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THE PAUL CARUS LECTURES

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THE MEANING OF HUMAN HISTORY

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THE MEANING OF HUMAN HISTORY

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THE MEANING OF HUMAN HISTORY

Chapter 1

THE TASK OF THE HISTORIAN

1. The Philosophy of History

The philosophy of history is certainly the most neglected province of philosophy. This is amazing if we reflect not only on its inherent importance but also on the urgency of its fundamental problems. Here surely is the focal point of all applications of philosophy to life, of all the moot questions as to the interaction of the human mind, external nature, and the government of the world, divine or otherwise. The newer, as well as the traditional, problems as to the nature of time, of physical, mental and social causation, the nature of the individual and his dependence on larger or more inclusive unities, the relation of human existence to human values—one has but to name such problems to see how hopeless it is to try to deal with them satisfactorily without relating them to the concrete field of human history. Even if we approach philosophy from the purely logical, or methodologic, point of view, the question of the relation or dependence of the social on the natural sciences, of the relation of the existential to the normative and of law to chance in individual events, are all inescapable problems. Surely there can be no better challenge or opportunity for empiricists and rationalists, materialists and spiritualists, monists and pluralists, intellectualists and voluntarists, determinists and tychists, than to apply their ideas to the field of human history.

And surely that field offers problems as weighty as any that philosophers have wrestled with when it presents such questions as: "What is the nature of historical knowledge?" or "What

kind of reality should we attach to the categories of history, e.g., temporal events and their causes?" or "What is the significance or meaning of the human drama as it unfolds itself in the course of historic studies?"

At the turn of the century when the American Philosophical Association was founded no field of philosophy was so discredited as the philosophy of history; and as one goes over the list of papers read at its meetings one is impressed with the fact that only recently has any interest in this field been aroused.

Why has this duty or opportunity been so neglected? Perhaps the most important obstacle to the development of philosophies of history today is the prevailing fear of the *a priori*, which leads to the insistence that the actual facts of history cannot be deduced from any philosophic principles. This view is justified by the supposed utter failure of the German romantic philosophy of history in the hands of even the great masters—Kant, Schelling and Hegel. But failures of great philosophies are seldom absolute, and it is rash to contend that there is nothing of significance in Kant's ethical interpretation of historic progress or in Schelling's suggestive, if romantic, ideas on human development. And even if the worst that has been said about the intellectual violence of Hegel's philosophy of history be granted, we must admit that he has dealt with a problem that cannot be thrust aside without falling back on an atomic conception of annalistic chronicles as general history, which gives us the *Lives of the Philosophers* by Diogenes Laertes as a model of the history of philosophy, and catalogues of paintings or musical compositions as the history of art.

If we reject Hegel's claim, which identifies the historical with the logical, we have also to reject the empiricist's position that we must confine ourselves to facts, disregarding all ideas or general conceptions. Sober reflection shows that what we call historic facts are the results of our interpretation of certain frag-

mentary data or remains. Our implicitly assumed principles determine the character of our interpretation. Where one man looks for the will of the gods, and another for trade routes, still another says, "Cherchez la femme." Where one man sees a miracle another seeks statistics as to the price of wheat, and where one man sees an act of deliberate heroism another sees fanaticism or class bias. It is because most of us get our philosophies of the course of human events and their value from our school textbooks in history that those who wish to control popular opinion seek to dominate or determine the kind of history textbooks in our schools. Philosophies of history are none the better for being held and transmitted unconsciously. Indeed, only consciously critical philosophizing can free us from subservience to those modes of historical interpretation which we get from the textbook writers and journalists to whom we are exposed.

Another current objection to the philosophy of history is that, since it must deal with empirical facts, it should be left to the trained historian; that the philosopher here has no competence, and it is beyond his province, to deal with such empirical material. This, however, is based on an unclear conception as to the role of the empirical in philosophy, and upon a confusion between universal history and the philosophy of history. As for the first point, it should be noted that from a logical point of view the assumptions that there is a world, that there are human minds, that there is such a thing as philosophy, and that there is such a thing as empirical material—all these assumptions are themselves empirical; that is, they are contingent and cannot be proved or derived from anything which does not assume their existence as a given fact. Granted, however, that philosophy is not barred from dealing with empirical materials, there remains a valid distinction between universal history, even on the grandest scale, and philosophy, which examines the im-

manent ideas of such history, the significance of the historian's conclusions, and the methods by which they are obtained.

As philosophy cannot dispense with an empirical element, so history itself cannot be limited to pure empiricism.

The past is by definition no longer with us. It cannot, therefore, be directly observed. In the narrowest sense of the word "empiricism" it thus seems that history cannot be entirely empirical. This observation, however, does not carry us very far, for the fact that we can distinguish between the present and the past shows that in some sense or other the past is still before us, generally in the form of memory. All our assumptions in regard to the continuous nature of the things we deal with in the present—the persons, physical objects, or institutions—are inconsistent with the view that the past is nothing at all. The word "past" does point to or indicate something about which true or false propositions can be asserted. It must, therefore, have some sort of being or be a phase of true existence.

This, of course, does not mean that the snow of last year is now on the ground or that the man who died long ago is still living. That, indeed, would be to make false assertions in denying that certain events did occur, to wit, the melting of the snow or the death of that man in the past. But if the statement that there was a great blizzard in New York in 1888 is correct, then the event so denoted is part of the world order which we must acknowledge or recognize just as we must acknowledge that the processes of the circulation of the blood and the beating of the heart are going on while we are discussing the question.

We might arrive at the same view by analyzing the nature of the present. I am a teacher, a member of the American Philosophical Association, a citizen of the United States. None of these assertions is independent of all past reference, though at any given moment of time such past reference may seem irrelevant. The present period of world history includes not only the

specious or mathematical present but the present administration in Washington, the present century, the present form of civilization, and the like. It is this which makes the subject matter of history not an atomic series of momentary events (unrelated to each other except by fortuitous succession) but rather a continuous existence. We may for purposes of measurement mark off sections of history according to marks on a sundial, the hands on the face of a watch, or the recurrence of certain seasons, as marked by the position of the sun in regard to the earth, which makes the period we call a year. But all these marks are in a medium which includes them within the time which they distinguish.

The true difference between the task of the philosopher and that of the historian cannot be appreciated from the standpoint of the dogma of mutual exclusion, which seems to have become one of the postulates of modern university teaching, perhaps as a consequence of the Encyclopedists' way of presenting the sum of human knowledge. If we throw aside these administrative considerations and look at the problem itself we see that the difference between the philosopher and the historian can only be one of degree and emphasis. The historian's main objective is to present a concrete picture in the light of whatever ideas are at his disposal. There is no reason preventing him from making these ideas or this philosophy explicit. But human interests are generally not so comprehensive. Those who are interested primarily in the process of interpretation and in the system of ideas or principles which the historian assumes in this process, and those who are interested in the final synthesis to which all historic investigation can be said to point, are interested in the philosophy of history no matter what their professional standing may be.

Any philosophy of history must take account of the fact that in different ages and cultures radically different ideas have prevailed as to the proper scope of the historian's task.

2. The Development of the Historical Viewpoint

The word "history" originally denoted any account of the nature of anything. Aristotle's descriptive zoology and Theophrastus's descriptive botany were entitled respectively *History of Animals* and *History of Plants*. This sense of the word still persists in the phrase "natural history," which is contrasted in English usage with "natural philosophy" (the latter being restricted to a closely articulated study based on systematic general principles). When Aristotle said that poetry was more true and serious than history, he was using the latter word in its original sense, his idea being that mere description leaves out the universal essence.

In general current usage the term "history" is restricted to an account of past events, no matter in what field.¹ Thus we can have a history of the solar system, of our terrestrial globe, of the American continent, or of the Nile River. Since the vogue of the term "evolution" such accounts are sometimes entitled the "evolution" or "development" of the objects in question. In biology we thus have the "evolution" or "history" of various plants or animals through geologic times. We may thus, if we have material enough, write a history or an account of the past changes of the human brain, skeleton, or hand. Opponents of naturalism, such as Croce, may insist on restricting the word "history" not only to human affairs but even to some particular phase of political life in which they happen to be interested or to some special way of dealing with it. But no arbitrary definition or resolution to use a word in a peculiar sense can well deny that biographies such as Plutarch's *Life of Caesar* and Tacitus' *Life of Agricola* are substantially histories of Rome, or that Herodotus was justified in including the development of the Nile, its delta,

¹ By a natural extension of meaning the word "history" also denotes what happened, as distinct from our knowledge or account of it. Thus we speak of the history of certain peoples at certain periods as unknown to us or as being yet unexplored.

and the soil of Egypt in the magnificent book which has given him the title, the Father of History.

(Since memory is an essential trait of human mentality, some preoccupation with the past—even with the remote past—is found among all peoples, and children like to listen as the older folks tell of the days gone by. The meanest village has its cemetery if not other memorials. Nor are nomads or Bedouins free from pride of ancestry or from cultivated as well as inertial devotion to the good old ways of their tribes.) North American Indians ignorant of the art of writing still managed at times to record the notable events of successive years by painting series of pictures on properly prepared animal skins.

(Though almost all people have stories about ancient events and many have developed records to strengthen and extend the meaning of them for practical purposes, few have had what we today call a philosophy of history, i. e., a conception or picture of the whole course of human events as a continuous unitary play in which successive generations or eras play distinctive parts. Even peoples who have cultivated extensive literatures have failed to see any great significance in the changes which time works in the patterns of human life. The days, the years, and the generations of man come and go, but the general perspective or essential nature of the human scene as of the ever-changing sea remains the same.

The Chinese, for instance, have long chronicles or histories, but they show no sense of any unfolding through the ages according to some fixed plan or temporal order; and when a cultivated Hindu reads of Israel's exodus from Egypt he is apt to see in it only an allegory of the separation of the soul from God. When I once urged on the Hindu philosopher Ramanathan that Dante, who recognized such an allegoric interpretation, also believed in the reality of the temporal event, I was rebuked by the remark that the eternal spiritual meaning is the only one worthy of serious

attention, that only the carnal-minded are preoccupied with temporal events.

The Greeks were keenly aware of temporal changes, and they cultivated the art of historical writing on the basis of careful critical inquiry. But possibly because of the limited time-perspective offered by their records or because of their parochial attitude to all other peoples, all lumped together as "barbarians," they did not develop any idea corresponding to what we call the direction or development of human history as a whole. Herodotus paints the Persian War with a magnificent background that includes many parts of the world then known, but it is all just a single self-contained heroic story like that of the Trojan War. Definite order or laws for the general course of human events are ruled out by his belief in the arbitrary intervention of the gods. The critical and rationalistic Thucydides sees the great and tragic Peloponnesian War in the light of general political causes, but sees little of importance in the past of Greece before his own day. In their political and social philosophy Plato and Aristotle gave considerable attention to the dynamics of civilization and were far from ignoring the lessons of experience as gathered from history. Despite his vehement anti-materialism Plato recognized the importance of the geographic element in history, and Aristotle's *Politics* amply shows the influence of those studies of the constitutions of various states, of which the history of the Athenian constitution is the only one that we now possess. Indeed, he developed on the basis of his general philosophy a definite plan or schema into which he sought to fit the history of all previous philosophy. But he retained the traditional limited Greek outlook on humanity, and his limited horizon prevented him from taking a cosmopolitan point of view as represented by his rival Isocrates or his own pupil Alexander. Moreover, he thought that catastrophes sooner or later wipe out all civilizations, and his emphasis upon the importance of the stellar revolutions logically led to the notion of re-

current limited cycles rather than to any large-scale theory of the trend of general history. Greek philosophy was profoundly influenced by the notion of the Great Year, at the end of which all the planets would once again have the same position as today. And when this happened the belief was that all events would repeat themselves, since everything is dependent upon nature.

Polybius, an Aristotelian with the larger panorama before him of successive empires and the growth of Rome into a world-power, still found in history only special morals to be drawn from particular situations. More than three centuries later the Stoic sage and Roman Emperor, Marcus Aurelius, could still see no significance in the changes that time brings into human affairs. He solemnly wrote down that by the time a man of moderate intelligence has reached his fortieth year he has seen all that anyone has seen or ever will see of worldly events. Dante was not far wrong in characterizing the pagan philosophers as having lived without hope.

The modern conception of history has its roots in the Biblical story of Jahveh and of the world which He creates as the scene for the unfolding of a divine plan. The historical and prophetic books of the Bible, and particularly the writings of Deutero-Isaiah, make the career of the Jews the central theme of the entire cosmic play in time. God creates man in His own image to rule the earthly scene; but as human flesh proves weak and sinful he selects some of the seed of Abraham to be a holy people, a sort of high priest, to serve Him and the rest of mankind. In the early days, e. g., in the song of Deborah, Jahveh was merely a national God whose home was in Mt. Seir and who left it when he wished to fight for His people just as Chemosh fought for Moab. But this view could not endure in the face of the disastrous defeats of Israel and Judah. The genius of the Hebrew prophets boldly put forth the idea that Jahveh was not at all defeated by Assur but used the Assyrians as a rod to punish His beloved and chosen

people in accordance with the Oriental idea that those whom He loves (as a good father) He chastises. From this there developed the idea that the Assyrians and Egyptians were also God's people, and the hope of a restoration of the Davidic Kingdom was fused with the idea of universal peace. From Zion shall go forth a light unto all the peoples of the earth and so in the seed of Abraham will all the nations be blessed.

In one respect early Christianity radically transformed the Old Testament conception of history by putting in the place of a future Messianic restoration the assured faith that the Kingdom of God is already within us. But in its later more temporal form Christianity looked upon the whole of the past as a preparation for the organization of the Church, or even for Christ's second coming. St. Augustine, writing at a time of general disintegration, realized that the Church could not rule mankind if Christianity were viewed as an abstract spiritual philosophy in the manner of Neo-Platonism. To grip the mind and hold the devotion of the mass of mankind the Logos must become temporal flesh, and hence the Biblical story from Genesis to the Acts of the Apostles must not only be taken as rigorously true historically but also be extended to interpret what happened to mankind elsewhere and at other times. Despite his rejection of Manicheanism, which viewed the world in Zoroastrian terms as a struggle between forces of good and evil, St. Augustine dramatized the history of mankind as a continuous struggle between the Heavenly City and the Earthly City, with the Church as the Heavenly City on earth. This dualism has been maintained not only by good Churchmen such as Bishop Otto of Freysingen or Bossuet, but also by the modern followers of Voltaire and Condorcet. The latter only interchanged the roles of the two cities, picturing the Church as the power of darkness which by its superstitions has opposed the natural light of human reason, and picturing the earthly city of Science as the source of light. In any case some philosophy or

synoptic view of the general course of human events and their interconnection is generally tacitly assumed in all attempts to tell the story of mankind.

A tremendous increase of interest in history and a rise in the general importance assigned to it dates from the end of the eighteenth century. Of the many factors which have contributed to this result, the growth of modern biology must not be overlooked. The study of embryology has emphasized the notion of continuous development through a definite series of stages, and paleontology has supplied material for phylogenetic series. Even more influential perhaps in this respect has been the dialectic of post-Kantian philosophy, according to which all reality must develop according to some single simple idea.²

The Hegelian philosophy of history is substantially a metaphysical adaptation of the Christian view. God is one and history is the unfolding of God. He unfolds Himself on the human scene. God is primarily a logician unfolding Himself in Hegel's logic. But the world-drama requires antagonists. Therefore the Absolute must create His own antithesis in the process of unfolding, and in that struggle the synthesis is created, and so history moves on in an unending spiral. Applied to symbolic, classic, and romantic art, to all other human institutions, and to history in general, the Hegelian dialectic made historians sensitive to three-stage patterns. Men used Hegel for the most curious and divergent purposes, and the conflicts of right, center, and left Hegelians demonstrated the extent of this divergence. Substituting economic production for God, Marx got dialectical materialism.

Modern nationalism, too, has contributed to the growth of historicism through the effort to magnify and glorify past achievements and to justify claims to other peoples' lands. 'The movement known as romanticism in the early part of the nineteenth century has had its share in promoting the "flight into the past."

² See Shedd, *Philosophy of History*.

But it is the classical positivists, Auguste Comte and his followers, who have most often urged that the way to understand the present is to study the past.

3. The Extension of the Scope of History

Up to the nineteenth century history was mainly restricted to an account of Greece, Rome, Egypt, and neighboring countries more or less connected with these. Even more recently a well known historian reported the prevailing opinion that any classical scholar was qualified to teach history at a week's notice.³ The extension of the scope of history throughout the nineteenth century was one of the major events in the intellectual life of Europe. Napoleon's expedition to Egypt led Champollion to the deciphering of the hieroglyphics by means of the Rosetta Stone. In this he was aided by the pioneer studies of Thomas Young.

About the same time there came the discovery of the ancient Persian inscriptions by Grotefend and others. Still later came the deciphering of the cuneiform inscriptions by Layard and a host of other workers, which led to the opening up of Assyrian and Babylonian treasures to the historian. At first philologists were skeptical as to the possibility of correctly reading these ancient inscriptions, but in time the progress made persuaded even the most skeptical of the soundness of the general method pursued by the Assyriologists, and today these ancient writings are read with almost the same assurance as Greek epigraphy. In this way the accepted scope of ancient history was extended by some thousands of years.

Later on, towards the middle of the nineteenth century, geology and archeology opened the road to the discovery of ancient man, living hundreds of thousands of years ago, through the study of human remains and artifacts buried with these remains. Through the study of these deposits archeologists have unearthed the long

³ Pollard, *Factors in Modern History* (1926), p. 26.

past of humanity through geologic ages in many lands. A relatively recent archeological discovery was that which revealed the history of Ancient Crete, the civilization of which preceded the Mycenaean Age. Studies of the time intervals required for the wearing away of rock as at Niagara, or for the building of rock as in Egypt, give in some measure the time intervals necessary to accomplish certain changes in geologic structures. When such studies were combined with the examination of human remains, there followed a gradual uncovering of traces of human life hundreds of thousands, perhaps millions, of years old. Medieval monks had attempted to compute, on the basis of fragmentary Biblical records, the date when the world began, and had thus come to the conclusion that history began a few thousand years before the birth of Christ. By the latter half of the nineteenth century it was no longer possible to regard certain ancient stones as antediluvian, i. e., antedating the Flood of Noah, and the scope of human history had expanded to eons and millions of years.

With the extension of the general scope of historical studies there naturally came a widening of the conception of the proper subject matter of history. Instead of the old restriction to the study of kings and dynasties, warriors and the like, there came also a more human conception of the proper province of history, to include ordinary social functions, such as games, social manners, everyday business transactions, and all the things which constitute the substance of the daily life of men, women, and children. }

4. The Challenge to Historicism

The spread of historicism as a faith that history is the main road to wisdom in human affairs has naturally encountered much opposition. Within the Christian tradition there has never been wanting the insistence that the Kingdom of Heaven is not of this earth and cannot be realized except in the spirit or in a world

beyond this earthly scene. This, of course, minimizes the importance of the *chronological order of secular events* (*cf.* Gregory the Great). Thus we find medieval literature rather disdainful of any strict attention to chronology. A popular indication of this attitude is seen in the amazingly blithe way in which the historic order of events is ignored in the *Gesta Romanorum*. And this is true not only of Christian but also of most Hebrew and Mohammedan writers. The authors of the Talmud and medieval Hebrew philosophers of the eminence of Maimonides show very little interest in, or regard for, accurate history. Indeed, in the Old as well as the New Testament there is much of the anti-historical philosophy so keenly expressed in the Book of Ecclesiastes to the effect that the earthly scene is all vanity and that there is nothing new under the sun. The canonical sayings of Jesus commanded men not only to take no thought of the morrow but to let the dead past bury its dead.

Those who have been devoted to mathematical demonstration or experimental verification have also generally been disdainful of the authority of the past and have had little use for history.

It has been suggested that the rise of the great prestige of history in the nineteenth century was due to the rapid changes following the industrial revolution and to the intensified regard for time that came with modern machinery. But plausible as this may be, there are other and quite different considerations which should not be overlooked. Thus in the great mass of practical-minded America we find, by and large, only lip service to the importance of history. At best it is regarded as only a means of instilling patriotism into the young. With so many practical things to achieve there is a general feeling that it is a waste of time to think too much of the past, of the time when man lived under entirely different conditions, without our modern machinery and means of communication and information. Nor is this view limited to those whom we may call Philistines.

Something like this has been expressed in nobler and more piquant terms in the writings of Nietzsche, Emerson and Walt Whitman.

The opposition to the over-emphasis on history has thus taken diverse forms. There is first the distrust of historicism on the "practical" ground that it tends to subordinate the present to the past, that antiquarian delving in the graves of dead records is an evasion of the duty to face the living present and to exercise our energies on it. Others distrust history because it is largely created or written by diverse schools for partisan reasons. The literary fraternity regards minute study of the past as exemplifying an Alexandrian decline in intellectual creativity. (On metaphysical grounds it is objected that history is essentially meaningless because natural events have no meaning other than that which we arbitrarily assign to them (Theodore Lessing), or else the objection is raised that history concentrates our attention on passing temporal events instead of on eternal truths.) More subtle opposition comes from those philosophers who even when, like Croce, they write histories, still imply that there is no objective world to discover by historic research since there exists nothing outside of thought. The philosopher who has carried the anti-historical attitude farthest is Schopenhauer, who has relied largely not only on the Hindu doctrine of Maya but also on what is implicit in modern or subjective idealism, namely, that there is nothing for the human mind to know or to discover outside of itself.

We may for the present postpone the consideration of the ethical question as to the value of history and the metaphysical question as to the reality of the temporal process. Let us in good faith examine the challenge of the skeptics who deny the possibility of genuine knowledge of a past that has gone and has left at best only outer fragments of its life.

5. Skepticism

To what extent is knowledge of the past possible? The popular distrust of history as an account of what happened was expressed by a leading influential man of affairs when Napoleon said that "History is a fable agreed on." In the language of one of the most typical American men of affairs, "History is bunk." This view has frequently been supported by the argument that each age develops new conceptions of the essence of history, and that even within any one age different authorities give conflicting accounts of what happened in a given locality and period. Moreover, in the very nature of the case, the historian's evidence cannot be conclusive. He is limited to fragmentary physical objects or documents before him that he supposes to come from the past. He cannot call the dead back to life to give direct testimony as to the events in which they were involved. And those who wrote memoirs, histories, or records of what happened in their own day cannot be directly cross-examined as to how much of what they wrote was based on direct and competent observation, what part on hearsay, and what was just their guess or imaginative construction.

The actual writers of history are fallible human beings subject not only to bias but also to that limited capacity for knowledge that characterizes all humans. Even if our historian is a most accurate observer and completely impartial the amount he can observe for himself is generally a very small part of what he narrates. For the most part he must rely on the testimony of others. Now we know how unreliable are even eye-witnesses of any striking event or accident, how conflicting is their testimony. We discover this unreliability, however, only when we have a multiplicity of witnesses or else independent circumstantial evidence such as fingerprints or other material remains.

Even in these days when the newspaper, the cinema, and the radio seem to bring news from all parts of the world, when ma-

chinery introduces uniformity into our food, dress, and household equipment, when school books teach the same truths and fictions to everyone, the ability of even a highly intelligent citizen to tell what is going on in his country is notoriously limited—a limitation not always curable by consulting official documents. The farmer does not understand the city man and the latter is under illusion when he thinks he understands the backwoodsman. Indeed, few intellectuals in a large city like New York know much of what goes on in it.

When we have only one record or authority we are apt to accept it just as we accept the testimony of anyone whom we see no reason for distrusting. It is only when more witnesses come on the scene that we are in a position to cross-examine our authority. That is why it is easier to believe in the accuracy of Herodotus's account of the battle of Thermopylae than to know precisely what happened at the Battle of the Marne or of Tannenberg (1914). There are too many witnesses to the latter. We are generally quite certain about ancient events of which we have only one account. But, as Anatole France observes,⁴ when we come down to recent times details become very uncertain because of the multitude of witnesses who have written their memoirs.

The general reliability of the historian is no indication that he may not be in error on a given point. Indeed, few of the most reliable historians have escaped demonstrable error. Thucydides may have examined carefully various witnesses as to what happened in Syracuse, but his geographic descriptions of Greek battlefields are certainly not always accurate. Josephus seems to have been a painstaking writer on subjects under his own observation, but the figures he gives of the number of people killed by Titus in the temple city of Jerusalem is an impossible one if we remember the size of the city. Certainly it is difficult for us

⁴ See Anatole France, *Penguin Island*.

to determine how much of Germany Tacitus knew, or how much of what Herodotus picked up really happened.⁵

Let us assume that our historian is most anxious to report the truth as he sees it. He will naturally judge things from the point of view of the group of which he is a member. Catholics and atheists, Mohammedans and agnostics, will hardly see the same thing—their perspectives will be different.⁶ The foregoing seems too obvious to be worthy of mention, yet most people ignore it when they fail to realize that certain periods are generally viewed as being predominantly interested in religion only because the primary historians of that period were clerics. Similarly, certain periods or nations seem to have devoted all of their attention to the doings of courtiers and dynastic changes simply because the writers, such as Comines, were courtiers.

Now it is easy enough to show that from the fact that different historians sometimes give us conflicting accounts it is fallacious to conclude that all past events must remain unknown. The witnesses to a street accident seldom, if ever, entirely agree in their testimony, but surely that is no reason for not undertaking a careful inquiry and examining the available witnesses. It is true that the historian can seldom call on as many witnesses to a given incident as appear in a court of law, and that he cannot make his documents or material remains answer as many relevant questions as can be addressed to living persons. But while time undoubtedly destroys much evidence it sometimes uncovers some that was unavailable to any inquiry nearer to the time of the event.⁷ Modern critical history also has developed many techniques for effectively challenging and checking the supposed evidence of old records or of what are claimed to be material remains. Hence, while historians with different religious affilia-

⁵ Cf. W. Stern, *Psychologie der Aussage* (1903); W. Switalski, *Zur Psychologie der Generalaussagen*.

⁶ See William James, *On a Certain Blindness in Human Nature*.

⁷ See, for instance, Borchard's book, *Convicting the Innocent* (1932).

tions give us different accounts of the character of Mohammed, no one denies that he lived in Arabia, that he stirred up his people and united them so that after his death they proceeded to conquer a large part of the world and spread the religion of Islam from the Iberian peninsula to Africa, the Malay States and the Philippine Islands. Catholic and Protestant theologians and Marxian economists may present different views as to the significance of the Protestant Reformation, but they all agree that Luther lived, that he published certain theses, that certain princes supported him, and that there was a Peasant War.

If we wish to avoid fantastic extremes, and attain views that are more accurate than sweeping, we must learn the art of patient and critical discrimination. In short, though witnesses are fallible, traditions likely to be corrupt, and historians prone to bias, we can check up on these errors by critical examination of alternative sources and thus hope to determine the limits of our possible doubts. The result of this process is not to give us a certain and indubitable history of all past events but rather to make clear the different degrees of authentication—from the indubitable to the purely speculative—that we are able to achieve in diverse fields.

If any one were to deny the existence of George Washington or assert that he lived in the nineteenth rather than the eighteenth century, we should at once present him with insuperable difficulties. How can any one who maintains such an assertion explain not only subsequent but contemporary entries of his birth, baptism, marriage and other references to him as surveyor, landlord, general, president of the Constitutional Convention, and the first President of the United States? Logically it is abstractly possible to explain away all these evidential facts as the result of a vast conspiracy and extensive forgeries. But such an assertion would be without any evidential support, and the principle on which such a claim could possibly be based would sooner or later have

to be practically repudiated by anyone who tried to maintain it. Such difficulties would not face any one who denied the historicity of Achilles, or even claimed that the career of Moses as described in the Pentateuch was legendary and no more historical than the account of Aeneas in Virgil's poem or in the first book of Livy's *History of Rome*. In the case of Moses, for instance, the denial of historicity would not face the difficulty of having to explain away corroborative evidence, since there is none outside the Biblical accounts. The authority of this account in the field of natural knowledge is weakened by the inclusion of some highly improbable incidents, as the changing of the rod into a snake, or hundreds of thousands of people living for forty years on manna in the desert. Obviously, there are differences of degree in the cogency of the evidence for the historicity of the existence of Washington, Achilles, Aeneas and Moses. Even as to such well authenticated figures as George Washington there remain issues on which historians can differ. Was the Conway Cabal the product of Washington's own heated imagination or hurt pride?

We must conclude that while an element of uncertainty will always attach to our histories, as indeed to all accounts of human events, it is not practically possible to deny that we have some knowledge of the past and that we can improve it by critical or scientific investigation. Indeed no sane person really doubts that there is more good evidence for the existence of Thomas Jefferson than for the guilt of any person whom jurymen have convicted in an admittedly fair trial or on a free confession. But while past events can be verified and established, intelligent history is more than a mere succession of events, as in a bad play or an ill-written biography. The different events in a man's life are connected not only by the fact that they all happened to the one person but also by the fact that each is in some way the condition of what followed. Thus the life of a people as well as of an individual, and indeed of any organism, is a whole in the sense that

the past has left such a mark on the present that in some way it may be said to be always with us. If a pebble obstructs the growth of a tree and causes a certain division in it, the tree will always bear the mark. So the experiences of our youth, the language we have learnt, the manners in which we have been trained, become part of our nature. And so the past laws of a country, its old institutions, and the general traditions which constitute its *ethos* and character are active forces in the present, and in that sense history is a necessary guide for the understanding of the present.

The human life in which the historian is interested is more than a number of disconnected facts of such form as "John Lackland passed here," or "Luther slept here," or "Washington tied his horse to this tree." These incidents are significant only if they are part of a story. The lives of John, Luther, and Washington are of interest because they are integral parts of the history of English liberty, of the Reformation, and of the independence of the United States.

The historian aims to give us unitary pictures, and this requires the filling in of gaps in our verifiable knowledge. It requires engaging in a synthesis that depends on imaginative constructions. A good deal of historiography is necessarily speculative. Were the Crusades caused by the blocking of the path to the Holy Land or by the overflow of European population? Pollard and others attribute the discovery of America to the Turkish squatting on the trade routes to Asia. But may not the exploratory wave have been brought about by the expansion of Portugal and Spain?

It will not promote clear understanding to minimize the force of two objections popularly leveled against the possibility of scientific history. These two objections seem contradictory but are really supplementary. They are: (1) that the indisputable records of the past are relatively scant, partial and fragmentary, and (2) that these fragments cannot all be embraced by the historian

and that instead he is forced to make some selection in which operation subjective considerations cannot be eliminated.

Let us consider these in order.

(1) If we reflect on the primary sources of information it is obvious that not even a contemporary eyewitness can possibly report all that happened in his own field of vision. Suppose that one of us were to undertake to report all that happened in one day to him and to those in direct contact with him so far as he could observe. It might not take him one year, as it did Tristram Shandy, but he would, like Proust, need at least many hours to describe adequately his thoughts and the events that developed during a few minutes. And this is inevitable. For writing must proceed in a line, while events happen in a space of at least three dimensions. Consider also the difficulties of describing in words a man's appearance, gestures, or the tones of his voice. In fact, even an enormous number of moving pictures with records of sounds obviously could not possibly reproduce all that happened. Selection is unavoidable because what goes on in the world at large at any time or the human phase of it is too vast in extent and too complicated in intension to be fully described or understood in any finite time.⁸ What happens at an ordinary tea lasting only an hour—the feelings, emotions, remarks and acts of the different guests, the hosts, and the servants (leaving out what happens in the kitchen)—would take many hours to describe. Each observer or recorder is restricted to some fragment of what is going on. The best we can attain is some indication of what is outwardly visible from a single point of view for a limited time.

