547–49
Time-unit, arbitrary in synchronous processes, 290; social nature of, 547–49
Togetherness of change in system, 68–69, 145–47; and causality, 68–69; and space adjacency, 69, 72; and time synchronicity, 69–71
Togetherness of cultural change, theories of, atomistic, 98–106, 133–34, 433–35; completely integralistic, 102–06, 128–32; dichotomic, 137, 155–64. Criticism of theories, 102–06, 129–37, 164, 195, 293, 305, 433–35
Transformation of cultural values in migration, 252–61; factors of, 252–53, 262–64
Transformation of meanings by physical vehicles, and physical vehicles by meanings, 40–42
Transitional periods, anarchy in, 775–77, tempo of change in, 579
True reality See Reality absolute
Truth, and reality, 765–67; construct theory of, 766; fiction theory of, 765; integral, 739, 762–63; intuitional, 739, 746–47; rational, 739, 746; revealed, 739; sensory, 739, 746
Truth, historical fluctuation of systems of, 741, its reasons, 741–45; limited types of systems of, 739. See also Intuition, Systems of truth

Uniformities, sociocultural, approximate and limited nature of, 197–98
Unilinear and multilinear evolution, 189–90, 773

Unintegrated, cultures, 30–32, 97–100, 150–51, 738; meanings, 20–21, 30; mentalities, 98–100. See also Congeries
Unit, of speed of change, and tempo, 555–56; lack of, in dichotomic theories, 309, 555
Unit of time in synchronous change, arbitrariness of, 290–91
United States, the, movement and number of historical persons in history of, 349–50
Unity of system, 58–72; self-directing, 73, 375–76, 604–09
Universality of diffusion of material and technological values, 191–95
Universalization of values in after crisis, 777–78
Value. See Meaning
Variables, association of, accidental, 32, 137, 146–47, 374; causal, 4–5, 23, 32, 39, 68–70, 137, 146–47, 374–76, 728–29; causal-meaningful, 11–13, 18–19, 34–36, 39–40, 45–46, 49, 51–56, 68, 375; in idealistic, ideational, sensate cultures, 424–32 See also Association, Causal, Cultural System
Variables, sociocultural, different from physical and biological, 34–37
Variation of old themes, historical process as, 727–30 See also Rhythm
Wars, contemporary, 775–77
Why problem as different from How problem, 587–88
Yin and Yang, rhythm of, 400, 624