(2) But if the historian selects his material how can he avoid being influenced by subjective or personal bias? Croce explicitly denies that there can be any objective or scientific criterion for proper selection, and most people agree with him that personal

⁸ See Max Weber, *Wissenschaftslehre*, pp. 75, 80, 232 ff.

predilections determine what the historian regards as the important facts and that his general opinions determine the kind of interpretation he gives to these facts and their connections.

There can be no doubt that historians have actually differed in the canons which they have followed regarding what is and what is not relevant or important for their purpose, and that this has produced diverse one-sided and distorted pictures of the past. History is an artificial memory. But the artificial memory of the race, like the natural memory of the individual, foreshortens some things and overemphasizes others. The principle of selection works along lines set by fashion. Thus the fact that medieval historians or chroniclers were so often monks with little interest in secular affairs outside of the monasteries produced a distorted view that medieval man was primarily interested in nothing but religion—though the gargoyles and animal carvings on the cathedrals seem to indicate an interest in earthly living and a *joie de vivre* not unlike that of more recent times. Thus, likewise, most histories of Greece written by philologists have failed to give us an adequate representation of the technology which enabled those gifted people to build their cities and public buildings, their ships and ports, and all the instruments of comfortable living.

Histories written from the European viewpoint almost always identify the spread of European civilization with the march of world progress. It might well be argued, however, that the great mass of mankind has not shared in the achievements of Western civilization but has been oppressed by it. Certainly that is true in South Africa, for example, where a small white minority has deprived the indigenous population of practically all rights to the soil.

The historian who is a Christian will, as a rule, take for granted not only the truth but also the importance of Christian teachings. The historian who lives in an industrial or in a democratic society will take for granted the values of industry or democracy. Of

course, he may be of a denying bent of mind, a born rebel, and take a position contrary to that of his generation, if the expression of dissent is permitted.

As a rule historians reflect the prevailing views of their time and of the class to which they belong. But differences of temperament cut across the ages, and Bossuet has more in common with St. Augustine than with Bodin. Tacitus, Suetonius, and the younger Pliny not only lived in the same period but belonged to the same social set. Yet how different are their outlooks on the past of their country!

Whether the differences among historical perspectives be attributed to occupational, national, religious, or personal factors, the fact remains that perspectives are relative to values. The intentness of Nazi and other groups to indoctrinate the youth of the country with their ideology is nothing new. The Hohenzollerns, the D. A. R., and others have endeavored to do likewise.

Most people get their ideas of civic virtue, of what constitutes patriotic and heroic conduct, from their histories. From the same source they also get their general views of the course of human events and of the factors which determine it. Thus, classic historians, Livy, Tacitus, and Plutarch, preach the value of liberty and of patriotic service to country. Modern romantic historians similarly preach the virtue of barbaric strength and of the unsophisticated and untutored simplicity and love of freedom of the barbaric invaders of France and England, for example. History written in this vein is hardly distinguishable from mythology. But must not every historian write history in terms of the social values that he recognizes?

We are told that the historian is a citizen and has his obligations to throw the light of history on the problems which agonize his fellow men. But granting this obvious proposition, it certainly does not follow that as historian he can render the best service to his fellow men by plunging into their contemporary problems

and giving his whole time to them. As historian he must deal with the past. Shall he select that which will be most helpful in the solution of the present situation? Against an affirmative reply to this two objections may be urged: (1) Some knowledge of the past is already presupposed if the historian is to pick a field for further study. We must know the past according to the best standards of knowledge before we can apply its lessons to the present. To acquire this knowledge of, for example, ancient Athens requires concentration on the available material, and in this work thoughts of present-day politics are a distraction. (2) What are the present problems as distinguished from the problems which will face us several years from today? We need a wider perspective if we are to see the connection between what we do today and what the consequences will be tomorrow, and the history that is to give us that wider perspective must not be too concentrated on the point of view of the present.

We are too prone to talk as if the whole of reality were bound up in the fleeting immediate present. Clearly the immediate present is not the whole of life. This danger of fixing on the present is shown by the provincialism of those who know no history. To understand the present one must widen one's horizon, and that cannot be done if only the immediate present is taken into account. The present has to be expanded. The value of studying ancient Hindu and Chinese civilization, for example, is like the value of traveling: we are liberated from certain narrow assumptions, from the easy assumption that whatever is true for us must be true for everyone. Any ignoramus can condemn the Hindus for not being like us, but it takes intelligence and study to realize that our point of view is just as absurd to them as theirs is to us. We widen our perspective by seeing how the Hindus differ from us.

History is a critique, a means of giving us different points of view whereby we can criticize present assumptions, both ethical and factual. The farther away we are from the present the more

valuable is the liberation thus achieved. To widen our horizon, to make us see other points of view than those to which we are accustomed, is the greatest service that can be rendered by the historian, and this he can do best by concentrating on the special field which he studies to understand.

While, however, no human historian, however great the span of his world perspective, can entirely escape the partiality and one-sidedness of his heredity, physical and social environment, and past training and experience, the process of selection need not be entirely subjective. The fact that minerals, plants and animals are selected for certain traits does not deny the possibility of some objective tests. Every historical source offers a more or less limited perspective from which certain things and not others are visible, but that which is visible from a given point of view can, under proper conditions, be open to all and thus be verified. This follows from the fact that historical events are all parts of one world. Hence any one describing an actual occurrence such as the French or American Revolution has to follow definite threads of connection, whether his perspective is political, economic or socio-psychologic. Of course, his theory of causation, or of the general way things are linked together, will determine for him what events are related. But this is true also within natural science. The presence of assumptions or hypotheses does not vitiate but rather strengthens an argument, provided we recognize these elements for what they are.

We must recognize that the picture which we have of the past is man-made to the same extent as a photograph is man-made. We must recognize, too, that different historians have different perspectives and that these perspectives or points of view change with changing interests so that different generations, or for that matter different classes or sects, write different histories. This, however, indicates only that where no one historian can give us a complete picture different partial pictures will not be identical

in their content any more than different pictures of a mountain from different points of view will be identical. But this does not deny objectivity to the mountain or to the subject matter of history. On the contrary, careful examination shows that this objectivity must be assumed when we attempt to determine the extent to which any account is more or less adequate.

Granted that objective facts exist, is it not true that the same objective facts receive different interpretations from different historians? Do not Pope Alexander the Sixth, Charles the First, Napoleon, and their acts appear in different guises to writers of different schools? And is it not the interpretation that makes the total picture?

Here as elsewhere a just answer requires discrimination and qualification, and, as far as possible, quantification instead of a sweeping affirmation or denial. In the first place let us ask, "What is interpretation?" Ultimately interpretation consists in relating a given fact to others within a system. But all systems involve general assumptions, and where assumptions differ interpretations will be different. This is the case in physical science as long as no crucial experiment enables us to decide between the wave and the corpuscular theory of light, or between the continental theory of electricity acting at a distance and Faraday's theory of a medium.¹ But in history the differences are greater because not all the *relevant* facts are known or determined and a great many supposed facts or incidents are not fully authenticated.

In this connection it is important to get rid of the hasty and facile dogma that everything is relevant to everything else. For purposes of history as for any other field of research this dogma is entirely futile. It cannot possibly help us to discriminate between those circumstances that are causally connected and those that are not causally connected with a given event. In any case we need to recognize that a causal relation asserts that A depends on B or C or a few other determinate conditions and not

on everything else. Consider the relation between persons having a common ancestor. Ultimately, if we can go back an indefinitely large number of generations, the chances of any person being absolutely unrelated to some one else in the same city or country is very remote, but this does not mean that in the ordinary human sense any two men are related in the way in which father and son or brothers are related. What is relevant to any event depends upon the field of reference, which we used to call the universe of discourse. Louis XVI was guillotined; Napoleon was sent to St. Helena. The relevant facts in regard to these events are not an *infinity of equals*. *Certain factors bear much more intimately on these events than do others.* Thus the Terror produced by the invasion of France is a fact more directly related to the execution of Louis XVI than that the monarch was a descendant of Hugh Capet. Napoleon's escape from Elba had more to do with his being sent to St. Helena than the fact that he was born in Corsica.

The incidents which the historian selects are those which fit into the system of events under consideration. On a certain day a man closed his desk and left his office to attend a house party for the week end, and in doing so failed to dispose of all his correspondence. This happens so often that a fact of this sort is not generally regarded as especially significant, but when the man was the British Secretary for the Colonies and an unsent letter was to General Howe instructing him to take his army up the Hudson to join General Burgoyne, this is very important for a history of the American Revolution or the British Empire. The delay in sending it may have contributed to the British defeat at Saratoga which made possible the alliance between the colonies and France.

It is frequently asserted that the judgment as to what facts are important for any historical account depends upon one's system of values. Whatever the statement may mean, it is not true that the question of relevance is entirely arbitrary. Consider the affair

between Lord Nelson and Lady Hamilton. We may view it as an instance of the recurrent and familiar human triangle in an intensely dramatic form; or we may consider it in relation to the life of the sailors in the British Navy. From the former point of view we may inquire how far it was typical or characteristic of the moral standards of the time. From the latter point of view we may ask whether it had any effects on the morale of the navy and on the destinies of England and France. But in any case the consequences to be determined depend not upon the historian but upon what actually happened.

6. The Artistic Element in History

Judged by the persistent tendency of children to make believe, which permeates all their play impulses; which manifests itself also in the almost inevitable desire to see significant pictures in all sorts of random shapes, such as the dipper in certain constellations—and thus to people the skies with all sorts of images and pictures of dragons and scorpions and the like—we conclude that the impulse to poetry or to imagine things is basic and fundamental in human nature. This lends support to the view that human history is a product of man's imagination, in which the will to illusion must not be ignored. On the other hand, men and women because of their fundamental curiosity cannot be denied the desire to find out something about the nature of things somewhat remote from direct observation. We are all curious about what happened in certain places at times when we could not actually observe. This curiosity drives us to take an interest in accidental happenings to people who are only remotely connected with us. Thus history oscillates between poetry as a product of the imagination and the desire to know what actually happened.

Of course, the writing of history has traditionally been regarded as an art, and this means that the historian is under pressure to tell a coherent story rather than merely to present what

can truly be said to be known of the past, which in the nature of the case must be fragmentary. Most of us in reading history do not want the dry bones of the past. We want a re-creation of the life of the past. We want to know how the life of men pulsed in the days of Socrates, Alexander, Augustus, Jesus, or Shakespeare, for the fragments have no meaning except as parts of larger unities.

The temptation—an almost irresistible one—to tell a fascinating story makes us introduce imaginary elements to fill out into some unity our account of what happened, and it may well be argued that in the process of synthesis the historian is actuated by an ideal somewhat similar to that of the novelist or playwright, at any rate the classical ones who aim at coherence. While this is true, it does not deny the fact that the synthesis of the conscientious historian is like the synthesis of the scientist, who differs from the writer of fiction in that the ideas or patterns which he develops must square with, and take into account, the results of specific observations of nature. Science must always ask, "Is it or was it so, and what evidence have we for such a conclusion?" To the extent that historic investigation is controlled by the strictest rules of evidence, testing every general proposition by the extent to which it has been verified in observation or experiment, it may be properly called scientific. (Certainly, the fact that history involves imagination does not mean that it is arbitrary. There is a difference between history and fiction. The difference consists in the fact that the historian is not only docile to facts but actively interested in searching for them, and this search involves scientific investigation and scientific verification.)

The crux of the problem is the nature of time. If men are born in time and pass out of it, and their thoughts, emotions, aspirations, and actions take place at given dates in connection with bodies occupying definite portions of the earth, then it is obvious that the historian has to explore the nature of these existences

just as the mining engineer has to explore the ground to find the desired oil or ore.

Some parts of the work of the historian are more mechanical than others. Thus the power of significant synthesis seems rarer than the power to dig for individual facts. Historical research and synthesis are popularly opposed. But research into meaning cannot be free from synthesis, for only by putting anything into a wider context can its meaning be seen.

Very often a dualism is set up between the facts which we establish on the basis of rigorous proof or evidence and the organization or integration of the facts into a connected or coherent account. In regard to this it may be observed that (1) no fact can be established or made intelligible unless it is already related to other facts or is part of a larger system, which is especially true of complex facts such as the existence of moral or economic movements; and (2) no connection between facts is purely man-made. The relation of temporal sequence, of contiguity, or of being a part of a system of interconnected elements is not purely subjective; it is a relation of objects and just as objective as the elements or individuals thus related.

While we do not have to choose between hard unrelated facts and purely arbitrary activity in relating unrelated things, there is a relative difference between the material to be organized and the organized totality or system which is the final result of the historian's effort. It is this difference that gives point to what may be called the art of the historian, which is something that involves literary skill but, even more, an imaginative capacity for seeing threads of connection between historic facts and significant issues.

The conflict between literary and scientific historians is not exactly the same as the conflict between attention to ideas and attention to facts. Romantic historians such as Schlegel, Hegel, and Spengler are full of ideas and grossly neglect the facts or do

violence to them, but "literary" historians may also be devoid of ideas, just as scientific historians may be full of them.

Throughout the ages of literate humanity there have been conflicts between the literary attitude represented by Petrarch or Bernard Shaw and the attitude of the Averroist or Darwinian scientists. Light literature is impatient not only of "barbarous" technical language but of close reasoning, which throws cold water on popular enthusiasms and fancies. Fortunately we do not have to choose between irresponsible art and the unimaginative recording of past events that is effectively performed by dictaphones and by sands of the seashore as well as by some historians. The ideal of an imaginative reconstruction of the past which is scientific in its determinations and artistic in its formulation is the ideal to which the greatest of historians have ever aspired.

Chapter 2

METAPHYSICS AND HISTORY

The metaphysical preconceptions of historians are none the better for being uncritically held. Like other human beings, historians pick up their metaphysical preconceptions with the language that they learn and with the prevailing thought-ways that are popularly regarded as "common sense" in any given era. We surmount the limitations of these preconceptions only when we learn to subject them to critical analysis. Such analysis reveals that the writing of history in any age is powerfully influenced by choices of categories, units and perspectives which are not peculiar to the field of history but are common to many fields of knowledge. If metaphysics is, as James said, nothing but the obstinate effort to think clearly about these pervasive problems, then philosophy cannot avoid wrestling in the field of history, as elsewhere, with such permanent problems as those involved in the reconciliation of the empirical and the rational, the mental and the physical, change and persistence, unity and diversity, value and existence, chance and determination.

1. The Empirical and the Rational in History

If science is the rational or systematic organization of knowledge, the question at once arises: What is history? Is it a part of science? Or does it fail of being science because of its restriction to actual events, or because it lacks the purely rational organization characteristic of science?

(1) *Is History a Science?* Much paper and ink have been wasted in discussing whether history is a science. The quarrel

has been largely verbal, more concerned with maintaining or rejecting the prestige that the word "science" carries nowadays than with the precise meaning of the question. If "science" means knowledge based on the most careful examination of all the available evidence, the scientific historian certainly aims at such knowledge, and his work can be judged by the extent to which he attains his aim. While historical narrative is popularly viewed as a branch of literature the primary work of the historian is one of investigation, of finding out what did happen at a given time and place. *This differs not only generically in aim and method from works of pure fiction*, but also to a degree from the common knowledge that has not developed any special techniques either to guard us against our natural credulity and our disinclination to pursue an inquiry or to teach us to withhold final judgment until all the available evidence is critically examined. In this respect the procedure of scientific history does not differ from that of a rationally developed legal system, except that the rules of evidence of the latter are limited by various practical considerations and are restricted to the determination of a single fact or series of facts in a given case and thus are of a much narrower range than those confronting the historian.

To those, however, who deny that history is a science the latter term denotes those investigations which aim at the discovery of laws, i. e., of universal relations between repeatable elements. This includes not only the widest generalizations, such as the laws of mechanics, of thermodynamics, of electro-magnetism, or the laws of constant or multiple proportions in chemistry, but everything else that we call the facts of physics. Thus that mercury has a specific gravity of 13 and freezes at -39°C . is really a universal statement in that it asserts that whenever there is anything answering to the test of mercury it will also have the properties mentioned. Now history is concerned with establishing specific events that occurred at a definite time and place, whereas the

facts or laws which general physical science seeks to establish deal with repeatable elements and assert that whenever and wherever A then B. Time and space enter into such science not in the form of dates and locations, but as repeatable intervals, seconds or years and millimeters or miles.

The difference, then, between history and general science in this respect is unmistakable. It is, however, obscured by two considerations that are not always clearly grasped, viz., the presence of historical elements in all sciences (except pure mathematics) and the impossibility of eliminating laws from history.

The historical element in all natural sciences can be seen in the records of observations or experiments, which always report what happened at a given time or place. Every application of physical laws involves a reference to initial conditions which are tacitly, if not explicitly, dated. Moreover, these sciences are about individual objects, celestial or terrestrial, about *the* sun, *the* moon, or *the* earth. Surely no one denies the scientific character of the geologic history of the earth. Yet it is well not to ignore the distinction between pure and applied science, between the study of general principles and their application to any individual objects or events.

History in trying to establish the occurrence of individual events on the basis of evidence must assume causal laws according to which the phenomena of human life are connected. It is obvious that whenever the historian gives a full account of any event or explains it in terms of certain motives or as conditioned by certain physical or social circumstances, he assumes psychologic, economic, and other social as well as physical laws. The assumption of such invariant uniformities is necessary not only to what has been called the process of historical interpretation but to make possible any inference from the brute data in the present—the documents or remains before him—to what must have happened in the past. Thus historians as a rule assume that men will

generally seek their economic advantage, that ambitious generals will get their countries into war, that rebellions are commonly due to misgovernment, that custom will control conduct, but that travel, discovery of new lands, or contact with other peoples tends to break down the unquestioning acceptance of custom and tradition. Without assumptions of this order we cannot appraise the weight to be given to diverse accounts of the same events, and in hypotheses of this character the historian finds the clues that lead from known facts to antecedent and consequent conditions and thus enable him to push forward the frontiers of knowledge.

In these respects history is applied science, as is geology, medicine, or engineering. The difference, however, is that while the engineer or the geologist knows precisely and explicitly what laws he is applying in order to explain the phenomena, the historian seldom explicitly states the laws of human events that he assumes. Yet implicitly he does make such assumptions, as when he asserts that a given ruler acted in a given way because of ambition or from a desire to please his people. In these cases it is, of course, assumed that if anyone is ambitious he is likely to act in that way. The laws which the engineer assumes either have been verified or can be. The laws which the historian tacitly assumes are seldom definitely formulated nor are they always capable of being formulated with any precision. The mere fact that the historian who writes for the general public must use common language inevitably brings about the use of words which are inherently vague and often carry more emotion than clear indication of what it is they precisely refer to.

Those who insist that history is a science in the same way in which physics is a science often mean to assert that the subject matter of history is not the individual events but the laws or repeatable patterns of human behavior. Those, however, who do so obviously confuse history with sociology. A science of sociolo-

gy would be concerned with general laws and would leave to history the consideration of what actually happened in definite places at given times.

There is, however, another sense in which history is often claimed to be a science and that is in the sense that there are laws peculiar to human history. This view is found in the works of Vico, Comte, and Spengler. They suppose the existence of laws manifested in the development of every nation or culture. According to these and similar writers every nation or civilization not only does but must go through the same series of stages, e. g., the ages of gods, heroes, and men according to Vico; theology, metaphysics, and positive sciences according to Comte; or the four stages of Spengler. In Comte's view certain "general" facts, e. g., that of the three necessary stages, can be deduced from hypothetical laws. Other facts are of no consequence or irrelevant. History thus becomes identical with "dynamic sociology." If such sociologic laws could be definitely established and if nations were as plentiful as fruit flies or cabbages, then of course such laws would be like the biologic formulation of the life cycles of animals or plants. But would that establish history as a science?

Let us before attempting to answer this question take note of the character of the supposed developmental laws of history. Biologic statements as to life cycles are for the most part empirical or statistical, that is, most members of a biologic species have been observed to go through certain stages. Certain general principles give us some reason for supposing that these cycles are determined by the structure or organization of these organisms. This, however, does not prevent variations from the norm, so that not only do we have sports or monstrosities but the whole life cycle of the species may change in the course of time.

The theory that all peoples or civilizations must go through the same stages is subject to a number of historical objections.

In the first place no two nations have been known to go through exactly the same career. No two nations are exactly alike in their composition and environment, and their differences are essential to any adequate history. Moreover, there is a very definite reason why perfect repetition is impossible, and that is that every nation learns more or less from the experience of those that preceded it. Greece borrowed extensively from Egypt and the Near East; Rome borrowed from and was much influenced by Greece and later Judea. In the history of European peoples we find no absolutely new start, but always men build on the past, and so long as time brings changes no successive periods can have the same past. If a unique plant lived forever and suffered changes throughout its career we should not be able to formulate any law in regard to its life cycle as a whole. We should be compelled, if we wished to formulate universal laws about it, to seek for repeatable patterns in it such as the effects of repeatable diurnal lunar or solar cycles. Thus we come back to the notion that any science of social phenomena must, if it is to be alike in form to physical science, be expressible in differential equations, that is, in microscopic rather than in macroscopic cycles.

The fact remains that even if all the known sequences of historic events could be subsumed under general laws of development such laws would not constitute history any more than do the laws of embryology or descriptions of the life cycles of various organisms. History deals with unique events, e. g., with Lincoln's election to the presidency of the United States and the subsequent Civil War from 1861 to 1865. We may say that such description is not "scientific" history, but certainly it is the kind of history in which writers and readers from time immemorial have been interested.

What is distinctive, then, about human history, is not its material, which is identical with the material of the social sciences, nor the critical apparatus that is utilized to search out this material

and consists primarily of hypotheses borrowed from the sciences. What is distinctive is rather the focus or perspective which makes description or understanding of individual happenings in time and place central. Thus "natural history" differs from natural science in that the former focuses on description, while the latter stresses theory, or systematic deduction from assumed principles or hypotheses. The records of a physicist's observations constitute a history, but a science of physics is independent, in its formulation, of any date or place. It formulates its propositions in terms of repeatable time-intervals(dt) or space-intervals(ds). Propositions of physics or economics assert that whenever a then always b . History uses laws to explain facts. The historian may generalize, just as he may moralize, but as an investigator into history he is concerned only with determining what happened and, if possible, why it happened as it did and when it did. The establishing of laws is not the primary objective of his business.

Indeed, it has been well said that "If everything in the realm of the real were subject to immutable law there would be no history."¹ But with equal force it may be said that if all knowledge were of the past, history would be the only kind of knowledge. We could not then say that we have any knowledge of mathematics or of the nature of anything, e. g., that apples differ in taste from eggs.

We need not fly to either of these extremes. Clearly history does not comprise the sum of all human knowledge nor is it impossible or non-existent. History is one of the ways of organizing human knowledge. The distinctive character of history as an organization of knowledge is highlighted by a comparison with mathematics.

¹ Berr and Febvre, "History" in *Enc. of Soc. Science*.

(2) *History and Mathematics.* History and mathematics are the two poles of human knowledge. The individual and the universal, which are the respective objects of history and mathematics, the *this* and the *what*, cannot be separated though they must be distinguished. No description of any individual object or event can dispense with predicates or abstract repeatable traits. We may go further and say that no experiences—certainly no conscious experience—can grasp any object, not even ourselves, in all its completeness. We love certain traits in those near to us, and we are repelled by other traits. We see color, and hear sounds, and touch surfaces, and feel weights and pressures—the complete individual is therefore neither known nor fully experienced. But the complete individual is the ideal or, I should prefer to say, the direction of greater completion, either of knowledge or experience.

Similarly, there is no knowledge—no matter how abstract—which does not point to some *it*. Philosophy used to suppose that we could get rid of all empirical elements. But the world is this world, and human nature and all the functions of the mind are empirical facts. Pure mathematics takes no notice of any particular trait of the existing world, but it is not independent of those traits common to all possible objects, for the possible objects that we know are only variants or reconstructions out of elements of the existing world. Pure formalism, without any relevance to what we can recognize as an object, would be utterly meaningless. Forms that are completely empty and are themselves devoid of content or substance would be indistinguishable from nothingness. In that respect some of the late Mr. Schiller's criticisms of formal logic are well taken. What he and some purely formal logicians alike fail to take into account is that form has no meaning apart from content, and that the formal rules of logic, while independent of any specific content, have reference to all possible

content. If there were no actual existents of any kind no statement about possibles could have any meaning.

The difference between history and mathematics therefore may be said to be one of degree of abstractness or degree of individuality, but these differences of degree are of the utmost importance for understanding history. Mathematics uses concrete material as a spring-board from which to jump into the realm of abstract relations. History utilizes all abstract knowledge or its tacit assumptions to illumine the individual event in time and place.

Mathematics is like history in one respect at least: it is applicable to every field of empirical knowledge. The belief once prevailed that mathematics dealt only with number, space or quantity. The development of such nonquantitative branches of mathematics as *analysis situs* and recent developments in logistics have made it clear that pure mathematics deals in indefinables that can have any interpretation we please. Thus, Euclidean geometry as a branch of pure mathematics is not concerned with space as a physical measurable magnitude (truths about which can be determined only by experience and not by pure mathematics) but with what would be true of anything at all if Euclidean axioms applied to it. Indeed, if the word "point" should denote the degree of holiness of an angel, the propositions of Euclidean geometry would still be demonstrable and they would constitute a system of moral theology rigorously deducible from Euclidean axioms.

What is distinctive about mathematics is not that it is limited to a given subject matter but that it is universal enough to apply to any subject matter. What is distinctive about history likewise is not that it is limited to any given class of events but rather that it deals with such events, whatever they may be, as individual happenings and does not seek, as do the various sciences, to eliminate as contingent and irrelevant to general laws the space-time location of each event.

Since the difference between history and the various sciences, including mathematics, thus turns on the fact that history alone focuses on events in their concrete space-time location, generally referred to as "historic facts," we may profitably turn to the question: "What are the facts of history?"

(3) *The Facts of History.* According to a widespread but misleading view the facts of history are hard and beadlike, strung along various strings so that each fact is preceded and succeeded by other facts, and the historian has only to identify them, report them, and perhaps trace their order and interconnection. The truth, however, is that the so-called facts of history are cross sections or aspects of a world in process of change, and just where a cross section is to be drawn and how far it is to extend are questions that depend upon all sorts of human predispositions and assumptions or on the artistry of the historian. This means that historic facts are bounded, as well as interpreted and inferred, on the basis of considerations that cannot be limited to the purely factual.

We must not fall into the common error of drawing a sharp distinction between facts and their meanings. Obviously meanings do not exist apart from the facts, and, while the full meaning of certain facts may be unknown to us, it would be hard to find a fact that does not depend upon relation to other facts for its existence as well as for our knowledge of it. A fact is simply the part of the picture on which we fix our attention. Generally it is the part that can be verified most easily provided we make certain assumptions, but the relations of such a fact to other facts are precisely what is denoted by the meaning of any fact.

In history as in the physical sciences it is important to distinguish clearly between the data from which our voyage of discovery starts, and the facts we establish as a result of our exploration. We do not in physics start with masses, time and space intervals, or bare sensations. / All these are *results* of log-

ical analysis, so that their logical synthesis gives a reasoned account of the facts. All actual investigation begins either with the conclusions of previous scientific research or with the accepted fund of knowledge or opinion known as common sense or folklore. The latter is seldom devoid of some measure of truth, but even more seldom does it adequately answer all our questions or attain perfect accuracy. This can be seen by comparing popular with scientifically determined judgments, based on exact measurement, about the weight or shape of bodies, distances, temperatures, or amounts of rainfall. Our sense perception leads us to all sorts of illusions, which have become commonplace in modern textbooks of psychology. These illusions are corrected by more critical and systematic observation or by other observations corrected according to some principle, so that the judgment that certain lines meet or are broken is not only shown to be inconsistent with the truth, but the ground for the false appearance is explained, and thus all our experience of sight is integrated in the science of optics.

So far as the facts of history deal with particular intervals of space and time that are thought to be significant they involve an application of theories and standards of significance to which we shall recur at a later point. But space and time are not the only aspects along which facts are marked out. Generally speaking the facts of human history are social facts. This means that they are facts which happen to human beings in their social relations. Social relations are not merely spatial-temporal. A's approach to B with the same velocity may be friendly, unfriendly, or indifferent. Categories additional to physics and biology are required. These are economic, political, religious, etc. Man not only moves in space, he sows or reaps, he votes, he worships. Or A marries B. That is a fact which is legal or illegal, religious or irreligious, moral or immoral.

Thus while the historian may define the events with which he deals in spatial-temporal terms, e. g., the Thirty Years War or the Middle Ages or Napoleon's return from Elba, the considerations which lead him to group a number of years or days into a unit for historical treatment are generally social and not purely physical. A history that deals primarily with political events may divide its span according to successive dynasties, reigns, administrations, or other governmental periods. A history that stresses religious or economic development will place the same period of time in different categories. In either case judgments of importance or value as well as notions of social causation affect the choice of categories. This does not mean that the historian creates the events he reports. Having chosen a given perspective that which he can truthfully report is objectively determined. The relativism of historiography is not identical with subjectivism. Rather is it a reflection of the objective fact that the world of reality is more than can be reproduced or represented in any intelligible account, and that any such account is necessarily partial and to some extent abstract. A partial or abstract account of reality is false if it purports to be more than it is, but if it acknowledges its limitations it may be true and the only kind of truth to which the historian can attain.

The notion that abstraction or selection involves falsification draws its plausibility from the supposed unreality of abstractions. Yet nothing is more obviously real, even in the limited sense of that term that makes the real identical with the practical, than such abstractions as wealth or food. Most, if not all, of our practical activity is a pursuit of abstractions, such as health or money. We do not care for the particular bills or coins, nor always for the particular things that we will do with the money we acquire. At the primitive level there is no regard for particularization of sex companionship, and in a state of extreme hunger we may not distinguish between different kinds of food.

At all times we must deal with the classes of objects in which the different members are so many units. It is curious that those who deny the reality of abstractions (e. g., the neo-Hegelians who insist that only the absolute totality is real) are most insistent, as a rule, on ethical judgments which condemn abstract acts like lying or stealing. Indeed, since all human moral choices involve alternatives which are not actualized those who deny the reality of possibilities that are not actualized cannot give any real significance to the practical problems of human choice.

Not only are abstractions essential to the definition of the events with which the historian deals, but they are equally essential to the verification of events, which is perhaps the central problem of historical inquiry, for historic events are seldom if ever directly verified. The same situation can be differently interpreted under different philosophic approaches or assumed laws. In general it would require a series of events beyond any finite period to test any general statement about a past event, and no statement about the past can avoid some element of generality, for, as Aristotle long ago remarked, we cannot think except by using abstractions.

The element of choice or selection in reporting the facts of history may be less obscure when we realize that the popular distinction between "making" and "finding" has only limited significance when applied to immaterial objects. Making and finding a chair are clearly distinguishable events, but making and finding time, opportunity, a mathematical theorem, or a just decision of a legal dispute are not clearly antagonistic. The mathematician discovers a curve or equation in the same sense in which an astronomer discovers the path of a star. Physically it may be said that the astronomer only sees patches of light at different times and that he makes up the equation or geometric curve that passes through these and other possible patches of light. But the equation or curve which the mathematician or astronomer

can be said to invent is in fact a discovery of a determinate relation or pattern which fits the given observations better than any other, and subsequent observations verify or disprove this claim.

This analysis can be applied, for example, in the realm of law or jurisprudence. Since time immemorial it has been assumed that the judge should be bound by oath to obey the law and to enforce it in every case before him. He must not, then, change it or make it. On the other hand, as the conditions of social life change, the law must inevitably change, and actual decisions must be rendered in every case if we are not to revert to anarchy or a state of natural lawlessness. Moreover, the law as formulated in codes, constitutions, legislative enactments, writings on common law, or any other human work cannot possibly foresee all future contingencies and make provisions for them. The process of interpretation, though cast in the language of inquiry and discovery, is actually a process of supplementary legislation, and this indeed is often explicitly recognized. The executive branch of the government is authorized to draw up regulations, and courts in enforcing the law must be guided by rules of their own making if the general purpose of the law is to be fulfilled.

This may seem too wide a digression from the discussion of the roles of discovery and creation in the work of the historian. But the foregoing considerations will, I think, prove helpful in showing that, while the historian in his effort to reconstruct the life of the past must be engaged in some kind of construction, this construction is not as arbitrary as fiction but is subject to objective considerations such as prevail in the natural sciences.

It is certainly fair to point out that changes in our conception of history no more prove the impossibility of knowledge of what objectively happened than parallel changes in our views of chemical or geologic phenomena. Such changes may be due either to new evidence or to new points of view arising out of new interests. But while history, like other forms of science or knowledge,

would be impossible if we did not admit the existence of a sensible object that can be discovered, the question of what the historian contributes in the writing of history remains an irreducible challenge. The extreme form of the challenge may be expressed in the contention that the historian selects those data that fit into the scheme of the ideas he brings to his subject matter and that thus he gives meaning to what otherwise would be meaningless. It may be admitted even that all selection involves an arbitrary cutting off and even a distortion in the picture of the past. But if the meaning of an event denotes its relations to other events connected with it the meaning of history is not created by the historian but discovered by him. Or to put it in another way, what the historian makes is not the past but findings about it.

2. Mind and Nature

Emphasis on the psychologic phase of human events has led German philosophers to place history among the *Geisteswissenschaften*, which are completely separated from the natural sciences. From the fact that we cannot observe what goes on in another human mind, especially so in a human mind of remote times, it is argued that the method of natural science (applicable to observable physical objects) is inapplicable to the phenomena of civilization. According to this view history must be apprehended from within by an act of imaginative construction, of personal appreciation, by a process nearer to the artistic creation of the poet than to the verification of the physicist.

The popular Berkeleyian form of what is perversely called idealism, based on the Lockean doctrine that we know only our ideas, is represented in the philosophy of history by Croce's dictum that nothing exists outside of thought. In line with this dogma, Signor Croce systematically minimizes the importance of accurately ascertaining the facts of the past. Copious and correct col-

lections of facts, he maintains, "fail to become truth to us just at the point where history demands an assertion of truth arising out of an intimate experience."²

Croce's proposition that "nothing exists outside of thought" is, like many other paradoxes, an ambiguity between a tautology and an absurdity—the former giving plausibility to the latter in return for seeming significance. That we cannot think of anything as existing except when we do think of it is to assert a tautology of the form: A is A. But the notion that Caesar or my great-great-grandfather exists, gets born, marries, enters business, dies, only when I think of him is an absurdity.

The assertion that I now think of any past event presupposes that the event existed before my present thinking. The evidence of geology that the earth existed before there were any thinking human beings on it is something which the historian must take for granted if he is to understand the formation of soils, the courses of rivers, and similar circumstances which have determined the path of human history.

History is not simply the reconstruction of inner experience. Very often we merely want to know what happened regardless of what anybody thought. From the practical point of view we want to know what people think in order to control or adjust to what they will do. Only in extremely intimate personal relationships are we interested in people's thoughts for their own sake. We want, if we are in love with Susie, more than just the proper responses on her part. We want to be appreciated as a person and want to be able to reciprocate such appreciation.

The projection of subjective idealism upon the social scene gives us the vogue of the *Zeitgeist*, which is supposed to illumine the otherwise opaque features of any era. There are some facts, however, which we know even when we neither care about nor

² Croce, *On History*, p. 16.

know about the spirit of the age. We know, for example, that many people in the Stone Age had diseases of the bone which must have kept them bedridden. This bit of knowledge tells us something about how they lived, but in order to know it we did not have to invoke the spirit of the Stone Age.

Similarly, we know that so long as people could not raise more than a certain surplus over and above that which they needed to continue to live and work their margin for living and culture must have been small. Only a few priests or teachers, for example, could be supported in ancient Egypt. This helps us to understand the general conditions of living without the aid of any spirit. Facts can give us the general framework of an epoch, but a general sense of the spirit of an age will not supply us with the facts.

This all adds up to the conclusion that the task of the historian is to find out what happened as best he can: it is not to find the spirit of the age. Much of what is said about the spirit of an age is transcendental nonsense. There are always many spirits. A predominant spirit is a statistical concept. A great deal of what we know as the spirit of any age, moreover, is simply the spirit of its more articulate members. The articulate are the ones who write the original chronicles and leave the great mass of records and documents.

It cannot be denied that to understand the life even of our present neighbors we need inner experience and imagination, and much more imagination is required for reconstructing the life of the past. The force of this is not denied or minimized by recognizing that imagination is also required for the synthesis of physical science, as for example in reconstructing the history of the earth, its past topography, flora and fauna. But there remains a real difference between human and geologic history in that the physical elements of the latter may generally be repeated under experimental conditions to an extent that is im-

possible in human affairs. This, however, is a difference in degree of verifiability in the two realms and by no means justifies the removal of history from the application of rigorous tests of truth, which constitutes the essence of scientific method.

Various assumptions as to the thoughts of others in the past, as well as in the present, do not equally meet the tests of wider human experience. Discriminating tests render some psychologic assumptions more improbable than others. While, therefore, there is more uncertainty and difference of opinion in regard to the psychologic than in regard to the physical elements of human life and history, the determination of the former is by no means arbitrary or indistinguishable from fiction. No matter how difficult its subject matter psychology seeks verifiable knowledge, which is not the case in fiction.

In particular, psychology seeks to mark out the uniformities and the diversities in human reactions to similar environmental stimuli, and any attempt to understand human history must deal with this problem. We deal with it whether we invoke the existence of mental differences between races, eras, and peoples to explain the differences between the past and the present, or whether we pursue the more arduous task of assuming a uniformity of human nature and tracing every event to environmental determinants, so that we do not rest satisfied that we understand any historic act unless we see the pressures and circumstances that would have made us ourselves act in similar fashion.

The historian's reliance upon psychology is upon an empirical science that deals with the interactions between human beings and their environments. So conceived, the dependence of the historian upon psychology is no excuse for flying to a subjectivist dream world in the fashion of Signor Croce and other so-called idealists in the field of history.

Two observations must be added to the foregoing, to wit: (1) a complete separation of mind and nature is, for history at

least, untenable; and (2) for many purposes we may ignore the purely psychologic or subjective elements of history.

(1) An absolute separation between mind and nature is incompatible with the fact that all we ever definitely learn about the thoughts or psychic life of others is through sounds, gestures, marks, or other physical expressions. Whatever our beliefs about the possibility of ghosts or disembodied spirits, the human mind enters history only in the activities of human beings that have bodies which are born, mature, and decline as a result of physical conditions that affect the life cycle of other organisms. It requires considerable sophistication to be able to abstract the purely psychic from the total organic human conduct.

(2) While obviously only a conscious being can understand history and it would be absurd to eliminate thought from the human scene, it is not true that history is entirely or purely a psychologic affair. The physical or purely organic phase of life cannot be read out of human affairs. A kingdom of pure spirits could not have any history remotely resembling ours. It would have no births, deaths, marriages, wars, economic crises or progress in art and science. It is because human beings are part of physical and organic nature that they build homes, or move about with the changes of weather or the presence or absence of food and drink. Like plants and other animals they are dependent on natural resources and are subject to plagues and other factors which determine their life span, their death rate, and the consequent density of population. It is doubtless of interest and of some importance to know what went on in the mind of Napoleon when he retreated from Russia, but it is more important to know that of his large organized army which entered Russia only scattered and disorganized fragments returned to France. It would doubtless be of interest to look into the mind of Mohammed, to be able to determine the sincerity of his claim to have heard the voice of Allah and to what extent his mind moved in that turbid

stream in which prosaic factual accuracy is swept away by the violence of the utterance that presses forth. But the answer would throw little light on the subsequent history of the Arabs and the spread of Saracen civilization. What people in general have thought about Mohammed is doubtless a part of the explanation of why the result of his work has been so different from that of men like Alexander the Great. But such mass opinion appears in history only in what men have said and done.

To an intelligent but objective observer the great difference between the human and other animal species, such as the social insects, is that the former modify their conduct more rapidly, not through any discoverable modification of their organisms or hereditary equipment, but through modification of what is literally the social tradition—that which one generation hands on to the next in the way of tools, cities, roads, cultivated habits or ways of acting together. Of these language is a major element. It is obvious that human beings not possessed of language (a few such seem to have been discovered) would have little of what we know as human thought and intelligence.

In this connection it is important to distinguish between (1) the intention of the historical actor in his subjective or private stream of consciousness (in his "internal soliloquy" as Santayana calls it), (2) the sense in which people have on different occasions actually understood his expressions, and (3) the implications of his expressions from a purely logical point of view.

The history of popular thought is primarily concerned with the sense in which people have actually understood what was said or written. Thus, in *Gulliver's Travels* Swift doubtless intended to satirize the political and social affairs of the England of his day, but what he wrote has actually and historically become a children's book and is accepted as a fanciful tale. Upton Sinclair has testified that he wrote *The Jungle* to stir the hearts of the American people in regard to the horrible conditions of the

workers in the Chicago stockyards. Instead, the book stirred the fears of the public in regard to the purity of some of its food. Shakespeare doubtless intended to amuse the audience by representing Shylock as the comic villain who falls into his own trap and thus gets what he deserves, but later audiences have felt that if the Jew was mercilessly vengeful he was also the object of much injustice. After the Jews were admitted to England Shylock's words, "Hath not a Jew eyes, organs, etc." found a much more sympathetic response than they did in Elizabethan times. Plato, the Bible, Dante, have had different meanings to different people of different generations.

Nor can the distinction between (3) the true or logical meaning of words, and (2) the sense in which people have understood them, be ignored, for this would deny that people can *misinterpret a text or document*. But history testifies to the great frequency with which misinterpretation or general misunderstandings occur. Thus, not only philosophers such as Plato, Aristotle, Leibniz and Kant, but scientific works such as those of Newton, Darwin, or Einstein, have been misunderstood by large masses of people. Such errors are historic facts, but their erroneous character must not be overlooked.

These distinctions become of great practical importance in the interpretation of laws. The judge who is going to obey the law, to make all his decisions in accordance with it, must know the historic conditions under which it originated and what ends it was intended to effectuate. But it is not always possible to find what was the actual intention in the mind of the legislative body. On many points the different persons who constituted the legislature may have had quite different intentions, and some may have had no intentions at all on the point at issue, since they did not, in fact, think out all the logical implications of what they were enacting. Moreover, if the legislative will is to be obeyed, people must be governed by what the statute actually says,

that is, by the ordinary meaning that the language employed usually conveys. In the long run it would undermine the power of legislatures if the words they used were generally set aside by speculations as to what they intended but did not say. The body that adopted the Napoleonic civil code was assured that the wife had a high place among a man's heirs. The text of the law, however, put her absolutely last, after the failure of direct descendants, collaterals, and even illegitimate children. It is for the supreme legislature and not for those governed by them to change the general laws—even though judges and other administrative officials must engage in subsidiary legislation.

To the extent that any law must be applied to situations not foreseen by the lawmakers it has a rational force beyond the clearly envisioned intent of its authors, just as any scientific proposition may have rational consequences of which its original protagonist never dreamed but which later scientists may explore with good results. What is true of provisions of law is equally true of influential expressions in other spheres of human behavior. Ideas outlive the men that have them and come to influence conduct in ways which their actual protagonists never considered.

Men very often honestly profess ideas which do not seem to affect their conduct in any noticeable way. Many of the signers of the Declaration of Independence who honestly wrote that all men are born free and equal and are endowed with inalienable rights, continued to own slaves. The men who preached *laissez-faire* individualism saw, or even were members of, companies that developed the trade of the Indies (East and West) on the basis of charters that were practically monopolies. But while this division between ideas in our mind and our outer practices may continue for a long time in the life of an individual and may even be true of classes and groups for a long time, it is impossible to maintain an air-tight wall between the two; and

over any considerable period ideas are bound to influence conduct. We may observe some simulacrum of this in the way people unqualifiedly resist an idea when contending with some one in an argument and yet use the same idea later without realizing how vigorously they had opposed it. The idea has worked into their mind or disposition even while they were resisting it.

In general men are governed by ideas when those ideas become habitual or embodied in prevailing sentiments or attitudes. In other words, actual men are not governed by pure or disembodied ideas but are decidedly influenced by them when they are embodied in speech and other forms of conduct that are weighted emotionally. A child refrains (to some extent) from doing things because told that "it is not done by the best people."

This is perhaps best seen in the standardization and then gradual or even complete breakdown of a set of moral ideas. When countries and customs get established (i. e., when equilibrium is maintained) our moral ideas and the actual conditions of living at peace, getting ahead, and being happy tend to harmonize, more or less. Just as in linguistic and literary matters social manners and morals are determined by the fashion of the "best" society, so morality (in the sense of the actual ethical standards practiced at a given time) is determined by what the "best" people do, with only a few "queer ducks" to question the established ways of doing and believing. But times arise when the equilibrium is radically disturbed, when unexpected things happen on an unusual scale, and the old ways of adjusting no longer suffice. You can do everything that you are supposed to do and believe everything you are supposed to believe and still achieve not only no material success but not even any adjustment to your problems which might eventually help you to work out a solution to them. There were such times, for example, in Rome during the Civil Wars, in France after 1789, in Russia after 1917, in Germany after 1933. When such cir-

cumstances arise new ideas are generally forged in order to enable men to understand and handle the changed conditions. When things change so rapidly that accepted moral standards do not suffice we seek to find out the direction of human affairs and ask how we can adapt conditions to human and humane ends.

The ideas that men seize upon in moments of crisis when accepted ways of doing things have broken down are apt to be long-range ideas that show their full meaning only over a long period of time. Men do not build great bridges to cross puddles, but precisely to the extent that men at historic moments seize upon such long-range ideas, the meaning of these ideas will elude any purely subjectivist approach that restricts itself to the intention of those who first expounded the idea.

This is not to say, of course, that the logical force of an idea can by itself move mountains or mice or men. Rather ideas, like continents, represent the possibilities and limits within which human exploration and settlement may produce significant historic results.

3. Change and Persistence

Corresponding to the Newtonian first law of physics we may speak of inertia as the first law of social change. Physical inertia does not mean that there is any physical body that is completely isolated from forces or influences which affect it and cause it to change, nor does it deny that there are any physical or biologic causes of change within a body itself. It means, rather, that in order to produce any definite change in a given state of rest or motion a force must be brought into play sufficiently strong to overcome the resistance of any existing state. One may protest that any or every force must by definition have some effect, but the system of physical measurement derives its definiteness from the fact that the inertia of any state of rest or motion is a definite magnitude and to produce a given change a definite force and no less is necessary.

Now we may at once admit that in social affairs or even in the realm of individual conduct we can seldom measure with any degree of accuracy the strength both of forces for change and of those which offer resistance. Nevertheless it is helpful for an understanding of history to realize that human beings, like other animals, shy at the unfamiliar, that to make them change their habits or ways of living certain forces must be brought into play, and that these forces must be of sufficient magnitude to bring about a given change. We know for instance that the desire to amass material goods or power, and devotion to one's country or religion, are among the powerful forces that make men change many of their ways, but we observe that if there were no inertia or resistance to them they would produce greater effects than they do.

The most obvious manifestation of inertia is called laziness in the individual and conservatism in social groups. It is unfortunate that the adjective "lazy" is one of such moral condemnation that few stop to consider that it describes a natural state due to the absence of sufficient energy to undertake or to carry on some activity judged worth while or imperative by one who passes the condemnation. All human beings have limited energies for the undertaking of anything that they have not done before. Old roads, buildings, weapons, dances, all continue to mould our attitudes long after we have lost the urge or the vision that created them. Men continue to go to church when they have abandoned all interest in the basic beliefs that the church claims to embody. This does not deny that there is some definite order in men's beliefs, but we must beware of uncritically extending this order in our reflections on the past.

Any existing regime has an advantage over any other through the mere fact that it exists. Thus few doubt that the reason the people of England prefer their form of government, system of education, or relation of Church and State while we in the United

States prefer ours is mainly the fact that each is accustomed to its own. Who doubts that if the framers of the American Constitution had prescribed that the President of the United States should be chosen by popular vote or by electors chosen in the same manner as members of Congress, we should regard as absurd our present system of presidential elections according to which Mr. Harrison had fewer votes than Mr. Cleveland in 1888 and yet became president by a vote of 233 to 168 in the electoral college? If a strong third party should develop, preventing a majority of electoral votes for any one candidate in the electoral college, the election would be thrown into the House of Representatives voting by states, which might defeat the majority will; yet few are seriously concerned about such an eventuality though it might lead to the most serious consequences in the future. Even the most radical individual defies the conventions or seeks to change them in a relatively small part of life. For the rest he remains conservative. A radical in religion may be a conservative in dress or social manners, and a radical in morals is usually in fact conservative in business and in all sorts of other human relations. The energy which goes into some one field leaves one wedded to the routine in all other fields, so that religious reformers are generally conservative not only in economics and politics but in most other respects.

Many have commented on the persistence of pagan or pre-Christian elements in the Church's philosophy and ritual as if it were a singular fact, but the persistence of old cultural traits despite radical changes is universal, nor do we have to go to China or India to see such persistence of the ancient ways. The prestige of the Roman Empire in the West persisted long after it had ceased to be able to maintain itself. The worship of Caesar thus continued to our own day in the names of "Kaiser" and "Czar." The ancient conception of the hereditary priesthood still persists in the Christian Assyrian Church. Despite

all the revolutions of twenty-five centuries in Asia Minor the Greeks of that region maintain their language and alphabet. Though the Jews changed from Hebrew into Aramaic, then adopted Arabic and later Spanish and German, masses of them have persisted in using the Hebrew alphabet for their new languages, so that Arabic, Spanish, and German dialects spoken by Jews are written in Hebrew characters. We need not therefore be surprised that Egyptian fellahin, Albanian peasants, or Arab Bedouins still follow the ways of their ancestors of thousands of years ago, despite the sweep of different invasions and masters through the ages.

The fact is that the conservatism of social institutions cannot be eliminated, nor should it be if we want to reap where we sowed, or nurse our children in the hope that they will grow up to use the faculties they are trained to develop, or build houses in the expectation that they will stand. Of course there is no guarantee as to any of these expectations, and some change is bound to take place, but if there were no continuity human enterprise would be impossible. The impossibility of achieving absolute certainty does not excuse us from the quest for wisdom, which involves discrimination and quantification. How long will the house stand, and how far will the educational needs of the next generation differ from those of contemporary life?

In like vein we must ask: Why did the Greeks leave so little influence, as compared with the Arabs, in Mesopotamia and Egypt? Why did the German tribes leave so little trace of their rule in Spain and North Africa, while the impress of the Palatine Germans has persisted so strongly in Pennsylvania?

Differences in the force of social inertia are revealed with particular clarity in such relatively measurable culture materials as dress and architecture. One of the most striking facts that emerges from any such comparative study is the extent to which men and women, while changing their clothes with changing

civilization, retain old forms of clothing for religious purposes, e. g., talith for prayer among the Hebrews, animal skins for various Indian ceremonials, and the garb of priests. So, too, older forms of architecture are commonly perpetuated in churches, mosques, synagogues, and various other types of religious edifice (e. g., the underground kiva among the Pueblo Indians, who ceased to use underground dwellings many centuries ago). Something of the same sort may be observed in academic life, with its use of medieval dress in academic processions and its penchant for medieval architecture. Such professions as law and medicine exhibit a similar conservatism in language and dress.

On its face this conservatism in externals exemplifies and symbolizes a larger conservatism that is inherent in any endeavor that seeks to perpetuate continuity with an earlier generation and to preserve for the future the hard earned fruits of past research and insight. It will not do to dismiss these indicia of conservatism as merely tricks of an established profession designed, like ladies' fashions, to limit competition. For while the desire to exclude imposters and quacks and those who have not submitted to an arduous apprenticeship is doubtless a large element in the cherishing of archaic religious, legal, and medical forms, the fact that such institutions find a large popular acquiescence throughout the world points to the great extent to which men are moved to conservatism by fear of the unknown. This fear operates with particular force in those realms where men face the threats of death, disease, and violence. It operates with apparently irresistible force among backward people who are not willing to change their abode or their occupation. Generally city people, and particularly merchants, are less rooted to the soil than country folk and thus more likely to adopt new ideas, new ways, and new forms. In the largest perspective we may see that the results of civilization change more rapidly than those things or arrangements which are more closely related to biologic and physical

conditions. Many types of furniture change in style from generation to generation, but the bed remains what it was in ancient Egypt.

As a result of the doctrine of evolution and various kinetic theories in physics, there has grown up in recent generations the view that everything changes and that there is no such thing as rest or permanence. Like other sweeping generalizations this is a one-sided statement that overshoots its mark and indeed is nonsensical in what it denies, for there can be no change except to something that persists through the change, so that there is some identity between the antecedent and the consequent. Change like motion is relative. We could not well say that a man grows older or wiser if nothing in him persisted so that he was the identical person before and after the change. As abstract categories, change and persistence, discontinuity and continuity, are mutually exclusive, but every concrete real existence involves both. Whenever anyone does or suffers anything he remains the same individual. The change has occurred in him. Against this view there is one seeming exception, the fact of annihilation, but annihilation is a fact of change to a world which includes more than the thing annihilated, just as a table taken out of a room means a change in the room. I say nothing about creation *ex nihilo*, which may be a possible theologic dogma, but surely has no application to social phenomena such as the rise of kingdoms or the spread of new habits or beliefs. Of course one can say that every generation, indeed every new day, brings into being something which did not exist before, but the historian must view these as a blossoming of plants which could not occur if the past did not offer a soil where the new might find entry and grow.

If that which is becoming were altogether independent of the past and in no way related to it not only would historic events have no connection with each other but we should not have any extended events at all. We cannot speak of any historic process

unless there is continuity, unless there are elements of identity between the present and the past.

Hume's denial of causality has been taken far more seriously than it deserves or indeed than he himself thought it deserved, since he admitted that in practice he ignored it. To deny that the past molds the future is to deny that there is any continuity or any process. Hume makes this denial on purely subjective grounds by resolving the flow or stream of consciousness into an atomic multitude of states, which if they really had no continuity could not even be said to be successive. This argument is thus analogous to Zeno's argument against motion by resolving time and space into an infinity of disconnected points and instants. Both forget the truth of Aristotle's argument that infinite divisibility is only potential and cannot deny actual continuity.

In any case the actual persistence of human habits and institutions is one of the great facts of history which we cannot ignore if we are to retain any understanding. Historians today as well as in the eighteenth century are apt to attribute to special machinations on the part of the governing class the submission by various peoples to the seeming outrages imposed upon them, or to argue that where people do not revolt it is because they accept willingly that which is done to them. Neither point of view accurately describes the situation. The dominant fact is that though people generally complain against the existing situation, inertia makes them unwilling to revolt or take other active measures to change the situation.

The historian interested in explaining the revolutions in human affairs, why certain institutions changed as they did, naturally emphasizes the forces at work in overthrowing the old, and in doing so he is bound to take for granted those conditions and institutions which persisted and remained the same despite the change. A full understanding, however, requires us to see that the changes could not have taken place without human and non-

human nature in its individual and social aspects remaining substantially the same. Man transforms a field or forest into a city and may thus be said to do violence to nature, but the means whereby he does so depend on natural processes. When prophets or agitators or reformers appeal to us to change our ways they are effective only to the extent that they touch an existing emotion which has attained its strength by virtue of our social heritage and past experience. You cannot change an institution except by applying a strong force to a lever which has a fulcrum or resting point. You cannot prove a conclusion to be true unless its premises are true, and you cannot prove that anything is desirable or ought to be undertaken unless you can derive it from other things which are desirable or ought to prevail, in the judgment of the one to whom the appeal is made. You cannot create sentiments *ex nihilo* any more than anything else. Change to be effective in human history must enlist inertia. Alexander and many other warriors did not. Mohammed did.

4. Unity and Diversity: The Units of History

(1) *The Improvement of the Categories.* All the materials that the historian uses (the "facts") are already classified, not only by the spatial and temporal categories of all experience but also by social categories, e. g., nationality, government, peace and war, as well as by categories of importance. Without such categories intelligible discourse would be impossible, and the course of history would either melt into an ineffable absolute of which nothing in particular could be said or else break apart into atomic facts without real connection. Effective investigation demands some previous division or classification. What types of people and culture shall be made the subject of our research? Shall this be determined by purely geographic or chronologic considerations? Even these assume some principle which gives importance to our classification. If you divide your field according to nations or

tribes you draw the lines accordingly, because you believe that other facts are more or less naturally divided by such lines, which thus enclose the natural groups of significantly associated facts.

While the classification of experience is essential to history, as to any other form of rational investigation and discourse, the validity of every historic category may be challenged from two sides. On the one hand are the monists or absolutists, who charge that every particularization of history into epochs or events or cultural factors does violence to the "seamless web of history," which is the embodiment of absolute truth. At the opposite extreme stand the atomists who insist that nations, laws, and periods are merely fictional and that only the immediate experience of each individual is real. Within the field of historiography these extreme positions are seldom if ever explicitly asserted, yet it is important to recognize them as the limits to which two diverse types of historical criticism point. While it is undoubtedly true that some historians do violence to the unities and similarities that history reveals, and that other historians fail to do justice to the diversities that exist within any class and within any period, it must be remembered that the very essence of intelligible discourse is the seizing upon important uniformities and diversities in the world about us and the ignoring of irrelevant factors, so that in the final analysis the problem of the validity of any historical classification involves a question of values and cannot be solved on purely logical or metaphysical grounds. The seamless web of history may be ripped into disordered fragments by a clumsy historian or divided into significant parts that reveal definite patterns to eyes incapable of infinite vision. And the arrangement or grouping of minor facts equally depends upon an intelligent grasp of objective underlying patterns. A battle is not merely a number of movements. Each movement has significance only as a part of a whole plan. A battle is part of a war, which is generally an outcome of national policies. Inner con-

nection rather than external coincidence gives us contiguity in time and place and thereby historical unity.

If we accept the necessity of categories for intelligible discourse, there remains the problem whether this intellectual necessity corresponds to any objective reality or is rather a kind of mental trickery that does violence to the universe it represents or, at least, is irrelevant to that universe. The latter conception is today, I believe, widely held, finding its chief support in the relativistic approach to cultural categories. It is commonly supposed that, because different peoples at different times have had different views of morality or laws or economics, there are no objective facts in these fields which the historian can report. But logically this inference will not hold. The infinite number of different coordinates from which a given line may be located does not prevent it from having an objective and constant length and curve.

The facts of history do not change. What has happened cannot "unhappen." Nor do competent historians ordinarily differ where the evidence is sufficient to warrant a definite conclusion. It is when the evidence is inadequate, as in the early history of the Jews, that different writers reconstruct different pictures of what they think must have happened. Additional archeologic evidence might banish doubt as to the actual existence of the Patriarch Joseph as Viceroy of Egypt and the presence of the Israelites in the country. Historians differ in their points of view, and accordingly in the questions that they wish to answer, much more than they differ in answering given specific questions. The diversity of categories or perspectives is an objective fact. There are many ways of dividing a pie, no one of which can claim exclusive validity. So too there are many ways of dividing the surface of the earth or the course of the seasons. The choice among rival lines of division is an essential part of the process of rational inquiry. But once such choice has been made it is the nature of

the pie or the universe that determines the content of each part or division.

Natural history³ is transformed into science when proper categories are found such that many facts can be deduced or formed into a system. Such discovery naturally involves not only a ready knowledge of suitable facts but a genius for discovering new arrangements of these facts, a genius for discovering points of view from which order can be introduced into what has hitherto appeared as a hopeless chaos. In history, as in other fields of research, the weakness of the ordinary account of induction is that it minimizes this inventive genius. It talks of the facts suggesting their explanation, as if all one has to do is to look at the facts until they bring forth out of themselves their true explanations. It thus misses the essential role of ideas or hypotheses in the activity of the historian, whom it would reduce to the passive role of a dictaphone.

If certain categories (e. g., mammals, hours, and oxidation) are accepted by science, and other looser and vaguer categories (e. g., beasts, months, and fire) are relegated to popular discourse as science develops, it seems reasonable to suppose that a parallel development must take place with the growth of history. The historian describing past events begins by using the same categories that we all use in referring to everyday happenings. He speaks of men, countries, lands, peoples, nations, courts, legislatures, and customs. These categories, however, do not form a system. They overlap, and few of them are very sharply defined. Physical science tries to divide the world into definite classes of elements, like the elements of speech, so that all the vast variety of events can be reduced to some combination of the limited number of these

³ Natural history I take to be a knowledge that certain things exist. Science aims to understand the laws or grounds which determine these existences and their connections. Science aims not only to recognize things but to comprehend and understand them.

elements. The various social sciences likewise try to build up categories which enable us to put various things into different classes, e. g., the various types of government, the various types of economies, and the various modes of conduct. History must likewise seek to improve the categories with which it deals.

The Germans (e. g., Dilthey and Spranger) have devoted a good deal of writing to the various types of character.⁴ Such a type seems to be an intermediate between a universal and a particular and thus to come closer to the distinctive individuality of history than do the ordinary concepts of science. But the claim that such type-concepts as capitalism or medievalism are concrete particulars cannot survive analysis. All such type-concepts describe certain combinations of repeatable elements. Even when the particular combination has but a single actual instance, as for example such concepts as the human race or the nineteenth century, the meaning of such a concept is determined by the possible instances subsumed under it or under its component elements.⁵ Any classification of "types of character" assumes correlations between different traits. But it is a factual issue whether these correlations do hold, e. g., whether inner religiosity may be associated with a skeptical attitude to the deliverances of science, as is claimed by Nobel⁶ and Spranger.⁷ Although those who pursue this method dislike breaking up the concrete reality into elements, it is impossible without this procedure to check up the various rival claims. Types which are purely arbitrary constructions cannot help us to understand the objective world. To achieve such understanding they must, like good maps or charts, have something to do with the object whose nature we seek to understand.

⁴ One of the earliest attempts at this was Otto Ritschli's *Die Kausalbetrachtung*, at p. 18 *et seq.*

⁵ Cf. Troeltsch, *Religionssoziologie*, 30-31, 51.

⁶ *Sokrates und die Ethik* (1904).

⁷ *Grundlagen der Geschichtswissenschaften* (1905), p. 97.

The classical psychologic theory of types views them as generic images produced by a number of instances of an object so that the variable features are eliminated and the central core remains. Not all concepts, however, are of specific things that make physical impressions. It would be hard to trace concepts of justice or of progressive society to any generic images left by a series of diverse experiences. A more adequate view of types would see in them idealizations or limiting concepts like the ideals of the perfect steam engine or perfect measurement. Such types, like all concepts, are based on projections of experience.

History begins with general impressions. We think of "the average man-of-common sense," or "the kind of men and women one meets in Paris," or "the good-natured Italian people." Statistical analysis may help us to refine these vague concepts. The more precise information at which we arrive as a result of such refinement of analysis is by no means a "falsification" of the data from which we start. The process is rather one of refining truth out of a mixture that includes much error and more confusion. Whether or not we ever attain the absolute truth it is important that we understand the direction which the process of rational inquiry takes. The process is not one of finding unreal substitutes for, or mnemonic devices that may recall, a truth that inheres only in specific experiences. Knowledge of the habits of ants is no less real than knowledge of the habits of an individual ant. Knowledge of mortality tables is more than the mere knowledge of the ages at which J, P, and S died. Knowledge of the laws of nature or of biologic species is not thinner than our knowledge of individuals.

The fact that classification is determined by perspective does not mean that classes are unreal. The process of classification is not entirely arbitrary. We select, in any case, the principle of division, but it is the constitution of the object that determines whether it has or has not the given characteristic to which our

inquiry is directed. And in the long run it is the constitution of the object that determines whether any given principles of division will break the course of human events into disordered artificial fragments or point up the continuities and parallels that make history understandable.

(2) *Periodization.* Recent discussions of history have given a great deal of attention to the problem of periodization. The cutting up of history into chronologic divisions is necessary for purposes of exposition and to enable the reader to gather the threads together in forming definite ideas. It is also customary after treating the general (usually the political) conditions of a country during a given era to turn to the art, literature, and perhaps the sciences which are usually supposed to characterize it. The question, however, may well be raised whether any such division (e. g., the Augustan age or the age of Louis XIV) is arbitrary or is grounded in the nature of our material.

Those who insist on the continuity of history to the exclusion of discontinuity are prone to attack any division of history into periods as arbitrary and are generally able to buttress their position by showing that each important characteristic of the era in question had its prototype and origin in an earlier age and that any given temporal division does violence to this continuity. If the historian can defend the validity of his periodization against such attack by showing the reality of some revolution or marked sudden change, his defense is only half accomplished. He must be equally ready to meet the charge that he has arbitrarily lumped together years, centuries, events, or elements which have nothing in common. To have a significant period there must be some characteristic of the whole period which distinguishes it from what preceded and what followed.

There can be no doubt that in respect to the latter demand there has been a good deal of loose thinking. Particularly unjustifiable from a logical or scientific point of view is the identi-

fication of a period with a single idea. It is an almost unavoidable temptation to say that the eighteenth century was rationalistic and the nineteenth century historically minded, but literally that is obviously not true. The characterization of centuries is generally more or less arbitrary, for centuries are certainly arbitrary divisions of time—as much as would be the division of history into 67-year periods. If we qualify our statement to say that certain traits were dominant in a given period of time the question must be raised, "What is to be the test of dominance?" Did Benjamin Franklin or Jonathan Edwards dominate or best represent eighteenth century Colonial America? The obvious answer is that each was influential and represented a group. But numerically such groups may have been relatively small, for the greatness of great men is certainly not representative even of those who admire or follow them, and in every age there is more or less opposition, direct or indirect, to the dominant modes. The question of dominance is at bottom in all strictness a statistical one. But since material for such an accurate measurement is not generally available—we cannot tell of a given individual how much he was influenced by Franklin's ideal and how much by that of Edwards—we can only make general estimates. This is unavoidable, but in the interest of truth we should recognize the distinction between our estimates and verified fact.

Ordinarily we pick out certain large-scale events or processes, such as the revival of classical learning, the breaking away of many Christians from the Catholic communion, or the introduction of modern machinery, and we identify this event or process with a more or less definite time interval, e. g., the Renaissance, the Reformation, the industrial revolution. The time covered by these eras can, however, be broken up differently and characterized differently for other purposes. From the political standpoint, for instance, we may deal with the age of the city states in Italy, of

the rise of the German princes, of the enlightened despots, and the like.

Moreover our periodization, even along a single line, such as the political, almost inevitably reflects the ideals of the historian. Thus European history is divided into very different periods in the textbooks of the different nations under the influence of modern nationalism. Nations like individuals have bright moments or periods in their history. The Periclean, the Augustan, the Elizabethan age, the age of Louis XIV, and at least the first part of the Flowering of New England seem to have stood out in the memories of their respective peoples as glorious periods—the Golden Days of their national careers. Of course there was plenty of human misery, and men and women suffered all the ills and worries to which human flesh is heir. But when we take the general course of their national fortunes these periods stand out as sources of pride and satisfaction. The historian who shares that satisfaction is more likely to orient his periodization to the time span in which such achievements appear than is one who is unmoved by these achievements. The development of a legal code or a science may be a matter of centuries; great battles may be won in months or days or hours.

Naive periodization overlooks the many-sidedness of history. The Dark Ages were full of life and activity. It is only those interested in intellectual development, or more specifically in free inquiry, that find them dark. Certain intellectual, political or economic conditions may color or determine the life of a people, but no one of these can work by itself. In each age intellectual activity is apt to take its point of departure in actual prevailing conditions; politics must concern itself with the ideas and motives of people in regard to economic and other objects of interest; and the economic life of a community depends in turn upon its scientific or intellectual equipment to exploit nature as well as on the division of power which determines economic opportunity and

the willingness of people to obey the laws and to cooperate in various enterprises. To base our division of history on any one of these factors is to make a choice of perspective and of interest. Such choices are humanly necessary, but if the historian is not to be misled by the conventions of periodization, he must recognize that when he focuses upon one factor in a total complex the resulting picture is apt to show distortion around the edges.

Not only are historic situations likely to show different shapes in different perspectives, but in any one perspective we are apt to find more overlapping than a good map maker likes to see. When we characterize a period as capitalistic or what not we must not forget that other forms also continue to exist or are arriving on the scene. Thus we speak of America in the first half of the twentieth century as capitalistic, yet it also shows individualistic agriculture, small independent middle class enterprises, and socialistic economic institutions such as cooperatives, private universities, and government enterprise.

Enduring revolutions in human affairs do not take place instantaneously nor are they ever completed at an instant. People do not say to themselves: "Now we have entered the Middle Ages, or the Renaissance, or the industrial revolution," although that is the way the historian may rightly characterize a group of phenomena in which the consciousness of the individuals is only one phase. The decline of medievalism under pressure of the Renaissance was a long process. Phases of medievalism continued not only in Germany but even in France and England down to the nineteenth century. Even among those who accepted the Renaissance like de Bellay and the painters, sculptors and architects of his day (sixteenth century), the medieval background did not disappear. We must be on our guard against the tendency to suppose that a word such as "Renaissance" or "Reformation" necessarily denotes a single historic entity. Some events, like the French or Russian revolutions, show a widespread popular con-

sciousness of a revolution in the making, but that is not the case with most historic movements.

Languages are not products of inanimate nature. They are developed by the use made of words by speakers and writers. Our time categories, like other categories in which we think and speak, reflect common human interests. Some of these categories, such as days and years, may be common to all, or practically all, human languages. Others, such as months or minutes, are of more limited scope and contain a larger amount of local convention.

Still other time categories are peculiar to a single culture or group or even to a single individual. Ultimately each of us finds the feeling of time or duration in some sense of tension or change within us. But when we speak of the time elapsed, when we speak of events lasting years, days, hours or seconds, we speak not of our feelings but of objective happenings in a world where our existence and our feelings find a subordinate place. Physical time is the one-dimensional arrangement of the world of events; or, in Aristotle's terms, time is the measure of motion.

Physical time, treated mathematically, is homogeneous. Any one hour or day is identical in magnitude with any other similar period, just as any dollar is worth as much as any other. But felt, or biologic, time is not homogeneous at all. Some hours do not feel as long as others, and as we get older the hours and the years pass more quickly. If reality is identified with feeling, physical time is not real, but we determine the fact of variations of feeling by clocks organized on the principle of the equality of all hours.

Here, as in dealing with all the other familiar antinomies of metaphysics, we find in our experience a mutual interdependence of a rational element which is communicable and a sub-rational element which is individual and personal. If we had no sense

of time we could not tell whether one day or hour were as long as the next and could not possibly discover any of the laws of motion, but in turn we correct our time sense with clocks constructed on the basis of such laws. To a narrow logic this may seem like a vicious circle, but a circle is vicious only if it keeps us from something outside itself. If the interlacing of our categories covers the entire universe, circularity ceases to be a term of opprobrium and the epithet "vicious" is misplaced.

Chapter 3

IMPORTANCE AND POSSIBILITY IN HISTORY

It is generally believed that the duty of the scientifically or objectively minded historian is to describe events as they actually happened, and that he is not concerned with what might have been. This is parallel to the contention that the object of social science is to describe things as they are and not to be concerned with what we would like to see happen. Both of these contentions grow out of the narrow-hearted positivistic conception of scientific method which arose as a general reaction against the classical theory of deductive logic. The rapid rise of modern science, after the doctrine of final causes had been abandoned as a ground of explanation, has led its more enthusiastic apologists to set up as the sole path to scientific truth the "inductive method," a form of inquiry which is regarded by its more ardent proponents as antithetical to the deductive method. The assertion of the antithetical nature of the inductive and deductive methods has been based upon a confusion as to the essence of scientific procedure.

There is a tradition, which unfortunately is accepted by many men of science who ought to know better, that science begins with the observation of facts. This tradition was expressed most emphatically by Francis Bacon, who is still revered as the "father of scientific method" by those who pride themselves on following the inductive rather than the deductive method. Bacon's view rests on the assumption that the observation of facts is a simple process of mere recording. Actually, however, the determination of what the facts are is the end rather than the beginning of en-

quiry. As a matter of course every enquirer must begin, not with a *tabula rasa*, but with a fund of information. Discoveries in nature are not made by those who follow Bacon's precept and rid themselves of all anticipations of nature. The man who knows nothing about the subject may be free from all bias but he is not likely to discover anything. The facts of nature do not stream into empty minds.¹

But though previous knowledge is necessary, it is not sufficient for the observation or discovery of new facts. We need ideas or hypotheses. It is only when we have a hypothesis or an anticipation of nature that we have something to look for. Without ideas nature is one big blooming confusion. The child begins, not with the observation of particulars, but with vague images. He does not begin by seeing apple trees, chestnut trees, and others, and then generalizing. On the contrary, it takes considerable reflection and critical observation before the individual object is recognized as having specific qualities. Over two thousand years ago Aristotle called attention to the fact that an infant calls every man "father," and it certainly takes time before he distinguishes his father from others.

Recognizing this intellectual element in perception, we can see that science is not a knowledge of mere particulars, but rather a knowledge of the way in which classes of things are related. Science views nature from the point of view of universal laws, and the progress of science consists in making such laws more certain, accurate, and systematically connected.

A scientific law, however, always takes the form of a universal proposition and asserts that a certain combination is impossible. Now, the realm of the possible is applicable to the future as well as to the remote past. Hence, every observation, for pur-

¹ I have attempted to treat in more detail the errors of the traditional view in "The Myth about Bacon and the Inductive Method," *Scientific Monthly*, XXIII, 504 ff. (December 1926).

poses of science, is directed at a universal or indefinitely repeatable aspect. But this repeatable aspect is abstract, and the relations between such abstractions cannot be said to exist in the sense in which particulars exist. This has led positivists like Mach, Duhem, and Hans Vaihinger to assert that only particular sensations are real, and that all universals or mathematical entities are fictions. This view, however, has never been able to meet the problem of explaining why it is that mathematical fictions have proved such a fruitful way of penetrating the secrets of nature, or why so many phenomena have been discovered by means of purely mathematical methods.

We can avoid this difficulty by rejecting the myth that nature consists exclusively of elements corresponding to sensations. In fact, the argument for this view is based upon the fallacy of reduction. A sentence does not consist of words alone, for if we take the words in a different order the sentence no longer remains the same. Similarly, while conscious life may be analyzed into elements called sensations, it is not true that sensations alone constitute our intellectual life. The order or relation between sensations is itself a part of the subject matter of psychology, as William James well recognized. Thus the world of physics does not consist of isolated atoms or isolated qualities. It is a world in which there are real connections, and if we recognize the reality or objectivity of these connections, we shall have no difficulty in recognizing that ideal entities are the proper subject matter not only of mathematics but also of physical and other theoretic sciences. Thus, one of the first discoveries in mechanics, namely the law of the lever, formulates something which can never be actually realized, for it assumes an absolutely rigid body without weight, but such absolutely rigid bodies do not exist in nature, certainly not in the world that we know or can observe. The laws of motion are formulated for ideal bodies whose masses can be concentrated into ideal points. The whole of thermodynamics

is based upon considerations of what would happen in a frictionless engine, even though we know that such engines are impossible. Similarly, we talk of measuring an electric field by introducing an ideal point which would be repelled with a certain force without setting up an inductive current. These and numerous other examples indicate what is meant by saying that science is concerned with ideal entities and determines the character of existing objects by these ideal standards.

History then does not cease to be scientific when it shifts its focus from a phonographic recording of events that actually happened and assumes the critical task of appraising events and evaluating their significance or importance. Indeed, we may say that no historian conscious of his task can avoid the problem of evaluation. The historian must have a point of view in selecting his material, a point of view that determines what is important and what is unimportant in the confusing maze of human events. The category of importance is one of valuation. The safeguard against bias in the writing of history, as in the natural sciences, is not to indulge in useless resolutions to be free of bias but rather to explore one's preconceptions, to make them explicit, to consider their alternatives, and thus to multiply the number of hypotheses available for the apprehension of historical significance. It is a common error, for instance, to suppose that the framers of the American Constitution were clear in their own minds as to whether they intended to give the courts power to declare statutes unconstitutional. We cannot always read into the past a contemporaneous awareness of issues that have become clear and important to us. The historian must put himself imaginatively before the event he describes in order to appreciate the standards prevailing at the time of action and thus to estimate the possibilities of which the actual event is only one.

We can understand the significance of what did happen only if we contrast it with what might have happened. One of the

serious obstacles to a rigorous consideration of the evidence bearing on alternative possibilities in historical situations is the wide acceptance of the positivistic or narrowly empiricist dogma professed even by such idealists as Croce, that history cannot deal with what might or could have happened. It is curious that those most concerned with the close relation between history and practice should hold this dogma, when it is obvious that all practical activity involves weighing the consequences of alternatives only one of which can be realized. Indeed we could not grasp the full significance of what has happened, even though the facts of history were completely revealed to us, unless we had some idea of what the situation would have been otherwise. This measuring of alternative possibilities is a relatively simple matter in physics. It is a more difficult task in the writing of human history. But despite the difficulty of the task we must recognize that significant history necessarily has to take into account possible alternatives to what did happen and that without the consideration of such alternative possibilities history, deprived of all elements of criticism, appraisal, and evaluation, would sink to a mechanical and unilluminating process of recording.

The thesis that history presupposes standards of importance and considerations of possibility seems to me to throw much-needed light on the sharp distinction which Windelband,² Rickert,³ and others draw between history and natural science.

The view that it is the historian's business to consider various possible alternative courses that history might have taken at any significant moment, is opposed by two arguments: first, that the realm of possibilities is so indefinitely large and so essentially indeterminate that the historian would be lost if, departing from the effort to describe what empirically happened, he were to

² *Geschichte und Naturwissenschaft* (1904).

³ *Die Grenzen der naturwissenschaftlichen Begriffsbildung* (1902), chap. 2, sec. 3.

launch on the speculative sea of what might have been; and second, that there is not in reality any genuine objective possibility, but that everything that has occurred was necessitated in the precise way in which it came to pass. Both of these objections rest on metaphysical half-truths and can be obviated by drawing the proper distinctions, viz: (1) between grounded and ungrounded possibility, and (2) between absolute and relative determinism.

1. The Distinction between Grounded and Ungrounded Possibility

The objection that history cannot deal with the field of possibility because all things are possible would be valid only in a world where nothing was given. If we knew nothing at all about an event the field of possibility with respect to that event would be unlimited. In this sense, we may say that any assertion which does not contain a logical self-contradiction thereby describes a bare possibility. But in any universe of discourse where something is known about an event some things are thereby ruled out and other things are established as having an initial probability in their favor, or, we may say, as constituting grounded possibilities. Thus if the event in question is the action of a man, that fact itself imposes certain broad limitations. Every additional determinant narrows the field further. If we know the man's strength, his disposition, and his opportunities, the possibilities of his doing certain things are thereby eliminated or limited. If he is sick or blind or in any way disabled, his potentialities are obviously further limited. The more we know about him the more reasons we have to expect certain kinds of conduct and to regard other things as improbable. We generally do not expect an illiterate person to produce a learned book.

A human possibility is grounded if there are laws and facts which make it probable.

We can well say that there is a grounded possibility that the course of Reconstruction in the United States would have been

very different if Lincoln had not been assassinated. All the evidence indicates that the prestige which came to Lincoln through victory, and his general good judgment and ability to get along with people, would have produced results quite different from those produced by Johnson, who was not only a man of difficult temperament but a Southerner and a member of the party that originally opposed the war.

There is positive evidence for the statement that if Alexander the Great had been drowned in crossing the Granicus, or if Napoleon had fallen at the Bridge of Lodi, subsequent history would have been quite different. In fact the events following the death of Alexander showed that no one of his generals could control the others, and there is equally concrete evidence in the history of the failure of the French armies in Italy in the absence of Napoleon to show that the Napoleonic leadership was an essential ingredient of other successes.

Of course, disagreement is possible on any of these questions, but that does not deny their historic significance. We cannot disagree about the performance of purely fictional feats by imaginary Don Quixotes.

If there are laws governing or describing human affairs, each one of them not only provides a clue as to the consequences of given events but also rules out certain possibilities. But are there any laws which the historian must assume?

In fields where we can ignore the differences between individuals, as in vital statistics where every birth or death, no matter of whom, equally counts as one, or where we have definite standards of measurement as in economics, such laws are known and are made the basis of daily prediction, e. g., in insurance and in other business affairs. Where our interest in individuals is greater and the principle of indifference cannot operate, our laws must necessarily take a much more complicated form—so complicated at times that it is difficult to formulate them—and all simple

formulae as to human conduct are likely to have too many and diverse exceptions. Some of these laws, also, are so well known or obvious that we never think of formulating them. Yet we readily recognize the impossibilities that they rule out: "Which of you when his son asks for bread will give him a stone?"

In general, sanity consists in virtual knowledge or tacit assumptions as to what is, and what is not, humanly possible; and this we recognize when some unfortunate brother thinks it possible for his chair to turn into a snake, or that he may be the King of America. Imaginative wisdom also finds many possibilities where traditional common sense sees none.

Our discussion enables us to illumine the antinomy between the view that history, unlike natural science, deals with unique and unrepeatable facts and the view that history is meaningless unless it can see laws or universal connections. This antinomy oversimplifies the uniqueness of historic events and misses the true role of laws as universal propositions.

The absolutely unique, that which has no element in common with anything else, is indescribable, since all description and all analysis are in terms of predicates, class concepts, or repeatable relations. Let us take a unique event, for example, King John's signing of Magna Carta at Runnymede on June 15th, 1215 A. D. Neither the individual John, the date, nor the specific act will occur again. Yet our statement identifies John as one of a class, the kings of England, who are defined as the occupants of certain offices or as bearing certain relations to the various elements of the people of England. Magna Carta is significant as one of a number of political documents; and not only is the physical act of signing repeatable, but the motives which we assume compelled John to do it are recurrent ones in human experience. The date itself denotes a unique or unrepeatable state of the world, but note that it is defined in terms of a number of repeatable intervals, namely years. Although language can never

be self-sufficient and ultimately always depends upon a demonstrative element, i. e., a pointing to something which must be experienced, yet that to which the demonstrative points has its character determined by its abstract or repeatable traits.

The nominalist misses the practical and theoretic significance of universal laws as hypotheses in regard to what are the invariant connections between abstract phases of particular events or existences. Common experience only roughly blocks out from the big, blooming confusion that nature presents to the undeveloped intelligence such objects and sequences as serve organic or practical needs. To obtain more accurate knowledge of nature we need more refined analysis than is possible with the less discriminately used categories of common sense. Unsupported objects such as apples and feathers fall with varying velocities, but others such as smoke or balloons go up, and the planets move in peculiarly tortuous ways in relation to the fixed stars or our earth. Can we formulate an accurate universal proposition (i. e., one without any exception) that will enable us to tell what is relevant and what is irrelevant to all these motions? The law of gravitation does precisely this. Not only does it widen our horizon by integrating diverse realms, but apparent exceptions are explained by seeking and finding other laws such as those of electricity and magnetism.

This picking out of the elements which are relevant or causally related to a given phenomenon is the essence of the service which science renders in making the world intelligible and manageable. It may well be argued that the physical laws which thus connect phenomena in necessary relations are themselves contingent, that is, they are either generalizations from empirically observed phenomena, or they are derived from wider generalizations of the way things have happened to appear. Since all proof of existence rests on assumptions it is not possible to prove everything, and contingency cannot thus ever be entirely removed. Note, how-

ever, that while a law such as Newton's in regard to gravitation cannot be proved by the consequences which it explains, it cannot be utterly or entirely false so far as it describes what has actually been observed to happen on such a large scale. Another law such as Einstein's may replace it as a more accurate description, but such another law will have to include the truth of the older one under restricted conditions. This the general theory of relativity indeed does, just as the modern electro-magnetic theory of light includes both the older wave and corpuscular theories to the extent that they actually described optical phenomena.

It has been suggested by Poincaré and Peirce that the laws of uniformity of nature, which in our present era seem to hold true, may really be changing slowly so that in the remote future or past gravitation may vary not as at present, according to the inverse square of the distance between the bodies, but according to some higher or lower power. Though there is no positive evidence for this it must be admitted that we know nothing that makes it impossible. But even if the laws now assumed are found to be changing, science will have to seek a law or formula for their variation, however difficult it may be to discover it.

Thus while it is possible to question any particular law it is neither practically nor theoretically feasible to believe that there are no laws whatsoever in the world of existence. It is not practically possible, because all rational or deliberative conduct is based upon the assumption of some fixed order or mechanism by which our objectives can be realized. Nor could any account or description be given of any natural realm if there were no identity of anything at different moments. Science and sanity postulate a world in which there are certain fixed characters. A world in which nothing was impossible, in which a smile could become a forest fire or the clothes on my back a highroad or river, would be a chaos beyond anything in the most insane mind; at any rate

there could be no investigation in such a world, since nothing could be determined about anything in it.

According to Rickert, the historian is not to generalize but to appreciate the "values" of actual characters and events. But values would be philosophically trivial if they could not be repeatedly embodied.

Philosophies of history are apt to be hasty generalizations of undue simplicity. Various theodicies, systems of evolution, and physical, political, economic, or other interpretations of history have all tried to make the endlessly complicated web of history conform to a pattern based on some happy guess. But this does not deny them all value as clues to an indispensable task. All really worthy effort in understanding, as in love and conduct, or in the search for beauty, happiness, or holiness, must be directed at an unattainable goal.

2. Absolute versus Relative Determinism

The foregoing discussion helps us to dispose of the second objection to consideration of the realm of possibility in history, the objection, namely, that only what actually happened was possible and that all else is fantasy. This, of course, raises the age old issue of determinism versus contingency. After ages of persistent controversy as to whether everything in human as in natural history is or is not necessitated it may indicate absence of a sense of humor to attempt any conciliation. Yet I think we can well clarify this ancient issue by drawing a distinction in the old scholastic manner between absolute and relative determinism.

We may make the meaning of absolute determinism clearer by the following illustration: Take some complicated picture, cut it up into fragments all of different shapes, shuffle them up, and then let some one try to rearrange them so as to restore the original totality of the picture. The solution of the problem is completely determinate if each fragment has one and only one

place where it can fit. This picture, then, is like the Hegelian Absolute. Everything acquires its meaning by its unique position in the absolute totality. This view certainly underlies the Hegelian conception of the evolution or history of the state, religion, art, and even philosophy itself. The thought of any great thinker, e. g., Parmenides or Spinoza, had to come at the given point of time at which it did and thereby fit into the inner dialectic development of the Absolute Spirit. Though Hegel refers to history as a progress in the consciousness of freedom, only the Absolute is really free—free in the sense that there is nothing outside to determine it—but even the Absolute is not free to develop in any other manner than that determined by the rigid laws of the Hegelian dialectic. Every creature, or part, of the Absolute is thus rigidly determined, and there can be no alternative possibilities in the Absolute.

The difficulties of this view are familiar. In regard to history, however, we may note how unreal time must be in such a completely monistic rationalism. But the reality of history requires time, and time means years or days, i. e., repeated or cyclical changes like the revolution of the earth around the sun or around its own axis.

Let us then modify our illustration of the picture-puzzle by allowing it to contain repetitions of patterns and cutting it up so that some pieces are equal in size or constitute mathematical groups (i. e., some one piece may fill the place of a number of others). We shall then have a determinate system which yet allows a certain freedom of choice between different possibilities. This is exactly what we have in a physical system or a human society whose temporal transformations show the uniformities or invariant relations called laws.⁴ It is a grievous error to con-

⁴ "Idealists" who oppose the view that nature is governed by laws forget that it was developed by neo-Platonists and real idealists like Kepler, Galileo, Newton, Leibniz and Kant.

fuse the doctrine that natural systems manifest uniformities or laws with absolute determinism, which is rather the (impossible) ideal of organicism.

Every law asserts that A depends on B in a certain phase of its being and is not dependent in that phase on anything else nor on B except in the given phase. But as no finite number of abstract phases will exhaust concrete existence, no finite number of laws can exhaustively determine the nature of things. The law of gravitation, for instance, states a pattern of relations between masses, velocities, and distances which holds of all bodies, celestial as well as terrestrial. That law, however, does not itself determine their different electrical or chemical properties. If the freezing of water depends on temperature and pressure, other considerations are irrelevant and indifferent. The relative independence of A and B is necessary in order that they should be two distinct terms which are related or which interact.

If, then, the historian is not to fall into the fallacy of regarding every antecedent event as the cause of every consequent, he must rely on true laws or necessary relations in human nature and social life, and this means that he must consider whether if a given event had not happened the succeeding events would or would not have occurred.

Consider a homely example. The water-pipe in my cellar bursts. On the previous day a woman with an envious disposition passed my house. Since the latter was undoubtedly a part of the total world of events, the "organic" view must regard it as part of the cause. But according to this mode of reasoning every other past event was a part of the cause, and there is no reason for picking out the frost and the character of the pipes. We should thus have no guidance in trying to prevent the recurrence of the unfortunate event, nor would there be any point in saying that the freezing and expansion of water depends upon temperature if it also depends on everything else. Science and practice

assume a world in which not everything, but only certain things or factors are relevant to any given event.

This realization that there are irrelevancies in the world enables us to see how one-sided or superficial is the view that there are no accidental or fortuitous coincidences in nature or history. If causation takes place only along certain lines, then the coincidence or crossing of two such lines is an accidental event in each, since it is not determined by the nature of either alone. Accidents, like necessity, are thus relative to our system. Now it may well be argued that if one knows the time and place at which two apparently independent systems or bodies start, and the exact directions and velocities at which they travel, one can predict where and when their paths will cross. But from this argument it does not follow that there is no contingency in nature. The Laplacian intelligence that can predict every natural event can deal only with a world in which every particle moves according to a formula that does not change with time. But even in such a world such an intelligence would have to know the actual coordinates of all the infinite particles that constitute the world at any one moment, and these would be contingent or derived from a previous contingent state. Even the ultimate formula according to which all motion is to take place would be contingent in the sense that it would at best be a statement that we have found the world to behave in accordance with it. We could not prove the impossibility of the world behaving according to some other formula. Contingency cannot therefore be entirely eliminated, but neither can we get rid of relative necessity. When the proper discrimination is made there is no contradiction between the two—certainly not so long as we restrict ourselves to finite or limited systems.

One point of caution must be added: While the specific laws of any sub-class must rest on and take into account the laws of the wider class the former cannot be deduced from the latter

alone. Just as the laws of chemistry must take the laws of mechanics for granted but cannot be deduced from the latter alone, so the laws of psychology and social science must take into account, but cannot be deduced from, the laws of physics. Special laws cannot be derived from general laws except by introducing special hypotheses. That which distinguishes men from other bodies cannot be completely deduced from that which men have in common with all other bodies.

3. Ethical Significance

Modern logic will not support the old-fashioned methods of trying to prove ethical theorems by means of historical examples. If the Roman Republic fell through the corrupting influence of luxury it does not follow that luxury should be eliminated in our own republic. In the first place, the character and effects of luxurious living may be different today. In the second place, the forms of government of the Roman Republic may not always be desirable. But all intelligent concern with the art of life needs to estimate the consequences of various possible modes of conduct. History helps us as a means of widening human experience. By giving our guesses or generalizations a wider base in fact it helps to make them more stable and reliable.

The acceptance of some deterministic scheme according to which everything that has happened has been the will of Allah, or the necessary consequence of the law of progress, evolution, the economic system of production, etc., not only leads to a blind worship of the brute power of the actual but dulls our vision of the finer possibilities which history tragically missed. How much better might not humanity now be if Hellenic civilization had not lost itself in Oriental despotisms but had instead turned its face under Alexander of Macedon to Italy and the West?

Suppose that some wise Greek counsellor had in 330 B. C. persuaded Alexander the Great not to invade the deserts of Sogdiana and Bactriana. Imagine him arguing thus:

"Great King, you have conquered the vast Persian Empire not only by dint of your indomitable will and the excellence of your wonderfully well trained soldiers, but also through the fact that the population of this Empire is used to being conquered and staying conquered. It is a region of cultivated fields and luxurious cities, where the most dominant desire is for peace and therefore for a ruler who will be strong enough to assure it. Your Empire can last for an indefinitely long time. But we Greeks are a handful, and we are likely to be absorbed in this sea of Asiatic population. Your soldiers, Great King, used to the climate of Macedonia and Greece, will not be able indefinitely to maintain their bodily vigor under the climatic conditions in which they now find themselves.

"Great King, you can best feed your ardent desire for the greatest honor of conquest by turning your attention to the West. In southern Italy and Sicily our people have flourished for a long time and have achieved great things in the arts and sciences. The climate of these lands is not different from that to which our people are accustomed. The barbarians who live to the north of our people are divided into warring tribes, but some, like the Lucani, have had commerce with our people and have adopted our way of writing. Conquered by your invincible army these peoples will become good subjects, their lands will produce great revenues, and the population of these lands will supply soldiers not very different from your own. Your armies will therefore penetrate westward out to the gates of Hercules."

Had some such advice been given and followed by Alexander, how different the subsequent history of Italy and Western Europe would have been.

What if the august Marcus Aurelius, instead of persecuting the Christians, had joined forces with them for both the regeneration and the clarification of the spiritual life? What if the civilization of the Near East had not been so crushed by the brutal power of the Mongols and had remained a real cultural

rival to Christian Europe? Such speculation may seem idle but it gives meaning to actual history, and it makes us appreciate the great value as well as the precarious condition of humanity's great gains, in enlightenment, science, art, and nobility of spirit.

According to an American poet

Of all sad words of tongue or pen

The saddest are these: "It might have been."

But the philosopher must regard the consideration of what might have been as essential to that wisdom which is a major part of human dignity and a condition of real happiness.

Chapter 4

THE LINKAGE OF HUMAN EVENTS

In the controversies as to the methodology of history the question of causation has occupied a central place. The defense of human autonomy or free will has led many to such a sharp separation between mind and nature as to deny any application of natural causation to human affairs. On the other hand, naturalists have taken it as axiomatic that historiography can become scientific, i. e., give us verifiable knowledge free from bias or superstition, only if it submits to the methods of natural science which operate with causal laws.

A generation ago the naturalists seemed to be carrying the day in the social sciences and thus in the theory of history. But recent idealists have used the extreme empiricism of anti-metaphysical positivists to argue that the laws of physics are purely statistical and thus not different in kind from the constant correlations that we find in public or national affairs. Quetelet's and Buckle's use of statistics to prove the reign of iron laws of causality in human affairs is thus reversed into a denial that such laws can be found in physics. This positivism seems to have been recently reinforced by a vague rumor that Heisenberg and others have swept away the concept of determinism from physical science.

That the arguments on both sides are carried on with more sweeping enthusiasm than discrimination, is seen in the fact that both positivists and Hegelian idealists come to the same fatalistic conclusion that man cannot change the course of history. From the determinist dogma mutually incompatible conclusions are

drawn. Thus some hold not only that history is subject to laws, but that only the superstition of free will has prevented us from discovering them; while others argue that since the whole temporal system of events is determined, it is vain to pick out any one element in the world and say it is the cause of any particular event that follows it.

In such a situation a review of elementary considerations seems worth while.

1. The Nature of Causation

There are doubtless distinctive elements in human affairs which give distinctive form to the causal relation that is applicable to them. But since men are born, live, and die on this earth, and their activities are conditioned by the presence or absence of food, water, and other physical and biological factors, the meaning of causality in history cannot be altogether unrelated to its meaning in the natural sciences. It is well, therefore, to consider first the general nature of causation before dealing with the special features which it assumes in human history.

It is interesting to note in passing that the word cause, from the Latin *causa*, corresponding to the Greek *aitia* is originally a social and more specifically a legal term. This sense continues in the phrase "cause of action" or "legal cause." It came into natural philosophy through the analogy of nature to a well ordered realm ruled by law. The Greek, as well as the modern, historians used a variety of expressions for the causal relation, e.g., an antecedent led to, gave rise to, brought about, made, produced, created, or influenced a certain consequent, or the latter was due to, resulted from, came as a consequence of, or was conditioned by the former. Polybius¹ drew explicit distinctions between *aitia*, *prophasis* and *arche*, i.e., the motive force, the excuse or reason, and the beginning or origin (in German, *Ursache*). Aristotle's famous doctrine

¹ *Histories*, III, 6-7, 31.

of the four causes: the material, the form, the efficient cause, and the purpose or end, deal with what we would call today the grounds or reasons why anything whatsoever takes place in the way it does. It is thus not much different from the modern principle of sufficient reason except that in the interest of clarity we restrict the causal relation to changes of phenomena in time and space.

The difference between annals and history lies in the absence or presence of connections between the events of different times. Thus, the Anglo-Saxon Chronicle may tell us that in one year there was a famine, the next year the king finally had an heir born to him, etc. Of course, not all the events in a given region can be connected by the historian, for connections are not always obvious. Still, modern historiography does attempt to deal with more continuous streams than those which are the object of chronicles. Admitting that the unity of history is not as arbitrary an invention as the unity of a novel or play, we may still recognize that the historian is not merely an indiscriminate collector of all past facts, that he must approach his task with some idea of what is relevant and what is irrelevant. Especially must we not forget that historical events do not form a heap of discrete happenings separated from each other by a spatial-temporal vacuum.

In support of the argument that our selection of the causal relation is arbitrary and therefore purely subjective, much is made of the fact that one may take any condition and call it the cause and then all others are merely conditions. Thus the cause of death, for example, will depend upon the principle of selection employed by the reporter. It will be moral or legal for one observer, physiologic for another. And even to the physician the cause will be heart failure, local infection, or some other pathological condition, according to his point of view. Thus certain causes appear more often at certain times than at others. Greater attention, for example, is now paid to heart disease,

and peritonitis almost disappears because of the appearance of appendicitis. So, likewise, if a glass breaks when it falls, I can say that it breaks because it was dropped, or because it is made of brittle material, or because it slipped from my nervous hand. But any one of these conditions is part of a system or perspective. In each perspective the relation is determinate.

In general we all believe that human, like other, events are in some way connected, and that there is always a reason or ground why anything happens. Only that which has nothing beside or outside of itself to change it in any way can be causeless or *causa sui*, e. g., Spinoza's Substance or Hegel's Absolute Idea. This cannot be said of anything which is a part of the temporal stream.

The law of sufficient reason states the minimum amount of connection and order in the world which is necessary if we are to have a chance to understand and control it. No one event is altogether sufficient by itself. There are events other than it which are connected with it and which, if known and understood, supply the reason why the first event came into being. No event in history (or anywhere else) may be arbitrarily cut out of the endless web of time; its character is determined by its context. Thus there is not unlimited possibility present in our world: some things are possible—that is, do not conflict with known laws and facts; and other things are not possible—that is, do so conflict. Whatever occurs, a battle, a change in the government or in the economic system, or the like, it is not true that everything or anything else could have happened. Universal propositions, if truly asserted, rule out certain material and not merely logical possibilities. The world is not describable without such universals. If the universals or invariant relations are given for a certain part of the world then they will indicate the general direction in which we should look in order to expand or complete our knowledge of the parts of the world we so far do not understand. That is why we ask such questions as what brought about the second

world war, the depression of 1929, or any other event in which we are at all interested. But it is obviously not enough to say that events are in some way connected. The significant question is, "What is the nature of this connection?"

We must be especially careful to say between what terms the causal relation can hold. Obviously an abstract property cannot operate in time. An abstract quality or relation such as color cannot therefore be a sufficient cause. When, therefore, we speak of a given color as a cause, it is only by ellipsis, to note the fact that it is part of the cause.

A stone does not cause another stone, nor can any individual object be the cause of another individual object. One may, however, act upon another when its motion affects the motion of another.

We sometimes speak of the ruin of a village being caused by an avalanche. What we mean of course is that the action of the avalanche was responsible for the breaking down of the houses and the consequent destruction. "Brutus killed Caesar" means that a certain action of which Brutus was a part brought about the change which we call the death of Caesar.

Since history deals with occurrences in time, the element of temporal sequence must enter into causality and distinguish it from the relation between whole and part, form and content, or any other abstract, purely logical or mathematical, condition. Thus, we may take it as a matter of definition that causation is a relation of connectedness between events (in the broadest sense of the term), and this means that it is not a relation between events and "laws" conceived of as coercive forces standing outside of space and time and exerting an influence on natural happenings. The laws with which history is concerned are descriptions of the connections between events, not prescriptions.

A good deal of confusion has been caused by the popular usage, going back to Heraclitus, which speaks of laws of Nature, the

violations of which are punished by her. Even an agnostic scientist like Thomas Huxley includes theft as such a violation of the laws of nature. Similarly we speak of certain sex practices found even among animals as unnatural. At best this is a mythologic way of speaking. Science knows no nature other than what actually happens, and when it speaks of the law of gravitation or the law of multiple proportions it refers only to observed uniformities which are believed to be invariable so that if a single phenomenon failed to conform to it the law would be denied. Laws of nature, then, in the scientific sense, cannot be violated.

A sharp distinction is often drawn between description and explanation, but a scientific explanation is after all only a certain kind of description, a description in which the phenomenon is related to other phenomena in accordance with certain laws. Thus we explain the rainbow by calling attention to the law of refraction of light and the condition of the moisture in the atmosphere in relation to the sun's beams. Note that the law of refraction is not something antecedent in time to the occurrence of rainbows. The rainbow is only one of the ways or occurrences of refraction. Hence in distinguishing between the law of refraction and what happens in the rainbow we must not hypostatize the former as if it existed as a separate entity apart from any particular instance of it. Universals are observable only in their instances, though of course the two are never identical since every actual instance contains elements besides the abstract universal or repeatable one described by the word "refraction."

When, therefore, we explain the phenomenon of the rainbow we merely describe it in such a way as to analyze those elements which relate it to other elements elsewhere. Laws or universals thus provide us with formulae which help us to fix on those elements that are related to others in such a way as to form a system in which there is a simple repeatable pattern. A law is

not a force which compels its instances to conform to it. Thus the law of gravitation is a description in mathematical terms of the spatial-temporal relations of all bodies, celestial as well as terrestrial. Kepler's laws of planetary motion and Galileo's laws of falling bodies can both be deduced from it because it was formulated to make that possible. That it was possible to formulate the law in the manner in which Newton did was due to the empirical fact that observations on the moon and on falling bodies fit in with this formula. This in no way answers to the popular notion of a cause as a force which compels objects to behave in a certain way rather than in another.

The notion of compulsion is of course an anthropomorphic one derived from human, chiefly muscular, experience—the experience of push and pull, which we read into inanimate nature by a sort of primitive animism. Nevertheless, like other popular notions it contains a germ of truth if we can properly discard certain elements of it. This kernel of truth is formulated in the principle of sufficient reason: whatever happens must have a reason why it should occur in the way in which it does rather than not. The principle of sufficient reason obviously cannot be proved objectively; that is, we cannot prove that it was impossible for everything which has happened to have been different, and we certainly cannot prove that the present constitution of the world is such that only certain things will happen and that nothing else can possibly occur. It is rather a postulate of science to satisfy the demand for understanding. We cannot understand or explain any phenomenon unless we relate it to other phenomena in a determinate relation. By assuming, therefore, that everything has certain determinate relations to certain definite other elements we have a reason for seeking to find them, and the success of science or its progress encourages us to believe that further relations can be discovered if we persist in our search.

If we are to accept the principle of causation as a methodological postulate we are put on our guard against the ancient fallacy of *post hoc ergo propter hoc*. Whatever causality may be it is more than mere succession in time. All sorts of superstitions and absurdities result from ignoring this, for instance, arguing that because the introduction of a new game of cards preceded a given event such as an epidemic of dysentery, the former was the cause of the latter. However, though this is elementary, an influential philosophic doctrine urges that causality is nothing but repeated succession, and under the name of correlation this has become a canon of scientific procedure among recent "research" workers in psychology, sociology, and education.

This doctrine began with Hume's attempt to eliminate necessity from the causal relation by an argument similar to that by which Zeno seemed to disprove the possibility of motion. Having as a follower of Locke and Berkeley, reduced everything to a discrete series of successive "impressions" or "ideas" as "states of mind," he naturally could not find that any consequent "state" was contained in any antecedent one, and this seemed to rule out any real or necessary connection between things.

Not only as a historian and in his more mature *Essays*, but even in his youthful *Treatise*, Hume himself was candid enough to recognize the untenability of the completely skeptical or nihilistic results of his basic assumptions. He admitted that in practice we must continue to believe that things are really or necessarily connected. Nor does it require much acumen to see the inconsistency of reducing all causality to mere succession and then explaining the belief in, or habitual expectation of, necessary connection as caused by the repetition of the same sequence of events. In the first place, it is not true that the repetition of any succession has always been followed by the expectation of its invariant recurrence. The fact that some people rightly or wrongly see causal relations where others have for ages failed to suspect their existence, suggests that

the issue is not so simple. Moreover the expectation that the future will be like the past assumes a certain inherent and invariant constancy in the order of nature which no number of past observations can by themselves prove. The fact that for twenty-five thousand days in succession a man has taken a walk before breakfast will not prevent his failure to do so tomorrow.

Despite its logical frailties, however, the Humean doctrine has found powerful support not only in the forces which have made for modern subjectivism or extreme psychologic individualism, but curiously enough in the modern effort to eliminate all occult qualities and anthropomorphism from the field of physics. As the popular notion of cause involves some analogy to human action in which purpose and effort enter, physicists have sought to purify their science from all such implications by reducing their descriptions to mathematical relations between observable elements or operations. It is this which led Karl Pearson, whose special field of competence was in the mathematics of statistics, to the attempt to make correlation take the place of causation.

But the fact that many have uncritically accepted Pearson as an authority on scientific method generally cannot wipe out a logical difference in the nature of things. A correlation is an empirical or historical statement that in a certain proportion of instances two elements have occurred simultaneously or successively. A causal relation asserts more than mere past coincidence. It affirms that there is some reason or ground why, whenever the antecedent occurs, the consequent must follow. The assertion of a causal relation may be false in fact or not supported by adequate evidence, but the element of necessity, the exclusion of a contrary possibility, is an essential part of its meaning. Even if it were true that every time we observed a uniform succession we inferred a causal relation, the content of the proposition inferred would still be logically different from that which led to it.

The foregoing does not deny that the observation of a correlation frequently suggests or leads us to discover a causal relation. What we have insisted on is that correlations may be mere coincidences that do not indicate any significant connection, or any reason for expecting such correlation to continue. My friend, Dr. George Marshall, has pointed out the high correlation of 87% for 13 years between the death rate in the State of Hyderabad and the membership in the International (American) Machinists Union. If there are not many instances of this sort, it is because we do not, as a rule, look for them. We generally begin with a hunch or a suspicion of a causal relation between certain facts and seek for correlation to confirm it, but to regard such confirmation as proof is to commit the fallacy of arguing from the affirmation of the consequent. A number of diverse hypotheses, notably theologic ones, find their teachings confirmed by everything that happens, but this will not verify any one of them. For verification involves not only confirmation but the exclusion or disproof of alternative hypotheses.

Suppose it were established that between 58 B.C. and 107 A. D. every invasion of or rebellion in the Roman Empire was preceded by a "disturbance" in the trade routes between China and Rome. Clearly that would not be sufficient to prove a causal relation. For if previous or subsequent invasions or rebellions had no such antecedents, or if "disturbances" of these trade routes were not at other times followed by wars of this kind, the assertion that the one event was the cause of the other would be definitely disproved. Nor would the existence of such correlation exclude the possibility that even in the given cases such factors as love of independence, irritations at Roman oppression, the attraction of richer lands, or the ambition of kings or powerful leaders, were the direct or immediate causes. To maintain the thesis in question we should have to prove that such a rebellion as that of Judea in 68 B.C. was

not caused by religious differences or anything other than a disturbance in the trade routes between China and Rome.

Suppose that our meteorologic records showed that the average rainfall in our states was for a number of years higher under Republican than under Democratic governors, should we hold that a causal relation was thereby established? The objection might at once be raised that no one supposes that a natural phenomenon such as rain could be influenced by any purely political event. But if we ignore the fact that many *have* attributed the absence of rain to the moral or religious sins of governors or their people, and have sought to bring about a greater rainfall by prayer, the foregoing objection only confirms the necessity for distinguishing between correlation and causation. For it admits that the causal relation holds only between the members of certain classes of phenomena. Now, it is most important to be on guard against the fallacy of selection, of generalizing about any group which we have selected as a class. Thus, if a number of Chinese merchants fail to pay their bills promptly, I may readily be led to regard their failure as connected with their being Chinese, whereas it may be due to quite different conditions, such as the fact that they are all, like others not known to me, connected with a certain bank, that they are all among those who sold goods to a certain bankrupt firm or to a depressed economic class, or some other fact not known to me.

Historical phenomena do not come to us already properly classified. It is we who classify them in diverse ways according to the purposes of our inquiry. The category of "trade disturbance" may thus include diverse phenomena, some of which may and some of which may not be relevant to the invasions of the Roman Empire or to rebellions within it.²

² Even the terms *invasion*, *rebellion*, and *war* denote things so heterogeneous that discrimination leading to the recognition of different kinds or sub-classes is necessary before we can expect to find a common cause. Villa's invasion of

It is true that two phenomena between which there is no direct causal relation may, if they vary concomitantly, be the effects of a common cause. Thus, suppose we find that states with a high degree of literacy excel in crime. It will not necessarily be true that either crime is the cause of literacy or *vice versa*, but both may be consequences of a relatively larger proportion of urban population. "The Island of St. Kilda is not rich enough to support a single pickpocket." But that only pushes back the problem how to determine that any circumstance such as city life is the cause of such phenomena as greater literacy and greater criminality.

Thus, despite some amateurish philosophizing on the part of certain physicists or biologists when they take a vacation from the field of their special competence, the fact is that natural science is never satisfied with empirical statistical correlation but always seeks to formulate universal laws that assert, not that A has followed B a number of times, but that there is an intimate connection between the two such that whenever A occurs B must follow, i. e., the possibility of B not following A is ruled out. In putting its laws in the form of equations science always seeks to eliminate as far as possible all arbitrary constants.

When the inadequacy of mere correlation between two terms is recognized we try to establish the causal relation by interpolating a middle term. The ancients found a correlation between exposure to damp air, especially at night, and malaria. It was an essential task of biology and medical science to ask why these two should be thus connected. An intermediate term was found in the bite of certain mosquitoes. But why should the bite of the mosquito produce the given result? Again an intermediate term is found in the

the United States was quite a different affair from Burgoyne's, and an American Indian rebellion or war a quite different sort of event from the World War of 1914-1918. Similarly raids of Kurdish tribes were different kinds of affairs from the invasion of Rome by Hannibal or of Illyria by Rome. In the present state of our knowledge it is futile to ask the cause of disease. We must in our etiology first deal with different kinds of diseases, and much more is this the case with wars.

virus that is injected into the organism by the bite. But why should that virus destroy the red blood corpuscles? It is obvious that no matter how many middle terms are thus interpolated we still have a discrete series, and the question why two terms should be causally connected remains. This is, of course, no objection to a process which extends our knowledge even though it never can be absolutely completed. The prolongation of life may be desirable though the hour of death is only postponed thereby. Natural science, however, sets before itself a definite ideal of transforming the discrete series into a continuous one by finding a thread of identity between antecedent and consequent and thus justifying the judgment of necessary connection. We approximate to that ideal in the laws of conservation of mass and energy and, indeed, in all the formulae of mathematical physics in which certain relations remain invariant. Assuming some identity throughout all the physical processes, the connection between any two states can become a necessary one. We explain why water and sunshine are necessary for plants if we show the identity of the water before and after it becomes incorporated in the plant tissue, or the identity of the energy in the sun's rays and that by which the chlorophyl transforms inorganic into organic compounds.

In the same way the historian may establish, for example, the causal connection between the centralization of power in Soviet Russia and the centralization of power in Czarist Russia by showing the large measure of identity between the state institutions and even the governmental personnel of the two regimes and the difficulties under prevailing conditions of creating new and effective democratic institutions and training a new class of technicians and administrators in a short span of time. Our designation of a series of events as the Russian Revolution of 1917 does not effect a separation of those events from the past out of which they emerged. If it did we should be at loss, as Hume was, to find any necessary connection between the events of 1917 and those of

the preceding century. But once we recognize that any designation of a particular segment of history as a revolution, or an era, or an event is to a certain extent arbitrary and necessarily relative to those factors which show sharp changes, we can more easily recognize that other related factors have not changed, and that threads of identity establish necessary connections between the event we are seeking to explain and aspects of prior history.

History is not a series of atomic occurrences separated from each other by empty time-space intervals or vacuums. 'If it were, the problem of historical causation would be insoluble. The past literally continues into the present. Past conditions, such as old ideas and habits, buildings, fields, and laws, continue to operate. Inertia is the first law of history, as it is of physics. Every event is an integral part of a larger segment of history, and the task of tracing causal connections is the task of discovering those elements that persist through, and despite, the arbitrary cuts by which we mark off the event we are at the moment seeking to explain. Just as we cannot explain the velocity of a projectile except in terms of a physical constant, momentum (product of mass and velocity), which is identical in the propellant and the projectile—different as these are in other respects—so we cannot explain any social movement except in terms of some constant which is identical in the movement and in the social conditions out of which it emerged. These connections or identities the historian must find. He does not create them. All he creates is the task of finding them, and this task he creates by dividing the living stream of history into segments the reconnecting of which becomes his problem. This segmentation is humanly inevitable, i. e., essential to sane observation, although different historians will divide history in different ways.

When we speak of the American Revolution we assume thereby a series of causal connections between the affair at Lexington and Concord, the Declaration of Independence, and the surrender of

Cornwallis. And no doubt the connections are there, and perfectly objective; if they were not we could not speak significantly of the American Revolution. Equally objective are the differences between these events and other earlier and later events. But these various events were equally connected with earlier and later events, which must then be termed the causes and consequences of the American Revolution. These connections show specific identities, such as the identity of most of the basic ideas expressed in the Declaration of Independence and those expressed a century earlier by John Locke, or the identity of the commander-in-chief during the Revolution and the commander-in-chief after the Revolution. The identities are as objective as the differences and not belied by these differences. In that phase of their being in which things are identical they cannot be different, though they must be different in other respects in order to be at all distinguishable and thus form a plurality of things. The task of identifying the connections between an event and its causes and consequences is not essentially different from the task of identifying the event in the first place. Thus the task of tracing causal connections is not a task which the historian can avoid. Without recognition of those connections which make it significant to call particular segments of history revolutions, eras, occurrences, or events, no sane report of past happenings is possible. The problem of causation is thus merely an aspect of the wider problem of individuation. Causation becomes an insoluble mystery only if we assume, with Hume, that the separation of events is an absolute datum. Once we recognize that the separation or definition of events is relative we see that two events which are separate for some purposes may be parts of a single event for other purposes to which the separation is irrelevant.

The prejudice against admitting the element of logical necessity in our world has been largely supported by the reaction against those metaphysical theories which try to put customary or cher-

ished, but questionable, opinions beyond attack by enthroning them as necessary truths. But it is really impossible to get along in our daily life or in scientific investigation without the idea of necessity. Every day we recognize that certain acts are logically necessary, i. e., that we have no possible alternative. In mathematics we prove that the Pythagorean theorem necessarily follows from Euclidean axioms by showing that it is impossible for the latter to be true and the former to be false. Similarly we prove that it is impossible for physical things to have certain properties without having others that are logically or mathematically connected with them. Thus we prove that if the earth, sun, and moon are in a given position and their motions conform to the law of gravitation, an eclipse must necessarily follow at a certain time.

It will be seen that the necessity of physical happenings is thus conditional, i. e., no event is necessary absolutely or by itself, but only in so far as it is connected with other events and is thus part of a system. To this human events are clearly no exception.

The doctrine of determinism as used in science does not deny relative independence. That water freezes at 32 degrees Fahrenheit does not depend upon any philosophic or theologic doctrines or arguments about mechanism and free will. All causation of the scientific sort involves some selection and some degree of independence. The temperature and pressure of the water, for example, are independent of the particular origin of the water. If that were not the case, the laws of gases would never have been possible of discovery. Similarly, it must be possible to select temperature and pressure as relevant aspects of the behavior of gases, form hypotheses about their relationship, and work out experiments to verify those hypotheses without at the same time having to worry about all sorts of other things connected with the temperature and pressure. Likewise, a genuine pluralism¹ demands a good deal of contingency—that is, many systems of events

which are only partly or not at all causally connected with each other—thus leaving the way open for the meeting of many chains of causation whose meeting cannot be deduced from the nature of any one of them. And the actual, original distribution of the particles of the world is contingent or can be derived only from a contingent distribution; that is, no reason can be assigned for the distribution being as it is or was, rather than some other way. The individual cannot be deduced; genuine plurality therefore means limits to rational deduction and chance in so far as the latter implies indeducibility.

When two relatively independent streams of causality meet and such meeting is not deducible from either alone or from the two together unless we also know that they will meet (as, it was indicated above, would be the case if we had a really pluralistic world—and we have no reason to suppose that we do not) we have what we call an accident.⁸ There are unforeseeable events such as the breaking out of the Second World War in 1939. This was not absolutely unforeseeable. There was much evidence to support the belief that such a war would break out sooner or later, and, in the summer of 1939, much evidence to support the expectation that its outbreak would come very soon. But there was also evidence on the other side and even a day before its outbreak there seemed nothing inevitable about it. At least there was no evidence for its inevitability that would stand up in a court where the character of scientific evidence was taken as the test of what all evidence should be like. Likewise, there are some events which, like abscesses, are part of the accumulation of years, an accumulation that grows under the surface and whose presence can be traced only after the event to which the accumulation leads has occurred and so has given us the clue wherewith we can go

⁸ Cf. Seignobos, *Histoire politique de l'Europe contemporaine* (7th ed., 1926), II, 1222-1223.

back and trace out the development which originally was not perceptible to us.

We may assume that there are analogical similarities of development between the growth of the Roman and British Empires or between other historical processes and institutions. But this does not mean that these analogies can or will necessarily give us laws whereby we can know what the next stage of the British Empire will be, by merely going to a book and looking up the stage of the Roman Empire comparable to the present stage of the British, and then seeing what followed in the former case. For analogy and similarity between two things does not preclude difference and dissimilarity, and in so far as the latter exist we have unpredictable accidents in the strict sense of the term even if we admit the assumption that everything has a cause.

We often apply the term "accidental" to the unexpected. Thus the discovery of America is sometimes thought of as an accidental result of the idea occurring to Columbus, but further analysis seems to indicate that the exploratory temper which resulted from the expansion of navigation at the end of the fifteenth century must have led to the discovery of America sooner or later. Indeed, the voyage of Amerigo Vespucci does not seem to have been influenced by Columbus, and Vasco da Gama is another indication of that general exploratory movement. If then we assume that a number of explorers or navigators were looking for new lands or new roads to India, Columbus's feat ceases to be so accidental. Thus numerous technological discoveries now being made by staffs organized for the purpose do not seem to be accidental, but rather the natural consequences of a plan or system of work in which discoveries of a certain kind are expected.

Nevertheless, while the historian can never shirk the task of trying to understand and explain the unusual or unexpected, he can never hope to expunge from the writing of history the notion of accident as the coincidence of independent streams of events.

For we cannot possibly explain, as has been pointed out, all the antecedents of any coincidence. In history, as in biology, we need the concept of the "sport," that is, the extreme variation, the cause of whose varying we do not know and cannot find out, since all we can find are repeatable patterns and such repeatable patterns cannot explain extreme variation. The difference, however, is that in biology we can more or less point out the normal from which the sport is a variant, whereas in history it is hard to say just what the normal is, and uniquenesses are much more common even than in the realm of biology where one frequently hears the remark that no two living things are ever exactly alike. In biology, however, differences may be neglected since we are interested in species and wider genera, not in individuals. For purposes of biologic explanation, the differences between your fingerprints and mine are not of great importance; in human affairs they may make a difference of life and death to an individual accused of a crime. The Roman empire differs from any other, not only in the geographical location and extent, but also in the degree of industrialization, the system of currency, etc.

We may now sum up our discussion thus far by saying that in its most rigorous form causality denotes the sum of the necessary and sufficient conditions for the occurrence of any event. A circumstance that is not necessary for a given event, i. e., if the event can take place without it, cannot be the cause; and similarly if a circumstance is not sufficient to bring about the given event, i. e., if the former can occur without the latter, it cannot be the cause. We must, however, recognize that popular discourse and thought do not always conform to this definite test of causality. This shows itself in the view that there can be a plurality of causes. Thus it is said that a headache may be due to noxious vapors, to eye strain, to indigestion, or to various other antecedents. Similarly it is said that wars can be caused by the ambition of rulers, or be forced on them by all sorts of circumstances. "It has,"

however, been readily shown that the appearance of a plurality of causes may be due merely to the failure to refine the classification of antecedents and consequents to the same extent. Different organic conditions produce different sorts of headaches; and what is common to all of the latter may correspond to what is common to eye strain, indigestion, etc. So likewise are there various kinds of wars, and the courses they take are not independent of the specific conditions which lead to them.

The rigorous test of causality is professed by the conscientious historical investigator and often applied by the critic of proposed causes for known events. When sober students of history deny that the Battle of Tours was the cause of the check to Arab power in the West, or that Waterloo was the decisive cause of the elimination of Napoleon, they show that these battles were unnecessary for the occurrence of the given results, that the latter would in all probability have occurred even if these battles had not taken place. Similarly we reject oppression of the masses as a sufficient cause for a revolution by showing that oppressed people sometimes become weak and apathetic and lack the power to organize successful revolutions. But the historian as a narrator of what happens is under pressure to tell a coherent story, and this does not permit him to stop to indicate ever so often the inadequacy or inconclusiveness of his evidence. Hence most historians adopt much looser conceptions of causality. In effect, they select from the vast conglomerate of determinants which form the necessary and sufficient conditions of a given event some element or elements to which they attach special importance and this they call "the cause," classifying all other elements as "conditions."

Historians are not alone in this habit. In ordinary human affairs and in courts of law we are generally satisfied with a pragmatic explanation. We ask for the cause of an event and are given as an answer that aspect of antecedent events to which we think legal or other human controls might best be directed. When

we ask for the cause of an accident we are satisfied if we are told that one of the parties drove his car negligently, for then we have a phase of human conduct to which we can profitably direct social pressure of one sort or another. Yet to the amoralist recorder of brute facts the negligence of one party is no more the cause of the accident than the contours of the road, the mechanism of the driven car, the presence of the injured party, or any of the other necessary but not sufficient conditions of the event in question.

Now, though it is perhaps inevitable that historians, like other human beings, should see causal relationships through a screen of human values that gives importance to some antecedents and relegates others to obscurity, it is not inevitable that historians should fail to recognize that this is what they are doing. Indeed if the role which value judgments play in determining our opinions as to historical causation were more clearly understood, we should have less difficulty in understanding how historians who agree on measurable facts so often disagree in tracing the causal relations between them; how, for instance, the decline of Rome can be attributed by equally conscientious and intelligent historians working from a common fund of historical data to such diverse factors as the exhaustion of soil, the corruption of rulers, the rise of Christianity, spots on the sun, and population movements in central Asia. At the same time we might be more cautiously skeptical of the moral lessons drawn from history by historians who fail to disclose the moral presuppositions with which they embarked on the task of historical explanation. For few historians have recognized, as did Darwin, that facts which do not fit into our theories make less of an impression on us than those that do, or have made a sustained effort, as Darwin did, to give special note to those facts that fail to fit into preconceived patterns. Indeed the field of history is so much more complex than that of biology that it is doubtful whether any efforts to make allowances for our own value systems in the writing of history can ever be completely

successful. But the historian can make a contribution to intelligent understanding and to the scientific objectivity that transcends national boundaries, racial loyalties, and class interests, by setting forth, as a good map-maker does, his own magnetic deviations and perspectives.

2. The Application of Causation to History

We may now consider some of the distinctive traits of causal laws in human history.

(1) *Laws and Facts.* In doing so we must be especially on guard against the complementary fallacies of panlogism and nominalism. Though history must implicitly or explicitly involve laws if we are to pass from present data to past facts, the search for the latter as they actually occurred distinguishes truthful history from works of fiction, and it is a demonstrable error to suppose that anything in regard to specific existence can be deduced from purely logical considerations. In this respect history is like geology or any branch of applied rather than theoretic physics.

On the other hand, to assign a cause for that which is unique in a given event is to indulge in unverifiable guesswork—since verification involves deduction from hypotheses and repetition of experimental conditions. Biology does not pretend to be able to explain "sports" or extreme variations, since biologic science generally operates with repeatable patterns and therefore with that which happens as a rule. Darwinian biology, indeed, says little about the causes of variations generally, though this does not mean that the extreme variations which we call "sports" in biology or genius in men are outside of nature. Similarly the historian or social scientist cannot explain what it was that enabled men of genius to do the unprecedented things which they did, as in the case of Homer, Amos, Buddha, Irenaeus, or Shakespeare. Climate, race, epoch, or the class struggle will not explain the difference between Bacon and Coke, Jesus and Judas, Thomas Jefferson and John Marshall.

(2) *The Illusion of Simplicity.* While there is nothing to indicate that the events of human history may not be connected according to some laws or invariant order, we must not jump to the uncritical assumption that these laws must have as simple a form as those of mechanics, astronomy, or other branches of physics. Let us note, to begin with, that the phenomena of civilization are infinitely more complex, since they include biologic and mental, as well as inorganic, factors. And when situations depend upon too large a number of factors, or when these factors do not form a linear series but modify each other in complex ways, we may not ever be able to discover the laws or to formulate manageable equations for dealing with the phenomena. We make progress in natural science when we can vary one factor and keep every other constant. Such experimental conditions are not generally available in the human, or even always in the purely biologic, field. The fact is that the simple repeatable patterns of physics or physical laws have not been discovered in human affairs. Indeed they have not been discovered in the non-human organic realm, and there seems to be some reason for expecting that no such discovery will ever be made. Any search for laws in history must take into account three levels of social life: the physical, the biologic, and the mental. It is important not only to admit that the physical content of human history is subject to physical causality, but to note the special form that physical laws take. In their most developed stage the latter appear as differential equations which assume continuity in the most microscopic intervals. The place and the date at which phenomena occur and their previous history do not enter into such equations. In regard to biology we must note that not only are its phenomena subject to physical-chemical conditions and processes but that every species has its characteristic life cycle, i. e., grows, or goes through a fixed order of stages, from its seed or egg to maturity, reproduction, and death. Such life cycles are not expressible in differential equations.

Social studies that aim to be scientific generally employ the language of physics and speak of social forces bringing about certain results, and historians speak of the opening of new lands or other economic opportunities causing people to rush into some particular field. The difficulties, however, of consistently maintaining that point of view arise from two sources. In the first place men's knowledge of such forces may make a difference in their aims and reactions, and in the second place the time dimension operates in human and some biologic phenomena in a way that it does not in physics.

Now the difference in complexity, while sometimes referred to as only a difference of degree, does create difficulties that may be insuperable. We can deal with problems that involve a small number of variables related in certain mathematically manageable forms. When the number of independent elements increases and the pattern becomes more complicated we can no longer deal with it in the manner in which physical science has been built up. We have been able to discover simple laws in physics because we have been able to isolate certain elements and vary them while keeping everything else constant. This is not always feasible in the organic and social field. Even in physics certain situations become too complicated to permit an exact and definitive solution. We talk glibly about the law of gravitation, yet we cannot solve the problem of gravitation if there are three bodies instead of two. Indeed, the problem of gravitation of two bodies can be solved accurately only if both are perfect spheres so that they can be regarded as two points. We solve the problem of gravitation in the solar system only approximately, because the mass of the sun is so great that we can consider the relation of each planet to the sun independently and then introduce the perturbations due to the influence of the other planets. It is only because these perturbations are minute that the theory of gravitation can be said to explain the actual motions. Theoretically, however, these perturbations in turn have

effects which constitute a mathematically unmanageable infinite series. We do not care about these unsolved difficulties because the errors which they involve in our calculations are generally less than those of our most precise instruments. This, however, is not the case in the social field where the most minute differences in human thoughts and feelings are the elements of greatest importance.

(3) *Time in History and Science.* Time enters into human history, as in the organic realm generally, in a way that it does not in the inorganic realm. We may pass over the significant question as to whether new elements do not develop in the course of time, as distinctive individuals or unprecedented social institutions enter the social arena. Even in the purely inorganic realm there are genuine novelties when new combinations are formed, e. g., when fluorine is combined with oxygen. (It is an error to assume that *all* the properties of a compound can be deduced solely from the nature of its elements.) But past events have a more persistent and uneliminable influence in the organic and human than in the inorganic realms. If we have the mechanical or electrical coordinates of a body or physical system, we do not need to inquire into its past history to determine its future course. Hydrogen and oxygen, for instance, combine in a certain proportion, and that proportion in no way depends on what previously happened to the hydrogen or oxygen. Organic phenomena, however, are not so independent of time. A tree bears the evidence of an injury to it centuries ago when it was a young shoot. This introduction of the time dimension as an element involves other complications which make impossible the differential equations of physics where the date and location never enter. To put it in other terms, physical systems can generally be restored to previous conditions and the effects of intervening history thus be eliminated. This cannot be done in the organic and human realm where the effect of age and experience cannot be wiped out. When sociologists,

economists, and other students of human affairs speak of social dynamics, social forces, or conditions of equilibrium, they obviously have physics before them as the model science. Now the laws of physics are formulated as equations in which there enter indefinitely repeatable time and space intervals but no dates or locations. The latter are essential ingredients in history.

In aiming at continuity history cannot adopt the mathematical ideal of trying to deduce events from general laws, to the extent that we can deduce eclipses from the laws of motion and astronomical data. That which can be so deduced is repeatable and lacks the distinctive *Einmaligkeit* of history. This is not to deny that certain repeatable patterns of human conduct can be found in human history, but only to deny that they can be of the simple pattern of inorganic physics.

(4) *Laws of History.* The laws peculiar to history proposed by Plato, Aristotle, Vico, Hegel, Comte, Marx, Spencer, Spengler and others take the form of a series of stages like the stages in the growth of an organism, which, it is claimed, necessarily succeed each other in an invariant order. Such laws cannot be reduced to differential equations, which assume a continuity holding in the most minute intervals. History takes a macroscopic or mesoscopic rather than a microscopic view of events. Historic events may in part be explained by laws expressing what goes on in the microscopic realm. But human intelligence has met with such difficulty in thus explaining the most elementary phases of our history that a complete explanation would be beyond our hopes, even if it were not logically impossible to a finite mind dependent on temporal experience.

(5) *Purpose and Causation.* One of the complexities which distinguish causation in human history is the fact that our ability to foresee part of the future modifies our conduct in the present. More generally, men's views of what is happening are themselves causes of what happens. You cannot rule human purposes and

knowledge out of human life and history. The belief that we are victorious or that only natural or material means are necessary to win, that God is on the side of the heaviest guns, influences our conduct. There is a difference in how we act if we think we shall triumph because we think we have the bigger guns, or if we think our cause is just. Some of those who believe in free will have used the efficacy of deliberate human choice as an argument against any application of ordinary causality to human affairs. But this is by no means a necessary consequence of recognizing that intelligent volition is a factor in our history. We may for our present limited purpose ignore the strictly metaphysical or supernatural aspect of the question, since ordinary history can restrict itself to the ascertainable manifestations of human will in the world of time and space. The issue thus reduces itself to the question: Is human volition a verifiable causal element in history, and are there ascertainable causes that history can recognize for the ways in which human beings exercise the volition?

That men often deliberate and make up their minds to certain things rather than others is an undeniable fact in history, and we generally regard it as a cause or part of the cause for the building or destroying of churches, houses, bridges, for writing or publishing books, or engaging in any of the arts. There seems little doubt that people who have certain ideas on religion or politics will in many respects act differently from those who hold opposing convictions. Sometimes we actually see persons changing their courses of conduct when they become converted to a new creed. This, however, does not mean that pure or disembodied thought is known to be a cause for any event in nature, for we do not know of any human volition apart from a physical organism. We cannot by mere thinking or willing add a cubit unto our stature or even make an automobile go. We can express ourselves and modify the physical world only by some physical act of our or-

ganism, such as is involved in making sounds, gestures, marks on paper, or the like.

Psychology, as the scientific study of mental life, has two forms of causality, or ways of connecting phenomena, which Aristotle has called the physical and the dialectic. The physical explanation is in terms of physiologic processes, the dialectic is in terms of the purposes or ends which these processes tend to bring about.

The long controversy between the adherents of causality and those of teleology aptly illustrates how a difference of approach and emphasis can develop into the false assertion of exclusive alternatives. For certainly the purpose and cause of a given event are far from being mutually exclusive. But though there is no logical reason, there is a strong psychological motive for the quarrel. And that is the emotional difference in regard to what constitutes the dignity of human consciousness. The traditional adherents of causality have in the main emphasized the purely physical or physiological causes of our acts, and this seems to opponents a degradation of the human personality to the state of a machine or at best of a brute animal existence. Yet it is obvious that a consistent denial of the reality of the causal relation in human affairs would leave us no means of realizing any of our purposes.

The controversy sometimes takes the form of the question: "Is consciousness itself a cause? Is it not true that the pure act of will is itself sufficient to produce physical changes? Can I not by mere willing move parts of my body and thus set in motion vast physical forces?" It is difficult to answer this in the negative, for that would run counter to our habitual way of talking about the matter. But it is not well to give an affirmative answer without examining the meaning of the question and making some necessary distinctions.

Let us begin by noting that I cannot move my arm, no matter how strongly I will to do so, if it is paralyzed or there is some other physical obstruction. Whenever I do bring about a physical

result by a preceding act of will, the physiologists can find a physical cause, so that the naturalist is under no compulsion to assume that something over the physical has set the physical into motion. If I move my arms or legs, the physiologist is ready to find an adequate cause for the motion in the mechanism of bones, tendons, and muscles, and to explain how the mechanical energy of the body, derived from the oxidation of our food, provides the motive power. This fact need not at all deny the reality of the act of will, nor even that in normal physiological conditions it may be viewed mechanically as a cause in the sense of a sufficient condition, but one may well affirm that we know no acts of will apart from organic bodies. The action of the will is the subjective view of the life or activity of an organism, and it is perfectly correct to say that I as the concrete human being am the cause of the specific act, but to abstract the conscious will from the body removes it from the continuum of physical processes of which the physiologic processes form a part. Since history moves in the realm of time and space, we may say that human beings sometimes *do things* because they will to do so, but that they are likewise, as men and women, organic bodies, not pure wills.

Nor need the historian concern himself much with the metaphysical issue of free will in its traditional form. He may assume as an empirical and verifiable fact that certain measures were adopted because certain people wanted them and that they would not have been adopted otherwise. We may parenthetically add that the freedom to do what we want is the only freedom that people really care about. In practical life we do not care for the freedom of indetermination, to be free to want other things than those that we really do want. Indeed, we are horrified if someone suggests that we are capable of desiring those things that we loathe and regard as abominable. Furthermore, to the extent that people may be said to possess character we can predict what they will want to do. The word of an honest man is as good as his bond, because

he will not wish to break it. We take for granted that in the long run mothers will love their children and wish to do a great deal for them.

Knowledge of human affairs is thus based on the assumption not only that what people do depends on their desires but that human desire itself can be studied and predicted because it conforms to certain determinate patterns. It may be extremely difficult to tell what a given individual or a nation will do in a specific situation. But unless we abandon all effort to study and understand human nature we must suppose that some order in the course of even voluntary human action is discoverable.

(6) *Consciousness and Purpose.* The issue, however, that needs more careful consideration is the precise extent and role of conscious purpose in the conduct of group affairs. Consideration of this problem requires us to make a clearer distinction than is usually drawn between the scope of human purpose and the scope of human consciousness.

All organic action may be viewed as purposive, but that does not necessarily mean that it is conscious. The work of the heart and kidneys may be properly described as respectively directed to circulate the blood and to eliminate waste products. But we have no evidence that either organ has any more awareness of what it is achieving than the chlorophyll cell that it is making plant growth possible. That the human acts which are the objects of history are not only purposive but often consciously so, no one can well deny. Often, indeed, they are preceded by a definite resolution arrived at after some deliberation and even debate. It is, however, a common error to ignore not only the unconscious, but the host of transitional states between the fully conscious and the completely unconscious.

In our physical vision there are focal points of illumination tapering off gradually to the invisible, so that it is not always possible to tell at what precise point an object enters or disappears

from the observable field. So likewise does daily consciousness taper off without there being a last conscious moment preceding a first moment of sleep. Chewing, swallowing, and other bodily functions develop from the unconscious to the conscious state, while other movements such as those involved in speaking or writing become more and more mechanical so that they approximate the automatic. Indeed, they sometimes become completely so. Significant human life as we know it would break down if all these quasi-mechanical movements or the sounds we utter or the marks we make on paper were to enter the focus of consciousness and thus crowd out the meaning or vision of the objects to which they point. Civilization depends on our ability to learn to do certain things with a minimum of conscious effort. Only thus is it possible to concentrate on doing other things with thoughtful consideration.

Even in fields of action which are commonly thought of as purposive we often overestimate the extent to which our activities are governed by ulterior ends. It is an illusion to suppose that we do things for intended ends, when these ends are in fact after-thoughts.

Why do musicians practice interminably long hours at the piano, why do scientists spend their days and often nights in their laboratories, or scholars ruin their eyes and general health by poring over manuscripts and hardly decipherable inscriptions? The thought of glory or fame is surely not their constant companion. The constant drive is the interest in the subject, which is as little in need of ulterior justification as an interest in crossword puzzles.

For the most part, life is a game that we play, not because some one pays us for it, nor to win the applause of the bleachers, nor to see our name in the newspapers, but because we enjoy vital activities like baseball, science, and music for their own sake. Even the most completely professionalized of our national sports is maintained primarily not by a desire to excel opponents but by a deep

and widespread enjoyment of the game itself. And even in the most solemn social institutions such as church and state there is an element of play and pageantry that does not depend for its appeal on any purpose beyond that of immediate enjoyment.

Not only is our concern with the ulterior consequences of what we are doing often quite secondary, but our prevision of those consequences is more limited than we like to think. Policies in national and international affairs are often made after the fashion of the man who gets into a business he does not particularly like, with luck makes money, and then, in retrospect, thinks that he planned it that way. While communities may adjust themselves to the great physical and biologic changes that condition history, while national governments may encourage a higher birth rate, neither the rapid increase of population in states like Russia, nor its practical decrease in countries like France, can be said to be the product of a collective will. We must not ignore the facts of impulsive conduct, that we often act without thinking or before we have time to do so. None of our state governments plan the different birth rates that prevail in their respective communities.

An obvious, but because of its frequent disregard necessary, caution, must here be noted, namely, that it is only by analogy or by stretching the meaning of our terms that we can apply the category of conscious purpose to the action of groups such as cities or states, tribes or nations.⁴ Though there are obvious resemblances between the two, they are not identical. There is no collective heart, brain, or nervous system standing in precisely the same physiological relation to the members of the body politic as the individual brain, heart, and nervous system stand to hands and feet or other organs. But the analogy is worth pursuing to determine how far it holds and where it breaks down. A good illustration of this is to be found in the laws of any modern state. We

⁴ See M. R. Cohen, *Reason and Nature*, Bk. III, chap. 3, "Communal Ghosts in Political Theory."

naturally think of laws on the statute books as the will of the nation, the state, the people, or perhaps the ruling class. In fact, however, laws are passed by legislators who often have little idea of what it is that they are enacting, and the great mass of the people do not know of the very existence of most of these laws. Even those who introduced or drafted a given law may have been completely mistaken as to the way it would be interpreted by courts, and the latter do not always know how it will work in practice.

An individual starts to write a play, an essay, or a history, or to plan and execute a military campaign. He has a general idea of what he wishes to accomplish, but seldom is the product identical with that which was originally envisaged. Our plans actually change with the execution, for the means we employ determine the character of the total result, and the means at hand are not always those that we originally planned or wished to have but rather in many cases those that circumstances permitted us to have. If I cannot satisfactorily solve an unforeseen difficulty, I change my plan so as to avoid it. In general, the progress of our work modifies the original plan and desired goal, but we tend to read the changes into the original.

All this can be applied to the analysis of national or governmental policy. While there are cases where one individual's will dominates all the acts of his group, no human being is ever omnipotent, and the all-powerful individual usually has sense enough not to want to compel his followers to do that which they will refuse or fail to do. Generally, group action, like the adoption of the United States Constitution, is not what anyone completely desires, but the resultant of a number of diverse wills in a stream of events the outcome of which no one completely foresees.

Similarly there is a difference between what people can be said to plan and what actually results from their action. In a general way actual social planning is done on a relatively microscopic or

short-time scale, while the historian looks at events from a long-time or macroscopic point of view. He is thus inclined to read larger purposes into the minds of men who could not have envisaged them. Thus no one planned the British Empire or what is known as the British Constitution, just as no one planned our so-called capitalistic system. Things develop in ways which are not quite anticipated. Groups like individuals are apt to arrogate to themselves the entire credit for enterprises which happen by accident to be successful, even when they are unforeseen by-products of what was actually planned. The nationalistic or Marxist historian may see in the war between England and Holland an expression of "national will." But if we sit with Cromwell and his Council we see them moved by more particular and accidental considerations such as what to do with the navy.

A just appraisal of the importance and the limitations of conscious purpose in human affairs may help us to recognize that while the significant events of history are generally marked by consciously purposeful activity, such activity can work only on and with non-conscious and even non-human facts that help to fix the direction actual events will take.

(7) *Sources of Human Failure.* History in recent times has been generally viewed as a struggle in which the human race or a part of it has achieved the blessings of civilization. But if this struggle has been a real one it would be strange if it did not also include some frustration and defeat. Without trying to draw a balance between the successes and failures it is well to consider the sources which hinder the realization of our purposes or the attainment of our ideals.

The first source that suggests itself is the pitilessness of outer nature that sends death and destruction as well as rain and sunshine on the just and the unjust. Poverty due to inadequate food still prevails in many parts of the globe. Nor can man fully control the biologic forces of his own organism. Despite all the

progress of medicine, we have not yet eliminated disease, insanity and death. In this chapter, however, we shall restrict ourselves to the internal sources of human failure.

(a) The first obstacle to the achievement of our desires is human inertia. Just as physical bodies will persist in their state of rest or uniform motion, so men continue to do what they are accustomed to do and find it difficult to change. The mere existence of a habit, custom, or institution offers resistance to its removal and demands an expenditure of energy out of all proportion to what would be necessary if one were starting with a clean slate. Men cannot without considerable difficulty return to a simpler form of living if they have long been accustomed to a more elaborate scale, and the men and women of our generation cannot accept the standards of living under which their ancestors thrived. Whole families of Spain or old Poland, for example, lived in most abject conditions, but would not enter into trade or do anything ungenteel because of the tradition as to what was proper for the descendant of a noble family. Unwillingness to admit inertia as a fact makes us seek all sorts of excuses as to why established institutions should remain as they are, even though we should undoubtedly condemn them if they did not exist and were offered for our acceptance. Thus historians seek to explain events and institutions by all sorts of recondite and ingenious reasons when they could simplify their task by merely recognizing the fact of inertia in the mere continuance of old institutions or habits. This is strikingly illustrated in the ingenious reasons Blackstone invented to explain many of the old English legal rules that originated under conditions which no longer prevailed in his day, rules which were badly in need of reformation and were abolished or modified in the next generation.

(b) Another obvious obstacle to the achievement of our purposes is ignorance. No matter how extensive the progress of modern science, human knowledge is a mere speck in the infinite

sea of ignorance. Men have failed to take advantage of rich natural resources simply because they did not know how. Even the undertaking of an investigation depends upon some previous knowledge. Thus we do not know how to prevent the havoc wrought by death, earthquakes, and storms. We do not even know how to prevent failure of crops, nor how to make a surplus of food available to those who need it. Above all we cannot always control or overcome the stupid obstinacy, wickedness, or foolishness of other people.

(c) More subtle are the difficulties which arise from the absence of clarity as to our own intentions. Modern subjectivism has let loose the foolish notion that the consciousness or knowledge of what goes on within our own self is the most easy and certain, that all we need to do is to look and we shall see what it is that the heart desires. This makes it extremely difficult to realize the extent to which men and women are in error as to what it is they wish to attain or bring about. Yet the fearful extent of human disappointment and regret unmistakably testifies to the magnitude of our error as to what it is that we desire. And one of the most poignant sources of inner conflict is our inability to direct our desires as we would wish them to be directed. Peter was told on undeniable authority that he would forswear Jesus three times before the cock crew, and he was bent on avoiding this, yet he could not help doing it. Many of us are more often than we care to admit even to ourselves in similar positions and do no better.

(d) Connected with human ignorance is human stupidity, i. e., the inability to learn. The docility of the human intellect has often been unfortunately ignored. But the vogue of the belief in the all-sufficiency of education in recent times has undeniably overestimated this docility. The human disinclination and inability to learn even from the most bitter experience is one of the outstanding facts of history.

(e) Besides the obstacles due to natural ignorance and stupidity, human societies are the objects of deliberate deception through pious frauds and sanctified or rhetorical phrases, which prevent people from clearly seeing the truth or the error of traditional or novel doctrines. Human error is not always involuntary. There is also in our nature the will to illusion, that is, the will to entertain certain beliefs regardless of their truth.

Many and diverse are the modifications and stages of this will to illusion. The most innocent is the impulse to let our imagination have free play. This gives rise to various forms of fiction, fairy tales, and mythologies, as well as imaginative literature and popular science.⁵ To this is added the love of fiction which serves certain social purposes. Just as our religious ceremonies satisfy the human need for pageantry, so we crave certain ceremonial expressions. We say things that are not literally true and indeed are often recognized as not being strictly true, but such recognition is suppressed in the interests of good social form. Finally there are those willful illusions sometimes called vital lies, to which we cling because we fear to live without them.

(f) The vogue of psychoanalysis and various psychiatric theories has served to recall to us how much of the roots of irrationalism and even insanity are to be found in the ordinary, normal human being. But it is well to be cautioned here against hasty conclusions.

It has become quite fashionable to scoff at the philosophy of the Enlightenment, which viewed man as primarily rational and attributed his irrational conduct to the interferences of vicious institutions organized by fraud or violence, just as an older Christian view held that man was created perfect and his corruption was due to the intrusion of the serpent or Satan. Yet the scoffers are found to involve themselves in a similar assumption. Thus Freud,

⁵ See my "Myths of Popular Science," *City College Quarterly*, December, 1925.

who explains all the irrational behavior of men and women as due to socially acquired inhibitions restraining the more basic unconscious in us, assumes that this unconscious always acts in an unemotional and rational manner, almost like a Benthamite calculator—it always knows what it wants and if it fails to achieve it, it is because of the interference of the conscious ego that is under dominion of social mores. Karl Marx laughs at the philosophers who put the world on its head, yet his conception of economic determinism and the class struggle leaves no room for the non-rational traits in human nature which make men abandon their true economic interests and sacrifice food and their very lives because of such sentiments as patriotism or religion. Pareto's and other theories, which seem on the surface to indicate that the masses are governed by sentiments, in the end assume that men proceed from certain positions or attitudes in a fixed and consistently logical manner. The truth is that we cannot envisage the conduct of human beings without attributing some amount of irrationality as well as rationality to them.

If, however, we must not overemphasize the irrational and even the nonrational elements in human nature, neither should we minimize them in trying to understand the mass phenomena which constitute history. Just as disease and insanity, as well as health, are found in the life of the individual, so irrational forms of behavior mark human history. Peoples sometimes seem to go literally mad. Panics leading at times to mass suicides, to abandonment of homes in the expectation of an immediate world catastrophe, or to lesser forms of general hysteria, sweep over mankind at various times and places and often leave permanent marks of their ravages.

3. Conclusion

We may conclude by noting some consequences of the conception of causation as equivalent to the sum of necessary and sufficient conditions. The application of this concept to the events

which constitute human history is both a necessary ideal and yet inherently difficult of attainment. The best we can achieve by rigorous scientific procedure is some progress in the approximation to this ideal. The number of circumstances or factors involved in the cause of any specific event may be far in excess of those that are humanly ascertainable. But we can say with a great deal of confidence that some things are altogether irrelevant and some conditions are more directly involved than others in bringing about certain events. Our most serious difficulties arise from the fact that the terms between which social or historical causation holds are not generally clearly defined as they are in the physical sciences. As we have already noted, any two terms must have a certain homogeneity if the causal relation is to hold between them. Wisdom here as elsewhere consists in analyzing our questions before we attempt to answer them. Thus when anyone asks whether it is religion or economics that is the cause of a given event, it is helpful to remember that such elements as religion and economics are not necessarily mutually exclusive, and that to answer the question, Which is more important? we must have some definite measure of importance. Above all, we must beware of the popular fallacy which assumes that all social elements or institutions form a linear series, so that between any two one can always say which is prior to the other, for obviously many institutions are coexistent and continue to modify each other. Thus ignorance and poverty may each be said to be the cause of the other, and that the state brings law into being is as true as that law shapes and brings the state into being. But the detailed analysis of the relations between the different factors in historical causation is not the object of this chapter. It is hoped that the reflections here offered may serve as an aid to such analysis.

Chapter 5

THE GEOGRAPHIC FACTOR IN HISTORY

The Biblical history of the chosen people and of the workings of the divine force which directs it begins with a comprehensive cosmology. And in Dante's *Divina Commedia* the reference to the stars and the love that moves them serves to indicate the background for the eternal drama of man's journey to his proper goal. More secular historians have generally limited themselves to an introductory description of the land or portions of the earth whereon man's temporal career has been lived. After all, we have no evidence that the physico-chemical conditions under which life is possible on earth are duplicated anywhere else. Certainly we have had no authenticated communication with any beings outside of our earth, and no historian has found the assumption of extraterrestrial life necessary or helpful. Nor does the student of human history need to go into the question of the origin of our earth. We need only recognize the evidence of geology that the earth is older than the human species, that for unimaginably long ages the earth existed without any living beings on it, and that many lordly species came and passed on this earth before the appearance of man. More specifically, however, geology gives us the geographic key to history by revealing the changes in the earth's surface which have determined the sources of man's food and habitation.

The influence of the evolutionary philosophy has served to introduce another cosmologic beginning to general history, though instead of magnifying man's importance by making him the center

of all creation, it shows him to be only one of the late spawn on a minor planet of a sun that is itself but a speck in an astronomic galaxy. Yet even these more recent accounts remain largely prefatory without seriously changing the traditional content of the histories that follow. The cosmic and geographic forces only form the fixed painted background for the play, and do not come into it as decisive actors, just as in many old-fashioned histories God, having created the world, has rested since and has left it to be ruled by kings, priests, military leaders, politicians or tired business men. Yet for more than two thousand years not only geographers, but physicians, psychologists and philosophers, as well as various students of social life, have been discussing the natural forces which determine men's earthly career—and even popular literature has often recognized that the earth forms not only the ground on which we rest or move, but the great mother who feeds, clothes and sustains us.

Since the days of Hippocrates and Herodotus there has been a recognition of man's dependence on geographic conditions for his health, for his food, and even for certain aspects of his temperament and political institutions. As Polybius says:¹

"... we mortals have an irresistible tendency to yield to climatic influences; and to this cause, and no other, may be traced the great distinctions which prevail amongst us in character, physical formation, and complexion, as well as in most of our habits, varying with nationality or wide local separation."

Not only Aristotle but the extremely anti-materialistic Plato recognized the importance of the physiography and topography of a country for its history as well as for planning a proper community life.²

¹ *Histories* (tr. by E. S. Shuckburgh), Vol. 1, Book IV, Sec. 21. Cf Bodin, *Commonwealth* (tr. by Knolles), p. 545; F. Thomas, *Environmental Basis of Society*, pp. 48-49.

² *Epinomis*, 987 a, d.

"For the first men who studied the heavenly bodies were led to do so by ancient custom on account of the beauty of their summer climate, which Egypt and Syria possess in abundant measure, seeing, as they almost always do, all the stars of heaven exposed to their view . . .

". . . we have in the geographical position of the Greeks one which is perhaps the most favourable for the development of excellence. The point in it which should be mentioned as deserving praise is that it may be said to lie midway between perpetual winters and a climate which is all summer. The inferiority of our climate in the matter of summer to that which we have described as belonging to those other regions has made the Greeks late in receiving the perception of the order of these gods."

Also in the Laws (V, 747,130) we read:

"Some localities have a more marked tendency than others to produce better or worse men, and we are not to legislate in the face of the facts. Some, I conceive, owe their propitious or ill-omened character to variations in winds and sunshine, others to their waters, and yet others to the products of the soil, which not only provide the body with better or worse sustenance, but equally affect the mind for good or bad."

In dealing with the problem of the precise influence of geographic factors on the course of human affairs it will help us to face more clearly the real difficulties involved if we clear the deck by disposing of the extreme forms of both spiritualism and materialism.

By extreme spiritualism I mean the view that nothing exists except spirit or mind. A boldly (or recklessly) tenacious adherence to this view led Schopenhauer as well as Plotinus and Hindu philosophers before him to regard the whole earthly scene as *maya*, a mist of illusion, and temporal history as devoid of real significance. There have, however, been philosophers who, like Croce, have attached great importance to history and yet have maintained that nothing other than thought exists and that there is no genuine

knowledge of external nature.⁸ Against the latter view it is sufficient for our present purpose to state that what Croce or anyone else has called history has always referred to events in time and space, and that the men and women who have figured in it have not been disembodied ghosts, but have behaved like other physical bodies in respect to gravitation, or like other organisms in regard to digestion, growth, vitality, disease, senescence, and death. In a world that includes births and deaths, problems of food, sex relations, industry, labor and wars, the study of physics and chemistry, geology, meteorology and the like is necessary for a better understanding of the changes which happen in it. In fact, the great idealists from Plato to Hegel have repeatedly and specifically recognized the influence of material geographic elements in the mental and moral development of man.

Now, we may begin by recognizing that man is not a disembodied spirit and, however strange he may feel in this world, his organic being depends upon all the forces of nature. More specifically, the food which ultimately becomes part of his body is derived from the earth, and the processes of growth in his body which transform him from a simple cell into a "baby new to earth and sky" and then enable him to grow into maturity—all these depend upon biological processes which intensive study shows to be conditioned by various physical laws. Various physical objects affect man's feelings, and the natural scene and the activities it governs not only form the individual mind but mould the character of society. We cannot have fishermen away from large bodies of water, nor can man make use of plants or animals in regions where they do not exist. We may go further and point out how, where the climate of a country changes, the population and the character of its life likewise change.

⁸ Croce, *History, Its Theory and Practice* (tr. by Ainslie), 134-135: "Do you wish to understand the history of a blade of grass? First and foremost, try to make yourself into a blade of grass."

But when all this is said, we still need to guard against hasty inferences. It is true that men cannot become mariners unless they have access to the sea, but it does not follow that nearness to the sea will make men mariners or fishermen. This is shown by the history of England and Ireland at different times. Moreover, not only do radically different cultures live in similar environments, for example, those of different American Indian tribes, but the same people, for example, Jews, Greeks, or modern Germans, may experience profound historical changes while the climate, topography, and other geographic factors remain perceptibly the same. This seems to be the case with the history of Greece in the fifth century B. C., or the history of the United States from 1620 to 1789 or from the latter date to the present. Also we find certain common traditions maintained among people living under diverse conditions, for instance, Mohammedans or Jews widely scattered. There was a time when Western Europe had no civilization, although the geographic factors seem to have been very much the same as they are today.

Few of the common geographic generalizations can survive critical scrutiny. Thus, against Ratzel's generalization that land is the bond of unity we can point to the British Empire. Against the notion that mountains separate people we can point to the various Swiss cantons, which have not been prevented by the Alps from uniting into a confederacy. But Holland and Belgium have not been able to unite, though the natural boundaries between them offer no great barrier.

Nevertheless, while geography is itself not a sufficient cause or explanation of the development of civilization, it is impossible to understand the life of any people apart from its geographic setting.

Man is a land animal that lives mainly on the surface of the earth on plains and in valleys. There are few human beings in the arctic or antarctic zones and relatively few in the lowlands or

valleys of the torrid zone. Man needs water and cannot live in deserts except at seasons when snow is available. Moreover, those accustomed to one kind of climate frequently do not thrive in another climate. The Eskimo do not do well when they go into the temperate zone, and the white man finds it difficult to take root in the torrid zone. Thibetans apparently cannot thrive in lower altitudes.⁴

In brief, man and his culture depend on the materials and resources of nature and on the conditions of organic life. But the dependence is not a simple one. There is no one-to-one correspondence between any single material environment and the civilization which grows within it. Some geographic factors are certainly necessary for civilization, but no one of these can be said to be a sufficient cause for the changes in civilization which are the subject of history.

The Eskimo seem to offer a perfect example of geographical determination of cultural patterns. Living where there are no accessible metals and almost no vegetation, the Eskimo must rely on animal food, and chiefly on the products of the ocean. They get from aquatic life not only their food but their heat and light (by burning blubber), while their instruments, boats, clothing, and household equipment are derived chiefly from the bones and skins of the walrus, seal, whale, and various fishes. They have no paper and write no books, but they have developed song and versification to a high degree. Their intelligence is high and they have evolved in their house-building the principle of the arch, which the more civilized Aztecs did not. Their carvings and etchings on bones and ivory are highly artistic. Their culture seems a perfect and inevitable adaptation to a given environment. Yet the fact remains that, while the Eskimo, though widespread, are so homogeneous, their Indian neighbors even in a small area have evolved highly diversi-

⁴ Semple, *Influence of Geographic Environment*, 37-38, 627.

fied ways of living in response to relatively homogeneous geographical determinants.

Man modifies nature and remolds it to a considerable extent. Wherein does he differ in that respect from the ants? Or from beavers? So far as history goes, the difference consists in the fact that men sometimes plan these changes and deliberate about them before actually carrying them out. Such rational procedures have the advantage over instinctive or organized reflex activity in that they can be more easily varied. Yet it is well to remember that man is not God and cannot create *ex nihilo* or by the mere uttering of words; nor can he spin the physical world including his own body out of his own mind in the manner of some romantic philosophers. When men begin to think, they have already been formed by past experience and tradition; they cannot change their desires except in response to other desires which they actually have and which are determined by their age, sex, parentage, and the like. We cannot change our natural environment except by means of an available natural mechanism.

The argument of extreme materialism that all human events are brought about by the material environment is not often explicitly professed by responsible writers on history, yet it is certainly implicit in a good deal of popular materialistic ideology. It urges that since man, and indeed all organic life, originated out of the material elements of our earth, the laws or general patterns which underlie the course of human events and are necessary for understanding it must all be deducible from the laws of physics. This is a typical instance of the genetic fallacy which assumes that there can be nothing really new in any process of development, so that the characteristics of any combination can always be deduced from the nature of the separate elements which enter into it. In the old logic books this was called the fallacy of composition. This fallacy results from the anxiety to avoid dragging occult and uncontrollable factors into our explanation of the historical course of

events. But one may sympathize with this disinclination without jumping to an unfounded claim. When a number of letters are put together to form a word, or when a number of elements form a compound, no new letter or element thus comes into being, but the word or compound is something which did not exist when the letters or elements were in a separated state. A family comes into being when a man and a woman marry. It did not exist before.

The materialistic bias which confines all efficacy to the inorganic also shows itself in the empiricist conception of the mind as a *tabula rasa* on which the environment makes its impression, but if there were nothing but the environment there would be nothing on which an impression could be made. The emphasis on the environment rests on the truth that nothing is intelligible apart from other things which modify or qualify it and give it scope for its manifestation or activity. Although, in the abstract terms of ancient Greek philosophy, *the one* cannot be without *the other*, the two are not identical, and neither can ultimately be eliminated. The adherents of the all-sufficiency of the environment cannot make the latter grow elephants out of seed potatoes, or vice versa. No matter what their past history, taken at any one time man and his institutions are realities; and the significant question is in what way and to what extent they are modified by the physical environment, under what conditions they survive and thrive, and under what conditions they are destroyed.

It is worthy of note that though Herodotus, and probably Hecataeus and other historians before him, did not ignore the geographic element, the first known systematic attempt to consider its influence on man and civilization is to be found in a medical treatise generally attributed to Hippocrates. The physicians of the Coan school had noted that certain diseases flourished at certain seasons of the year, and that their incidence varied in different places, and so the author of the treatise on *Airs, Waters, and Places* went on to consider the effects of climate not only on the

human organism and its temperament, but also on the mental and political characteristics of the people who inhabited the diverse known lands.⁵

"I say, then, that Asia differs very much from Europe as to the nature of all things, both with regard to the productions of the earth and the inhabitants, for everything is produced much more beautiful and large in Asia; the country is milder, and the dispositions of the inhabitants also are more gentle and affectionate (p. 205).

"... for where the seasons undergo the greatest and most rapid changes, there the country is the wildest and most unequal, and you will find the greatest variety of mountains, forests, plains, and meadows; but where the seasons do not change much there the country is the most even; and, if one will consider it, so is it also with regard to the inhabitants; for the nature of some is like to a country covered with trees and well-watered; of some, to a thin soil deficient in water; of others, to fenny and marshy places; and of some again, to a plain of bare and parched land. For the seasons which modify their natural frame of body are varied, and the greater the varieties of them the greater also will be the differences of their shapes (p. 207).

"... the principal reason why the Asiatics are more unwarlike and of a more gentle disposition than the Europeans is the nature of the seasons, which do not undergo any great changes either to heat or cold, or the like; for there is neither excitement of the understanding nor any strong change of the body by which the temper might be ruffled and they be roused to inconsiderate emotion and passion, rather than living as they do always in the same state. It is changes of all kinds which arouse the understanding of mankind, and do not allow them to get into a torpid condition. For these reasons, it appears to me, the Asiatic race is feeble (p. 210).

"... I think the inhabitants of Europe more courageous

⁵ Hippocrates, "Airs, Waters, and Places," in *Works*, translated by Adams, vol. I.

than those of Asia; for a climate which is always the same induces indolence, but a changeable climate, laborious exertions both of body and mind; and from rest and indolence cowardice is engendered, and from laborious exertions and pains, courage. On this account the inhabitants of Europe are more warlike than the Asiatics, and also owing to their institutions" (p. 219).

It may help to clarify the issue if we distinguish the different elements that are included when we speak of geographic influences. We may then try to determine more precisely the effects each has on the different phases of human life. Though topography, climate, and natural resources are intimately related, they are sufficiently distinguishable to allow us to consider each separately.

1. Topography

By topography I mean to include the contour of land and water, mountains, plains, forests and deserts as well as natural roads which, though built or improved by man, have a physical basis and have often followed the paths of animals. None of these elements is absolutely constant. Besides seasonal or periodic variations of the natural scene there are long-range changes always going on, and sometimes unusual transformations such as earthquakes, volcanic eruptions, storms, or floods. But many of these geographic changes have a much slower tempo or rhythm and may thus be viewed as relatively constant for shorter human periods.

That what we see and hear has a distinct effect on our mental and moral temper, and consequent conduct, has been recognized from time immemorial. Plato and other Greek philosophers were concerned about the ethical effects of music, i. e., about its effects on human character. That beautiful scenery, like music, has a softening or refining influence was not denied by pious and cloistered scholastics, even when they warned us against too much

enjoyment. But in regard to the precise human effects of different aspects of nature, there has been considerable difference of opinion—as indeed there has been considerable difference in man's emotional reaction to wild, as distinguished from cultivated, nature. This can be seen by contrasting Dante and Petrarch with modern romantics such as Bernardin de St. Pierre, Herder, and Wordsworth.

The difficulty has been that almost all arguments on this point have been *a priori*. Thus, Goethe thought it self-evident that he who is surrounded by oaks will be a different man from one who is surrounded by birches:⁶

"And, surely, he who passes his life surrounded by solemn, lofty oaks must be a different man from him who lives among airy birches. Still we must remember that men in general have not such sensitive natures as we, but vigorously pursue their own course of life without allowing so much power to external impressions. Nevertheless, this much is certain,—that not only the inborn peculiarities of race, but soil and climate, aliment and occupation, combine to form the character of a people. It is also to be borne in mind, that the primitive races mostly took possession of a soil that pleased them and, consequently, where the country was already in harmony with their own inborn character."

What precise difference follows from this, and to what extent it determines the course of history, no one has explored. Thinkers famous for their historical sense or known as hard-headed positivists—Montesquieu, Karl Ritter, Taine, Buckle, Peschel, Semple,⁷ Huntington,⁸ and others—have assumed a direct influence of the natural scene on the human mind and temperament, without taking the trouble to verify the existence of a causal relation.

⁶ *Conversations with Eckermann*, Thursday, April 2, 1829 (trans. by Oxford.), p. 381.

⁷ Semple, *Influence of Environment*, 121, 620

⁸ For the alleged mental effects of stormy climates, see Huntington, "Environment and Japanese Character," in *Jour. of Race Development* (1912), 256, 276-281.

"Thus, whether it be from the contemplation of the forms on the surface of the globe, or the spheres which float through the sky, the influence of nature becomes one of the prominent sources of the individuality of national character, and men take, therefore, from their surroundings a stamp, the peculiarity of which is dependent upon the locality where they live."⁹

An ancient tradition attributes the rise of beliefs in gods to the fear aroused by thunder, lightning, storms, earthquakes, and volcanoes and to the awe inspired by the orderliness of changing seasons and returning constellations.¹⁰ Herder generalized this into the doctrine that "the mythology of every people is an expression of the particular mode in which they view nature." In the Old Testament, too, religious revelation is associated with mountains and storms, e. g., Moses and Elijah. And moderns such as Renan, Peschel and others have argued that the desert fosters monotheism and sublime ideas, although the arguments advanced in this connection would seem rather to show that desert life will promote the worship of the stars. Peschel, who criticizes Buckle's sweeping generalizations as to the connection between mountains and imagination, still asserts, "that with the extermination of the forests, not only is the climate of the locality altered, but poetry and paganism have also been struck with the axe."¹¹ The idea of a personal God, he also asserts, is evolved in the boundless plains rather than in forest countries.¹²

According to Buckle, the startling magnitude of nature, high mountains and the like, appall the mind and prevent free inquiry.¹³ Hence, imagination and poetry are developed in India, but with

⁹ Ritter, *Geographical Studies* (trans. by Gage), p. 287.

¹⁰ "Then when the whole earth trembles beneath our feet, when cities are shaken and fall or threaten to fall, what wonder if the sons of men feel contempt for themselves, and acknowledge the great potency and wondrous might of gods in the world, to govern all things?"—Lucretius, *De Rerum Natura* (trans. W. H. Rouse), Book V, pp. 427, 429, and cf. p. 425.

¹¹ Oscar Ferdinand Peschel, *The Races of Man and Their Geographical Distribution*, pp. 317-318.

¹² *Op. cit.*

¹³ Buckle, *History of Civilization in England*, I, 29, 104-105.

the Greeks imagination is "tempered and confined by the understanding." Buckle further holds that great painters are confined to certain parallels of latitude which include Portugal and exclude Holland, and that the countries in Europe—Italy, Spain, and Portugal—which have the greatest seismic disturbances have the largest amount of superstitious belief, the greatest artists Europe has produced, and the fewest men of science. These generalizations hardly need refutation.

An interesting geographic theory was advanced by Metchnikoff who divided the history of civilization into three periods, the potamic, the thalassic, and the oceanic.¹⁴ In the first stage civilization had its seat in river valleys—in the Nile, the Euphrates and Tigris, the Indus and Ganges, and the Yellow River. Then came the thalassic period when the civilizations of Phoenicia, Greece, and Rome were based on the Mediterranean Sea. At last came the final stage in which the ocean and trade through it connected all the civilized peoples. This is a fair far-off bird's-eye view of the principal trend in European civilization. It by no means describes the progress of civilization in all the Western European countries, and certainly not that of Peru or the Mayan countries, nor does it begin to explain the historic fate or fortunes of Egypt, Babylonia, India, and China. Moreover, it oversimplifies history by conceiving it as a linear process of change instead of as a cumulative process in which the developments of one technology supplement without entirely displacing the achievements of earlier technologies. The fact remains that to this day most of the world's centers of civilization lie along the banks of rivers.

There are, of course, some features of topography which do have verifiable effects on the fortunes of diverse peoples. The first and most obvious is the matter of altitude. Human beings, like

¹⁴ Metchnikoff, *La Civilisation et les grandes fleuves historiques*; M. I. Newbigin, *The Mediterranean Lands*.

plants and animals, cannot thrive above a certain altitude or very far below sea level, although miners are able to work at several thousand feet below and aviators are able to spend considerable periods at many thousand feet above sea level. But the difficulties of supporting communal life on any extensive scale increase above altitudes of seven or eight thousand feet, and when we get to altitudes of fourteen thousand feet life ceases for some plants and animals and reproduction for nearly all of them. Communities formed at such heights, such as Cerro de Pasco in Peru (altitude 14,275 ft.) cannot reproduce themselves, much less raise their own food. The sparseness of vegetation at high altitudes and the limitation which this imposes upon animal and human life have helped to render certain areas not worth invading, and currents of conquest have swirled about such areas as Montenegro and Thibet without making much impression upon their inhabitants.

More significant effects of topography are the mountain, desert, and water barriers which separate peoples, and the roads and waterways which make certain regions readily traversable and thus influence trade as well as warlike relations between different peoples. Obviously it is easier to construct wagon roads on plains than over mountains, and the lack of natural harbors on Labrador or Lower California and the paucity of such harbors on the Pacific Coast of the United States serve to limit the commercial contacts of people dwelling in these regions.

We are dealing here, however, with topographical facts which have different consequences under different cultural conditions. The roads of warriors, hunters and trappers are generally the roads of animals hunted or trapped, following the ridges and heights of land between watersheds where visibility is greatest and where winds serve to clear trails of snow and debris. The invention of the wheel, the locomotive, and the automobile gave a new importance to lines of communication in which differences of al-

titude are minimized. Thus when the cart or wagon first became the dominant mode of transportation, large level plains became the cradles of that trade and intercourse which is the beginning of civilization. Travel by water is even more obviously a joint resultant of natural factors and technology. To the American Indian small lakes, rivers, and sheltered sea passages, like the "inside passage" of the Northwest Coast from Juneau to Seattle, were lines of connection and avenues of trade, while the larger lakes and open ocean waters were impassable barriers. With the development of shipping at the hands of the Phoenicians and Greeks the Mediterranean became the great avenue of world commerce and civilization, and the great natural harbors of that sea won an importance which was destined to endure for two thousand years and more. In the days of the first Yankee Clippers seaports like San Francisco, Sitka, and Honolulu were closer to Boston, in terms of travel time and expense, than to any of the inland cities of the Continent. Transportation over sixteen thousand miles of open ocean was a simpler matter than overland travel of a few hundred miles where roads did not exist.

The difficulties of transportation largely depend on the state of technology of the peoples involved. It was not an altogether impossible scheme that Aaron Burr conceived when he thought of establishing an independent empire west of the Appalachians. Before the steamboat and the development of railroads the connection between the two regions was so difficult that the amalgamation which subsequently took place was by no means inevitable. On the other hand, the actual separation of Canada from the United States was not due to purely geographic factors, but primarily to historical ones, in which the geographic separation up to the nineteenth century was only one element. Had the Confederacy succeeded in establishing itself as a separate nation the geographic element of topography would not have been a decisive factor, though soil conditions and climate help to differentiate the

Southern from the Northern economic life, and rivers and mountains serve to separate our states. In short, the historian must deal with topographical facts not as simple constants determining culture and history, but rather as factors that gain historic significance by interaction with the technology or state of human thought and skill through which the facts of physical geography must be screened before they attain historic significance.

2. Climate

By climate I understand the temperature, moisture, or rainfall, the gaseous content of the air, the winds and their variation. Instances of *a priori* generalizations in regard to the effects of climate can be found in ancient as well as modern writers. Hippocrates thought that European climate, being highly variable, served to stimulate the European temperament to extremes while the climate of southwestern Asia, being more even, produced a people of gentler disposition.¹⁵ One of the most influential (to this day) of all such generalizations is that of Aristotle, who wrote:¹⁶

"Those who live in a cold climate and in Europe are full of spirit, but wanting in intelligence and skill; and therefore they retain comparative freedom, but have no political organization, and are incapable of ruling over others. Whereas the natives of Asia are intelligent and inventive, but they are wanting in spirit, and therefore they are always in a state of subjection and slavery. But the Hellenic race, which is situated between them, is likewise intermediate in character, being high-spirited and also intelligent. Hence it continues free, and is the best governed of any nation, and, if it could be formed into one state, would be able to rule the world."

Aristotle was perhaps unique among philosophers in that he had a student whose military talents almost succeeded in establishing

¹⁵ See p. 141, *supra*.

¹⁶ *Pol.* VII, 7.

the validity of his teacher's theories, and in later centuries Aristotle's prophecy seemed firmly established with Byzantium the capital of the civilized western world. But many thinkers since Aristotle have found that their own countries were climatically and geographically at the center of human development. Thus Vitruvius, writing in the reign of Augustus, explains the alleged inferiority of peoples living both in the extreme north and in the extreme south on the basis of the climatic conditions existing in those regions ("northern nations, being enveloped in a dense atmosphere, and chilled by moisture from the obstructing air, have but a sluggish intelligence"). He also states that the southern peoples, despite their intelligence, cannot meet situations which call for bravery because their courage "is sucked out of them by the sun" (secs. 5-8). As a conclusion, the situation which will produce the best race is that midway between these two extremes; and he uses the Romans as an illustration.¹⁷ And Pliny wrote in Rome in 77 A. D.:¹⁸

"The latter (the Aethiopians) are savage from the inclemency of the climate, while the former (Northerners) are dull from its variableness . . .

"In the middle of the earth there is a salutary mixture of the two, a tract fruitful in all things, the habits of the body holding a mean between the two."

Writing in the fourth century, Vegetius urged the view that people living in hot southern climates are weakened by the sun and heat, and like other classical writers he believed that while southerners excel in wisdom northerners have greater vitality, persistence, and courage in war. The peoples of the intermediate regions, he held, are superior because they lack neither courage nor intelligence.¹⁹

¹⁷ Vitruvius, *The Ten Books on Architecture* (Tr. Morgan), Book VI, secs. 3-11.

¹⁸ Pliny, *Natural History*, bk. II, ch. lxxx, pp. 110-111, (tr. John Bostock and H. T. Riley, London, 1857).

¹⁹ Thomas, *op cit.*, p. 39, quoting from Vegetius, *De Re Militari*.

The great Arabian historian, Ibn Khaldun, dividing the earth into seven climatic zones, put the Arabs in the middle zone as enjoying the most favorable climate for human development, together with the spiritual advantages of a sparse diet, although he insisted that geography needs to be supplemented by study of the history of people who have migrated from other regions.²⁰

Paulus Diaconus, writing towards the end of the eighth century in the Kingdom of Lombardy, begins his history with these words:

"The region of the north, in proportion as it is removed from the heat of the sun and is chilled with snow and frost, is so much the more healthful to the bodies of men and fitted for the propagation of nations, just as, on the other hand, every southern region, the nearer it is to the heat of the sun, the more it abounds in diseases and is less fitted for the bringing up of the human race. . . .

"From this teeming Germany then, innumerable troops of captives are often led away and sold for gain to the people of the South. And for the reason that it brings forth so many human beings that it can scarcely nourish them, there have frequently emigrated from it many nations that have indeed become the scourge of portions of Asia, but especially of the parts of Europe which lie next to it. Everywhere ruined cities throughout all Illyria and Gaul testify to this, but most of all in unhappy Italy which has felt the cruel rage of nearly all these nations. The Goths indeed, and the Wandals, the Rugii, Heroli, and Turcilingi, and also other fierce and barbarous nations have come from Germany. In like manner also the race of Winnili, that is, of Langobards, which afterwards ruled prosperously in Italy, deducing its origin from the German peoples, came from the island which is called Scadinavia, although other causes of their emigration are also alleged" (p. 1, 2).

²⁰ *Prolegomènes historiques d'Ibn Khaldoun* (tr. into French by Slane). And see Thomas, *op. cit.*, pp. 42-46, 124.

Modern writers are responsible for many theories of climatic determinism which have become a part of modern folklore. Thus Montesquieu asserts,²¹ and others repeat, that warm climates such as those of India make men imaginative. But it is obviously impossible to deny even greater imagination to peoples like the Greeks and others living in colder climates. Montesquieu also claims that hot climates lead to greater conservatism and also to milder laws,²² but the actual history of India and Greece by no means bears this out. According to Buckle, hot climate engenders as a causal series: a plentiful supply of food, a large population, reduced income, and lack of political freedom.²³ Actually, however, not one of these connections is necessary or free from contrary instances.

The successive emergence of different peoples as the rulers of world affairs, or leaders of civilization, has been noted by different writers since the Book of Daniel and the History of Polybius, and diverse explanations of it have been offered. The adherents of the environmental view have sought the cause and direction of it in geography. The simplest theory has been that civilization has moved from the warmer to the colder countries because it was easier for man in his earlier stages to adapt himself to the easier life of the tropics, and only when he developed certain arts could he live in the temperate climate and finally penetrate into the colder climates.²⁴ It should be noted that this argument is an *a priori* one. It rests upon an assumption as to what must have

²¹ *Spirit of Laws* (tr. by Nugent), Bk. XIV, chap. 3.

²² *Ibid.*, chap. 15.

²³ *Op. cit.*, I, 58.

²⁴ Buckle, *History of Civilization in England*, vol. I, chap. 2; Charles Comte, *Traité de Législation*, (2d ed., 1835) vol. III, bk. 4, chap. 9, pp. 283 ff.; Flint, *History of the Philosophy of History* (2nd ed.), p. 578; Spencer, *Principles of Sociology*, I, 19-20; B. Kidd, *The Control of the Tropics*, pp. 1-52; R. D. Ward, *Climate* (2d ed.), pp. 232 ff., 374 ff.; S. C. Gilfillin, "The Coldward Course of Progress," *Polit. Sci. Q.* (1920), v. 35, pp. 393-410; E. Huntington, *The Pulse of Asia*, 380 ff.

been. Actual history shows progress northward and southward, eastward and westward.

The theory that civilization moves coldward (which in a general way means northward) fairly corresponds to the historic progression from Egypt and Mesopotamia to Greece, and from Greece to Northern Europe by way of Rome and by way of the Black Sea; and perhaps Egyptian civilization may itself have been the product of a civilization further south, where the smelting of metals was first developed. But as a generalization it is not confirmed by the history of America, where the original inhabitants entered from the north and developed their civilization as they reached more southerly regions. Nor, for that matter, does it describe the progress of Christian schools and learning from Ireland and northern Britain to France and Switzerland (Bede, St. Gall, et al.). Did not the Norsemen develop civilization in southern Russia? Did not the civilization of the Turks, Tartars, and Mongols improve as they moved from Northern Turkestan or the Aral region into Asia Minor, Persia, and India?

The evidences of changes of climate in historic times are indeed rather scanty. Most of this evidence is rather indirect, such as indications of changes in vegetation or the amount of water in certain rivers, but the records in that respect are not always of the best. Theophrastus in his *History of Plants*²⁵ reports cypresses growing on the mountain peaks of Crete, and perpetual snow, but also a tradition that formerly these mountain tops were cultivated. Today the vegetation on the mountains of Crete indicates a warmer climate than in the days of Theophrastus. The historic changes from the Minoan Age to the present may, therefore, be connected with the climatic changes thus indicated, but the evidence is hardly conclusive. If we take the references to the Kephissos River in Plato and others at their face value and compare them with the present state of that stream, we may conclude that

²⁵ Vol. I, Book IV, 1, 3 (tr. by Hart); see also *De Ventis* (Winds), 13.

the rainfall of the region which it drains has notably decreased. But there may have been topographic changes affecting the river without any general change in the climate. Topographic changes can be seen in the case of former cities now under water, such as Wisby, formerly a great commercial center, and the port of Ostia at the mouth of the Tiber. The growth or rise of the soil of Egypt is indisputable.

Dexter and Huntington have tried to introduce modern statistical methods to determine the exact effects of the weather (that is, temperature and change of wind and moisture) on the activities which constitute social life. In a general way their methods may be commended as endeavoring to bring the issues down to a point where they can be tested in the light of definite observations and so either verified or refuted. Unfortunately the problem is more complicated than these worthy investigators have assumed it to be, and the results of their investigations are by no means conclusive. Thus, the greater frequency of crime during certain months of the year, pointed out long ago by Aschaffenburg,²⁸ may, as Tarde indicated, be due to greater social opportunity for the crimes in question. It may, of course, be contended that, after all, it is the warmer weather which brings people out of doors and makes certain crimes more frequent. But it is not merely the warm weather; other factors such as social habits enter into the situation.

Utilizing recent methods that botanists have developed for measuring the width of tree rings and thus the relative amount of moisture, Professor Huntington has tried to map the history of rainfall for long periods in countries where old trees can be found and correlate the successive periods of heavy rainfall and drought with the prosperity and decline of various countries. The correlation, however, is not very close, and its exact meaning is

²⁸ *Crime and its Repression* (tr. by Albrecht), pp. 15-30.

by no means clear, since the terms *prosperity* and *decline*, when applied to different nations, are not very definite. Thus he uses the fact that the plateau of Iran, which was the seat of the Persian Empire up to the time of Alexander, is now a waste, suffering from lack of water.²⁷ But the records seem to indicate that Alexander's soldiers also suffered from the drought in the countries through which they passed, and in any case the historic changes are by no means shown to depend on the changes of climate in that region. Nor is it certain that the fluctuations in the level of the Caspian Sea are necessarily due to the changes in the amount of water poured into it by the Oxus.

A number of modern geographers are skeptical and demand more evidence for climatic changes. Tradition in that respect is not very reliable, nor are explorers' accounts to be unquestioned, since they are often contradictory. Changes in crops and even in vegetation are not necessarily due to changes in rainfall. Often changes in crops have an economic basis. And as regards history, while it is true that drought may cause many people to abandon their land and seek food elsewhere, it would be a mistake, for example, to attribute the abandoned farms of New England at the end of the nineteenth century to climatic changes. Men did not leave their farms because of increasing cold or decreasing rainfall, but rather because of the opening of new lands in the West or better opportunities in the industrial cities.

On a number of occasions Arabia has sent out hordes of people into neighboring lands. Was this due to desiccated soil which compelled people to leave the peninsula, or was it due to excessive fertility which increased the population and thus enabled armies to issue forth and conquer neighboring lands? The Goths, we are told, were driven out by the Huns. But the Teutons who invaded the Baltic lands seem to have issued from a land of plenty

²⁷ Huntington, *Pulse of Asia*, pp. 341-358, 365-373.

and of increasing population. These phenomena mark all the Crusades. In any case, people do not willingly leave a prosperous land to settle in a barren one, but people do leave crowded lands to go to those less crowded or where they can make room for themselves by crowding out the natives. Such has been the history of white immigration into the temperate regions of North America (Canada and the United States), South America (Argentina and Chile), and Australasia. In none of these situations does climate seem to be the sole determining factor.

It is obvious that it is very difficult for men to live in the excessively hot and excessively moist tropical river valleys, where the hardwood trees are close together and the excessive rains prevent the effective use of fire to make clearings. Notwithstanding the contrary impressions of Buckle and others, a hot climate does not in itself ensure a plentiful food supply.

It is also practically impossible for men to live in the antarctic, where animals that can be hunted and eaten are scarce and where fishing by breaking through the ice is hardly calculated to support a large number of people with any of the means of civilization.

No one can well deny that excessive heat is debilitating and that excessive cold creates difficulties for the type of life represented by the great civilizations. This is not to assert that men cannot protect themselves by various devices against extremes of temperature. The fact is that men do manage to live in a town like Verkhoyansk, in Siberia, where the mean temperature in January is -59° F.²⁸ The issue is whether large civilized communities can grow under those conditions; and the historic facts seem to indicate that only small groups of those who have been accustomed to extremes of temperature can perpetuate themselves in the tropics or in the polar regions. Some of the difficulties which the tropics have offered for settlement of white men may be overcome

²⁸ Kendrew, *Climates of the Continents*, p. 170.

with the aid of modern technology. We may get rid of many insects that cause deadly diseases, though there is no guaranteeing permanent success in that respect. We may by improved diet, forms of exercise, and various housing devices minimize the strain which has so far prevented white men taking root in the tropics and building up communities that have any prospect of perpetuating themselves. But the difficulties are great and the future by no means assured.

Certain investigations seem to indicate that there are optimum temperatures, but that we also require a certain amount of variation. Similarly, investigations seem to indicate that we are affected not only by the content of the air we breathe but also by whether it is stationary or mobile.²⁹ Monotonous weather is wearing, and, in a literal sense, a change of air is a needed stimulant. On the other hand, it cannot be denied that great variations of climate are hard on the organism; this shows itself in the fact that sick people have their difficulties aggravated, as a rule, during great variations of temperature and moisture in the air. Great climatic variations also cause damage to property and make enterprise uncertain. Some change is necessary, but too much of it is deleterious and the line between the two varies with different individuals and groups.

The type of civilization which has been the ideal of Europeans and Americans is a type which, like that of the Greeks, cannot thrive in the extremes of cold or heat. Nevertheless, we must not forget that man to a greater extent than other animals is able to change the character of his environment by irrigation, by importing fertilizers, by building houses, by devices for heating and cooling, and by means of transportation, which enables him to change his abode and then to modify the new environment. Possibly more fundamental changes in the environment may be effected by

²⁹ *Ventilation* (Report of the N. Y. State Commission of Ventilation, 1923), chap. XV.

man-made erosion, deforestation or reforestation, the making and draining of swamps, and the changes that men have made in the character of the fauna and flora with which they found themselves surrounded ever since the first domestication of animals and possibly even in an earlier hunting economy.

The advance of civilization seems to minimize the importance of climatic differences. Hotels in Arizona seem very much like hotels in Alaska—the same language, the same kind of service, the same diet, not much difference in clothes—although the more primitive Indians of these regions adapt themselves to these diverse climates in quite different forms of life. Yet the fact is that the white man's adaptation is based on making different arrangements for heating and cooking in Arizona and Alaska, and the greater uniformity is also the result of improved means of communication.

Theories about the effect of climate on man's character and development are generally over-simplifications that hide a germ of truth in a mass of fancy. The actual physiological impact of climatic factors on the human organism is something that we are just beginning to measure in scientific fashion. These physiological impacts are subject, however, to human controls in increasing measure with the development of technology. From the invention of clothing and fire-making to the latest advances in air conditioning, men have continued to overcome the limitations that unfavorable climates impose upon human life.

Thus, if we restrict our view of climate to the direct physiological impact of various climatic factors on man's body, we are dealing with material which is of relatively little importance to the historian although it may be highly relevant to the geographer. Our understanding of the distribution of peoples over the face of the earth and of the differing densities of population is certainly aided by an appreciation of the climatic variations between the different regions of the earth. But these elements, because of

their relative persistence in time, are of less importance to the historian, who is interested above all in tracing the changes that have taken place in the forms of human life.

Although the immediate physiological impacts of climate are of secondary importance to the historian, there are indirect effects of climate which are distinctly of primary historical significance. For climate certainly plays a large part in influencing the ways in which human beings earn their living and protect themselves from the elements. The historian, then, is interested not so much in the direct physiological impact of climate as in the history of housing, clothing, agriculture, the use of fuels, and other aspects of life in which climate and human ingenuity play inextricably a joint role. Climate, like topography, does not determine history in the simple ways that have been suggested by some literary historians, but it does set problems which men must face and solve, and this facing and solving of problems is a large part of human history.

3. Natural Resources

(1) *Soil and Mineral Resources.* There can be no doubt that the fertility of the soil or the opportunities which it offers for food and other materials conducive to civilized life, such as wood, coal, oil, or the various metals, place important limits upon man's occupations and consequently upon his social organization. This is one of the truths which LePlay³⁰ recognized and sought to make the key to careful investigation. To make such investigations we must be on guard against plausible generalizations which seem self-evident until we examine them in the light of historic material. Thus Montesquieu, Buckle and others have argued that fertile lands lead to lassitude and lack of freedom.³¹ One could

³⁰ *Organization of Labor* (tr. by Emerson), ch. 1, sec. 9 (The Geographical Distribution of Good and Evil).

³¹ Montesquieu, *Spirit of Laws*, Bk. 18, chaps. I, III, IV; Buckle, *op cit.*, vol. 1, chap. 2.

hardly defend this view in the light of the communities developed on the fertile lands of our Middle West or Mississippi Valley. Nor can we say anything more favorable in regard to the generalization that the fertility of hot countries produces great inequality of wealth.

But beyond the realm of facile generalizations that oversimplify the relations between natural resources and human character there is an important and growing body of geographic knowledge which is bound to throw a good deal of light on the course of history. The character of the soil, taken in conjunction with topography and climate, sets outer limits upon the scope of agricultural production. Generally speaking, these limits of production fix the maximum density of population, except in so far as commerce and industry make it possible for men to live in places where local agricultural production is insufficient either to enlist their energies or to feed their bodies. Population density, in turn, is one of the main keys to the understanding of all changes in culture that depend upon the rate of interchange of goods, services, and ideas.

Fertility, however, is not the only soil factor to be considered in tracing the influence of soil upon civilization. It is important to recognize that different types of soil are adapted to different types of crop, and that the various basic crops which have furnished subsistence to mankind require different types of labor and social adjustments, ranging from crops like rice, which require assiduous and difficult labor over a very long season, to crops like certain fruits and nuts which require only a few days' labor in the year, and between these extremes there are crops like corn which, in suitable soil, require concentrated labor only at sporadic intervals in the growing season.

In all these cases, however, we are dealing with outer limits upon production. The historic fact is that seldom if ever does man's technical knowledge suffice to draw from the soil the greatest

produce it is capable of yielding. Ignorance, superstition, the inertia of old food habits, and adherence to old ways of farming all serve to set narrower limits upon agricultural production than can be set by the soil analyst with his test tubes.

So it is with the mineral content of the soil.

The presence or absence of minerals in various parts of the earth has undoubtedly played a large role, particularly in the last century, in determining the course of national development. Certainly the abundant supplies of coal in countries like England, Germany, and the United States have furthered the industrial development of these countries along paths not open to some of their neighbors. But mineral deposits, like other features of the physical environment, do not determine the course of history except in so far as social habits, institutions, and techniques give them economic significance. The oil beneath the ground was not an economic factor for the aboriginal Indian population of Oklahoma, and the mineral resources of many parts of the earth are still unknown. There is thus a fallacy in attributing the wealth of the United States, for example, to the presence of vast natural resources. Acre for acre it is extremely doubtful that the resources of this land are greater than those of all countries with lower living standards. What can be truly asserted is that the economic utilization of mineral resources in this country has proceeded on a higher level of production than has been the case in most, if not all, other nations.

What can also be asserted is that all current statistics purporting to show the extent of various mineral resources in different parts of the world are heavily weighted in favor of the United States and other highly developed industrial nations.

In the first place, known resources are a function not only of resources but of knowledge. To the white traveller who is dying of thirst in the shadow of a desert cactus the water inside the cactus is not a resource, because he does not know of its existence.

There are no known mineral reserves in areas of the world which have not been prospected. Obviously, the search for resources has been more intensive in countries like the United States than in regions where geologic and engineering knowledge and interests are less widely distributed. Therefore, even if all minerals were distributed with absolute impartiality over the surface of the earth, there would be greater known reserves, acre for acre, in those countries where mineral exploration had been most thorough.

In the second place, a deposit of minerals is generally not classified as such unless the quality of the ore is such as to make mineral extraction an economic possibility. Aluminum is the second most abundant element in the crust of the earth, but the forms in which it usually occurs make its extraction unprofitable. The question of whether the extraction of a mineral is economically feasible depends, of course, not only on the quality of the ore, considered as a bare geologic fact, but also on the distance of the deposit from available means of transportation, from fuel or power supplies, labor supply, and markets. Thus, a given ore mass which would be considered a significant mineral reserve in the State of Pennsylvania might not be worth listing or even testing if it occurred in the Gobi Desert. This may explain the fact that while diamonds and other precious stones and minerals for which the transportation element is a minor economic factor are often located in poor and almost uninhabited lands, and a somewhat comparable situation exists with respect to oil because of the ease with which it can be transported, the reserves of the more common industrial metals are generally located only in or near industrialized regions.

Finally, the question of what is or is not a resource is itself a function of technologic development. As Veblen says:⁸²

"The state of the industrial arts determines what natural materials will be useful as well as how they will be made use

⁸² Veblen, *Absentee Ownership* (1923), p. 63.

of . . . Petroleum and rubber, e. g., which were of no account a hundred years ago, have come to be indispensable factors in the industrial situation today, because technology has made them so. . . . It holds true throughout that 'Invention is the mother of necessity' and that workmanship turns brute matter into natural resources, ways and means of productive industry."

A nation in which the level of technical and general education is high will make resources of almost anything that it can find within its borders. The fact, therefore, that great powers appear to be favorably situated with respect to various material resources may mean no more than that they have developed the economic utility of the earth under foot to a higher degree than other nations. Veblen sums up the matter when he says:⁸³

" . . . the extent and variety of the country's natural resources are constantly increasing, because and by so much as the technicians are continually learning to make use of a larger number and variety of these things. The question of natural resources is, after all, a question of technical insight."

The simple one-way explanation of economic development on the basis of geologic or other physical facts of the environment will not work. Rather, as Veblen has shown, "Tangible assets, considered simply as material objects, are inert, transient and trivial, compared with the abiding efficiency of that living structure of technology that has created them and continues to turn them to account."⁸⁴ Resources are economic facts which cannot be understood unless we take account of many factors which geology cannot explain—such as the development of popular education and technology; the political ideals and institutions which make possible free interchange of goods within a comparatively large area of diversified resources; and the economic incentives and institutions which give industrial meaning to geologic facts.

⁸³ *Ibid.*, p. 272.

⁸⁴ *Ibid.*, p. 65.

Here, as with all other aspects of sub-human nature, physical factors can at best fix the outer limits of a development that cannot be predicted or charted unless we also take account of human and social factors.

(2) *Flora*. To realize the importance of the flora of a country in the history of its people it is well to bear in mind some of the diverse ways in which man depends on vegetation. In the first place, all his food as well as that of his cattle—indeed of all animal life—comes ultimately from plants; and so do his various drinks, e. g., wine, oil, fruit and vegetable juices, beer, and the various distilled beverages. Similarly does man depend upon plants for his cloth and clothing, e. g., cotton, flax, hemp, reeds for shoes, etc., and so likewise for building materials, for houses, ships, furniture, for various instruments and weapons, fuel, medicines, perfumes, and poisons.

Such a pre-eminent representative of spiritualistic philosophy as Plato insisted, "Food not only affects men's bodies for good or evil, but produces similar results in their souls," and a whole book of his *Laws* is devoted to the question of drink.⁸⁵ The history of the influence of wine in our social and religious life should not be forgotten when we discuss the role of alcohol or the need of its regulation. The effects of the use of opium, grown in India and forced by Great Britain on China, constitute one of the darkest chapters of human history.

Corn and potatoes played a great role in the life of the Peruvians and other American Indians. But since the introduction into Europe of the potato it has been grown more extensively and intensively in countries such as Ireland and Germany, where it seems to have made a larger population possible.⁸⁶ Certainly, the failure of the potato crop in 1844 caused large numbers of Irish people to starve and others to migrate to America.

⁸⁵ *Laws*, Bk. V, 747.

⁸⁶ W. E. Safford, "The Potato of Romance and Reality," *Journal of Heredity*, XVI, 113, 175, 217.

The cinchona tree played an important role in the history of Peru. At first its bark provided the people with a remedy for malaria, and later it became a source of revenue when the quinine was in demand in a large part of the world. Clement Markham broke the monopoly by smuggling some trees out of the country to bring them to India, where they were successfully cultivated in Nepal. As a result of the supply of quinine sold in all the post offices of India the incidence of malaria in that country was substantially reduced.

Cotton grows on a commercially important scale in our southern states, the Soudan, India, Southern Russia, and a few other regions. Its social and economic incidence can be seen in the effect of the introduction of Eli Whitney's cotton gin and the consequent increased demand for slave labor.

It is well, however, to be on guard against hasty generalization as to the specific effect of food on national traits. Gibbon scored a good point when, with his stately irony, he called attention to the savage fierceness of the milk-fed Huns and Tartars.

While the presence of the plants that make up the flora of any region depends upon the soil, altitude, relative proportions and changes of heat, water, sunlight, and other natural factors, their availability for human purposes depends far more upon the human enterprise involved in cultivation. Though recent progress in chemistry has enabled us to utilize plants to a greater extent than formerly, and vastly to increase productivity, the number of plants cultivated for economically important purposes does not exceed 300 out of about 150,000 known species. And the curious thing is that with few exceptions their domestication and cultivation originated so long ago that civilized man has not been able to add many to the list. Thus a recent writer has been tempted to comment:

"That ancient power of selection and domestication, which is surely one of the rare gifts of human ingenuity, seems to

have been exhausted. In spite of the great progress in scientific methods, the list of new cultivated plants is strikingly meager. If we ask what sorts of cultivation have been introduced in the last two thousand years, we find some new artificial fodders, a few plants with an aromatic berry such as the coffee plant, and, very recently, a few rubber vines. What a slender contribution in comparison with all those fundamental plants which have literally fed humanity since its first existence—wheat, barley, rye, maize, rice, the potato, the date tree, the banana tree, etc. All these cultivated plants of the Old and the New World certainly go back two thousand and some of them at least five or six thousand years."⁸⁷

In determining the historic significance of plants in any region, we must take into account not only the fact that certain plants will not grow in certain regions, but that social conditions and traditions will often prevent their cultivation or their utilization. Rice, for instance, can be grown in China and Japan, not only because of soil conditions, but also because the requisite intense labor is economically available. It cannot grow in Palestine on account of soil conditions, nor in other regions where it would not pay to expend so much labor on it. As a concentrated food, it makes possible a dense population, if people live on a narrow scale and work hard.

In the replacement of certain peoples by others, greater ability to make use of the resources of the land often plays a controlling role. Thus the Palatinate Germans with their methods of dry farming have been able to make a granary of portions of the Susquehanna Valley where their predecessors failed. The significance of such displacements is underscored by the fact that historic invasions have often taken the form not of armed groups, but of mass infiltration. This is certainly the case in the history of America and may have been in large measure the case in the invasion of Palestine by the Hebrews and perhaps even of Anglo-Saxon settlement of England after Hengist and Horsa.

⁸⁷ Jean Brunhes, *Human Geography*, pp. 247-250.

The dependence of the flora of a region upon the social institutions of the people who inhabit it is perhaps nowhere more clearly shown than in the case of North Africa, of which a careful geographer writes:⁸⁸

"Regions today trodden by the nomad or invaded by sand were once occupied by a sedentary population and devoted to cultivation. In attempting to explain these changes, before having recourse to alterations of climate, which are always very problematical, at least as far as historic time is concerned, we must see whether they may not be as well attributed to the ravages and destruction of wars. Now we may state that it was not the Arab invasion which introduced nomadism into northern Africa; to assure himself of this one need only read the testimony of authors of the first centuries who speak of the nomads of Mauretania. We know just as certainly that through the protection of the Roman armies cultivation had driven back nomadism and gained ground, without, however, reaching the regions of steppes which extend well to the south of Algiers and Oran. To the south of the Romanized territories the nomads maintained themselves. With the decadence of the Roman Empire there was a giving way on the part of the cultivator and a forward movement by the nomads which, though arrested somewhat under the Byzantine rule, started again with the Arab invasion of the seventh century. Some authors have thought that this invasion had spread a nomadic population over these regions. It was rather the invasion of the twelfth century which established as many as 500,000 nomads in these lands and added to the evils of war the evils arising from their type of life and habits. 'It is their sheep, their camels, their goats, that ruin northern Africa' (Bernard and Lacroix, p. 26). The Turkish administration was still less than today of a sort to encourage agriculture; the incessant intertribal wars and the periodic raids of the bey could only weaken and even bring to naught the efforts of the sedentary population constantly deprived of the fruits of their labors. Why wear one's self out, if at harvest time

⁸⁸ Jean Brunhes, *op. cit.*, pp. 316-317.

the harvests were to be carried off by the robber of the desert or the robber of Algiers? But a failure to work on the part of the sedentary population means the ruin of agriculture, for we must not forget that 'in dry countries, such as the Mediterranean countries, and with all the more reason in the steppes and the Sahara, there is no need of positive injury in order that the soil should depreciate, the forests perish, and nomadic life gain ground. Negative action is sufficient; it is sufficient to do nothing, not to keep up the hydraulic [irrigation] works, and not to busy one's self with waters and forests' (*op. cit.*, p. 29). To how many other countries would a remark of this sort apply? We might say that all the regions bordering upon deserts . . . would furnish us with examples, but Mesopotamia, Russian and Chinese Turkestan, the plateau of Iran, and Mongolia are the most significant in the Old World."

It may be well to draw a distinction between nomads and herdsmen, for many merchants are nomads in the sense of wanderers—for example, the Midianites. Many peoples, also, combine a partly settled with a partly nomadic life. This seems to be the case in portions of Algeria where the rainfall is insufficient or too irregular to make settled agricultural life possible, and yet some fixed habitation for part of the year is necessary. Many Bedouins are at best semi-nomads. Sheep-herding requires large areas if the land is not fit for agriculture. Close grazing of the land produces dust which is conducive to tuberculosis and other diseases, so that the pastoral life is by no means the healthiest. On the other hand, turning unsuitable land into agricultural development, as was done in the western plains area of the United States, is likewise productive of dust-clouds when the soil is carried away by strong winds.

"In the New World we have an excellent example of seasonal nomadism in the case of the Navajo Indians of New Mexico and Arizona. Though they cultivate favorable soil areas in the lowlands to a moderate degree, their chief form of wealth is sheep. These they drive into the forest and

grassy high mesas in the summer, where the higher humidity favors the growth of succulent vegetation. In the winter season the flocks are driven to the lower levels (below 7000 ft.) and are fed on the dry nature-cured hay that has grown during the summer.

"If the state of war, the insecurity which is the fatal consequence of it, the absence of a vigilant and firm administration, give to the nomad every facility for developing and putting in action his instincts for idleness and pillage, while at the same time permitting him to feed his flocks and herds upon lands which cultivation might claim, we can on the other hand understand that the man of sedentary life, feeling himself protected, and assured that his toil will bring him an abundant and paying harvest, will no longer fear to push his cultivation to the limits where climatic conditions favor it. He will retake the land which he had abandoned and we shall see a drawing back of nomadism."⁸⁹

(3) *Fauna*. The character of man's teeth indicates that he has been partly carnivorous for many ages. There is also evidence of extensive use of fishes and sea food. However, the utilization of milk and eggs derived from domesticated animals is by no means universal, even where cattle and fowl are domesticated. More important, perhaps, in view of the fact that meat has hardly been the staple food of mankind, is the use of animals as beasts of burden for plowing and transportation, as in the case of the ox, the horse, the camel, the reindeer, elephant, and carabao. Animals have also been used in helping man to hunt for other animal species, witness the dog, the hawk, the falcon, and the cormorant. Man has also derived his clothing and all sorts of materials from animal life, e. g., skins, furs, silk, wool, bones, and the like.

The process of domesticating wild animals and the breeding of them for purposes useful to man was a discovery of prehistoric times. Few, if any, species have been so domesticated during the historic period. The subject has fascinated all who have thought

⁸⁹ Brunhes, *op. cit.*, p. 317.

about the history of civilization, and all sorts of speculations have been indulged in to explain how it came about. While such speculations do not constitute history, it is well to note existing facts which throw some light on the question and in any case prevent our speculation from running riot.

In the first place, we must not assume that the process of domestication was the same for all animals or even for any one animal species in different countries. Thus, some people who have used oxen for burden and draught have not learned to use the milk of cows, whereas on our western and southern ranches cattle are raised only for food. Some peoples who domesticated fowl have not used the eggs.

Domestication may also have arisen from many causes rather than from any one cause. One that historians generally ignore in their utilitarian ardor is the pleasure of having animals as companions. That is certainly one factor today and there is no reason for supposing that it did not operate in the past. In any case, the great fact is that of symbiosis, the fact that animals like the dog, the reindeer and others are as much dependent on man as man is on them. Reindeer in Alaska, although once a valuable asset to man, subsequently diminished in number because of the absence of care and protection against carnivorous animals, when the natives came to engage in other more profitable occupations than reindeer-herding.

In brief, however much the life of man has been influenced by the animal life that surrounds him, the influence has not been entirely one-sided. Man has exercised as much power over his animal environment as that environment has exercised over him.

4. Summary

Because history must take a macroscopic view of human events the historian must be ever on the alert to find pervasive factors that affect great sections of humanity over considerable periods.

Such, in general, are the facts of man's physical environment. And while the basic facts of climate, topography and natural resources cannot explain the differences and the interrelations of men who live within a given environment, and are thus relegated to a secondary role in social studies directed to those differences and interrelationships, they become more and more significant as our frame of reference expands to cover the differences and interrelations of peoples living under diverse physical conditions. Thus the historian who takes the whole earth or large portions of it as his realm must give great weight to the environmental factors which differentiate one region from another or one era from another. This leads at first to theories of exaggerated simplicity as to the effects of climate, topography, and natural resources upon the development of different peoples. But recognition of the fallacies that inhere in these over-facile explanations of national development should lead us not to a rejection of these hypotheses but rather to a further refinement of them.

The first step that needs to be taken in the refinement of such theories is to recognize that elements of the physical environment are necessary but not sufficient conditions of any particular course of human development. They set outer limits upon the economic activities, the habitat, and the population density of a given people, but within those limits we must have recourse to the social institutions, habits, technology, knowledge, ideas and aspirations of a people to understand the extent to which they will, at one time or another, exploit the possibilities that brute nature holds before them. Only as we have recourse to these human factors can we understand the different responses that a given people makes in different eras to relatively stable and constant environmental factors. The same ocean that imposes insuperable barriers between peoples at one stage of cultural development makes neighbors of them when they perfect the instruments of navigation. The historian can make effective use of geography, climatology,

soil chemistry, geology, and other terrestrial sciences only as he links them with the distinctive materials of economics, sociology, and other social studies. It is only in the interaction of man and his environment that the basic elements of history can be found.

To say that men are a product of their environments is only a half-truth; it is equally true that men choose, mould, develop and modify the environment in which they live and work. Indeed all of man's life can be so viewed. And this is not surprising if we reflect that the term environment refers always to a body of facts relative to a particular focus or perspective. We are all parts of each other's environments. And as the beasts of the field are part of mankind's environment so is the human race most assuredly a part of the environment of the lion and the ox. To think, then, of the environment as something absolute, determining the character of all things within it, is to base our thought on shifting quicksand. From the ills to which this fallacy of misplaced concreteness inevitably leads, a wider metaphysical perspective may help to deliver us. To say that anything is determined by its environment is actually to say only that in order to explain anything we must look to its relations with other things—which amounts to an undeniable tautology. The essential fact is that the environment of every human being and the context of every human act contains human and non-human elements inextricably intertwined. Only as we realize that the events of human history include both mind and matter as polar components can we escape the grosser errors of those who would spin the world out of ideas and those who look to earth, air, fire, and water to explain all human phenomena.

Chapter 6

THE BIOLOGIC ELEMENT IN HISTORY

1. *Physiology and History*

Though the human skeleton and presumably the entire organism seems to have changed in the course of the ages—if we are to judge by the specimens of Neanderthal and other skeletal remains—it does not seem that the historic changes in civilization during the last five or six thousand years are a direct outcome of any corresponding physiologic changes in the human body. There is no evidence of any appreciable change in the human skull capacity during the last twenty thousand years or so. But it would be superficial to conclude from this that man's civilization is independent of his physiology.

The specific traits of human civilization certainly depend on some of the characteristics of the human organism.

All the human arts are dependent upon the wonderful development of the human hand. Its extreme mobility and sensitivity enable it to perform all sorts of delicate movements. Man is a toolmaking animal, who frequently uses his hands and tools, not for any deliberate purpose, but rather as a consequence of the impulse to move them and enjoy their exercise.

The conception of man as a tool-using animal is essentially just, for it was apparently the mastery of simple tools of wood and stone that made it possible for men to live in plains as well as in caves or tree tops and thus provided the basis for extensive human intercourse.

Man's erect posture gives him ability to use both hands. Erect posture, however, is not always associated with high brain development. The gibbon, the most erect of the monkey family, has not as developed a brain as those that remain stooping in their gait.

During the early months of childhood the human infant does not seem to have any greater intelligence than that of a monkey. At what point, then, does the superior intelligence of man appear? It has been suggested that this is largely dependent upon a superior hearing, which, coupled with a flexible tongue, makes it possible for the human baby to learn to speak and thus to gain by communication the lessons of the race's cumulative experience. Very likely there are differences in the convolution of the brain, but so far as we can tell, man's civilization is based upon the development of language, and language depends on certain developments of the ear and organs of speech that are peculiar to the human species. Hearing is basic to speech and thought and thus it is a distinctively human faculty. In their early stages apes can show the same intelligence as human infants, but the latter are soon able to make finer discriminations in hearing different sounds and being able to imitate them, and that is the way by which they acquire the language through which they master all the arts of civilization.

While speech not only involves the throat and the mouth but finds resonance in the whole body (as is seen in the unconscious gestures which accompany most human speech), it is nevertheless an important fact that *homo sapiens* can by speech communicate with his fellows at considerable distances even while his hands and the rest of the body are engaged in combat or other activities.

The development of the human hand, hearing, and speech are, of course, closely related to many other anatomical peculiarities, notably the development of the hind limbs as supporting organs, the expansion of the association centers of the brain, and the increase in the size of the brain.

More important, perhaps, than any of the anatomical facts which distinguish *homo sapiens* from the rest of the animal kingdom is the basic physiological fact of man's prolonged infancy, the significance of which Haldane sums up in these words:¹

"Man is a creature of much slower growth than any other warm-blooded animal of his size. The slowing of growth has already begun in apes, which mature much less quickly than, for example, dogs or sheep of the same size. One result of this slowing has been that the apes, and to a still greater extent man, never develop certain characteristics of their adult ancestors, but preserve those of the young or even unborn stage. . . .

"Our mental superiority over the animals is perhaps largely due to the fact that we never develop certain characteristics found in most adult animals. Our behaviour is less determined by instinct, that is to say, inborn reaction patterns, and we are more teachable."

In like vein the anthropologist Coon writes:²

"Small, foetalized, relatively weak races may be more efficient and hence more suitable for survival in certain environments than larger, more muscular, and less infantile ones. Small, foetalized, and relatively defenseless mammals develop elaborate social devices by which the solidarity of the group compensates for the deficiency in individual aggressiveness; man on the whole is a social animal comparable in this respect to the *Cebus* monkey."

Dr. Morris Opler concludes that during a period when many more powerful organisms were perishing from the earth men survived "because they were particularly sensitive and adaptable in their total reactions to each other, to other animals, and to their environment."³

If all that is distinctive about humanity is related to the prolongation of infancy and the learning period, we can readily

¹ Haldane, *The Inequality of Man*, p. 92.

² Coon, *Races of Europe* (1939), p. 6.

³ Opler, *Fact and Fallacy Concerning the Evolution of Man*, p. 12.

understand how it comes to pass that the highest development of human civilization is closely tied to the artificial prolongation of the learning period. Where the savage boy or girl at puberty is a relatively self-sufficient person, his more civilized cousin at the same age is comparatively helpless, and the brightest representatives of civilization are men like Socrates and Einstein who never outgrow a childish curiosity about the universe and continue, as long as they live, to ask questions of the world and to revise mistaken views. Less civilized human beings are apt to be perfectly certain of the answers to all the questions they face after they reach the age of 40, if not before. There is profound insight in the remark of Justice Holmes, "To have doubted one's own first principles is the mark of a civilized man."⁴

If the biological capacity for prolonged uncertainty, doubt, and learning is at the heart of human power, so we may find that on the social scene the development of institutions and conditions that encourage inquiry, doubt, and the process of learning offers the most solid source of strength that any society can command.

Since distinctive physiologic traits are thus at the basis of civilization, may not physiologic differences between the races of men be the basis of differences in their civilization?

The problem is a difficult one not only because race pride hinders thoroughly scientific inquiry but because it is almost impossible to isolate the various factors involved and thus test assumed correlations between them.

One of the obvious differences between black and white peoples is their capacity for living in the tropics. So far white people have not yet succeeded in taking root and reproducing themselves in torrid climes. The significance of that fact, however, is rather dubious because of the uncertainty as to whether this capacity is not acquired in the course of long periods. It is not at all certain

⁴ "Ideals and Doubts" in *Collected Legal Papers*, p. 307.

that if the climate of the United States were to grow much warmer in the course of time the white man would disappear. He may even slowly penetrate first the sub-tropical and then the tropical regions, and the Negro may have done the same. Eskimo find that the temperate zone of the United States is dangerous to their health, as the white man does the tropics, but it is difficult to say how far these facts involve purely biological elements and how far they involve problems of social adjustment. Certainly the white man can readily adapt himself to a colder climate if he is willing to endure certain social difficulties, and the success of the Negroes in adapting themselves to a colder country is not inherently different from that of the white man.

A more difficult fact to explain, except in terms of ultimate racial aptitudes having a physiologic basis, is the disappearance of the native Indians in the West Indies and their replacement by Negroes who were willing to accept tasks which the former would not. But here again the situation is complicated by the social factor or possibly the psychologic one. The natives of the West Indies could not adjust themselves to being suddenly enslaved in their native habitat and being compelled to do unusually heavy work of a kind to which they were not accustomed. The imported blacks seem to have enjoyed less liberty before being brought here and were less inclined to forsake their tasks and masters to live off a country they did not know.

The fact that the white English, French, and Spanish could not maintain themselves in the West Indies but were very quickly outnumbered by the blacks may have been due to economic rather than physiologic factors. We know, for instance, that after the English settled Barbados and found the economic situation unbearable because of the competition of Negro slave labor they left that island in large numbers.

The attempt has been made to maintain the thesis that different races have different mental constitutions. Some are supposed to

be slaves by nature, some (e. g., Teutons or Tartars) brave conquerors, others naturally artistic. The Ethiopian, we are told, cannot change the color of his skin nor the basic character of his religion. But the Germans have changed their character in historic times, e. g., since Kant, and every racial group whose history we can trace more than a few centuries shows radically different characteristics at different periods.

English poetry of the nineteenth century is distinctive in its love of out-of-door nature. But the difference between the poetry of the age of Dryden and Pope and that of Keats, Shelley, and Wordsworth is surely not due to any change of race. Quite obviously it involves historic changes in sentiments—a going back, if you like, to some of the traits of Shakespeare and even of Chaucer. It may well be urged that great poetry is written not by whole peoples but by specially gifted individuals and that men of genius made the change. Yet there was something in the people of England which made them appreciate Shelley or Keats when the Germans could see only Byron. Ultimately the fundamental pattern of all love poetry is the same in England, France, and Germany as in ancient Israel or Arabia. The human heart responds to similar motives. Changes that occur in forms of expression are clearly not racial in the biologic sense but the results of cultural development.

Not the least of the difficulties inherent in attempts to explain historical events on a racial basis is the difficulty of determining what characteristics of a man or group are racial as distinct from those that are cultural. Much, for instance, of what we commonly consider as distinctively French or Prussian or Jewish is a product of ways of dressing, speaking, shaving, hair-trimming, eating, exercise, and other habits of life. Thus a baby of such ancestry brought up in a different home and environment does not show these characteristics, but an adopted baby of different racial origin brought up in a French, Prussian or Jewish family or environment

is likely to show the characteristics we commonly attribute to these groups. In his *Races of Europe*, Coon comments:

"Although . . . every racial type known in Europe may be picked out of the Jewish body, most of the Jews represent a blend . . . of several of them" (p. 646). "Any observant European or Arab who has seen many Jews can distinguish most of them from Gentiles with some accuracy, whether in Europe, America, or the Near East. There is, however, no known physical criterion or set of criteria by which this quality may be measured. . . . It seems most likely that . . . the deciding factor may not be so much physical, as social and psychological. . . . Aside from clothing, speech, and other external cultural phenomena, is a characteristic facial expression centered about the eyes, nose, and mouth; this seems to be a socially induced element of behaviour. Not all Jews, by any means, have it . . . [and it] may be seen occasionally upon members of other ethnic groups. The Jews are by no means unique in the possession of a national or ethnic facial expression. The English Public School man of standard type, trained in a social tradition as definite in its own way as that of the Jew, has a look that can be recognized almost anywhere, and one which is just as easy a prey to the cartoonist as is that of the Jew" (pp. 441-442).

When we refine our analysis to a point where we are dealing with racial factors in the strictest sense, i. e., factors which are biologically inherited, we find certain differences in skull formation, skin pigmentation, hair structure, and various other anatomical elements which do not in any way determine man's cultural achievements. Dr. Opler summarizes the present state of our anthropological knowledge in these terms:⁵

"Ashley Montagu and the modern school of geneticists (Dobzhansky and Hogben for instance) have demonstrated that at least 95 per cent of what we inherit in bodily form, tissues, muscles, nerves, and organs, is the reflection of our

⁵ Opler, "Fact and Fallacy Concerning the Evolution of Man" (in course of publication).

common humanity and is shared with all human beings, including members of races other than our own. As a result of chance variation and gene mutation coupled with isolation, perhaps five per cent of man's hereditary possibilities have undergone change, giving us, when a number of distinctive traits cluster in one population, those differences which have become the hall-marks of race. . . .

"Furthermore, there is no indication that the particular traits which have varied sufficiently to be recognized as racial criteria are of any signal importance. It may be that the greater deposit of pigment in the skin which makes the "colored" races so objectionable to the less heavily pigmented variety of mankind has some survival value, since it serves as a protection from the injurious actinic rays of the sun in equatorial regions. But for the greatest number of these slight physical differences which together define "race," no such case can be made. The advantages of straight hair over curly hair, or curly hair over straight hair; the superiority of a long, narrow head over a short broad head, or the reverse, have yet to be demonstrated."

Those who invoke the prestige of science to buttress racial theories that thrive best in the absence of science generally rely on the evolutionary myth which portrays each change in *homo sapiens* as a result of the struggle for survival. From this standpoint every peculiarity, no matter how trivial, may be viewed as establishing the superiority of a given racial strain at least in its own native land.

Recent developments in genetics; however, have removed the scientific underpinnings of racist theories of human development. According to W. E. Castle and Ashley Montagu, the human race was originally "genetically relatively homogeneous"; as a result of dispersal and isolation, gene mutations have resulted in superficial differentiations in biologically unimportant factors, which tend to disappear as isolation breaks down.⁶ These differentia-

⁶ Castle, "Biological and Social Consequences of Race-Crossing," *Amer. Journal of Physical Anthropology*, vol. IX (1926), pp. 145-146; Montagu, *Man's Most Dangerous Myth*, (2d ed., 1945), pp. 38-39.

tions, most extreme in the most isolated portions of the earth, have no necessary significance, positive or negative, from the standpoint of fitness to survive.

From this standpoint, race crossing is a normal phenomenon of human history. The exalters of racial "purity" claim that there are instincts of avoidance which stand in the way of such mixture, but no scientific evidence has been adduced in support of this claim. Ashley Montagu points out that even among the lower animals avoidance of other species is an acquired rather than an inherited trait:⁷

"So-called race prejudices among lower animals, like their so-called natural fears and terrors, are *acquired*, not inborn. Experiments on young animals first carried out by Benjamin Kidd many years ago and by numerous investigators since then conclusively prove that the so-called 'instinctive' fear and terror exhibited in the presence of their allegedly natural enemies by the adult members of the species are emotions which are generally completely absent in the young and that they are acquired only by *learning* from other members of the species or by individual experience."

Bruno Lasker and others have shown that race prejudice among children is similarly a product of teaching.⁸

Racial interpretations of history commonly try to establish not only the biological inevitability of racial antagonisms but also the value of such antagonisms in maintaining race purity, but the known facts do not support the theory that pure races are healthier or more highly cultured than mixed races. Children of interracial marriages are not less healthy than those of supposed pure blood. Professor Boas discovered that half-blood Indians were taller and more fertile than the parents of Indian and white stocks.⁹ Similar observations have been made on immigrant mixed marriages.

⁷ Montagu, *op. cit.*, pp. 168-169.

⁸ *Race Attitudes in Children* (1929).

⁹ Boas, *Race, Language and Culture*, pp. 138-148.

"Such anthropological measurements as have been secured for the second generation of school children born of mixed parentage show higher weight, chest measurements, etc., than the general average of pure American stocks."¹⁰

Havelock Ellis has called attention to the emptiness of various racial myths by pointing to the interracial origins of the men who fired the imagination of the nineteenth century.¹¹

"Poe, Whitman, Lowell, Bret Harte, Mark Twain, Longfellow, Lafcadio Hearn, Edison, in America; Tennyson, Swinburne, Rossetti, Browning, Romilly, Lewes, Millais, Disraeli, in England; Sainte-Beuve, Dumas, Taine, de Maistre, Montalembert, Mérimée, Hugo, in France; Kant in Germany; Pushkin, Lhermontoff, von Visine in Russia; Ibsen in Norway—are types of such mixtures. Tennyson was a cross of Danish, French, and English; Swinburne of Danish and French; Morris of Welsh and Anglo-Danish; Browning of West Saxon, British, Creole and German; Olive Schreiner of German, English and Jewish; Walter Pater of Flemish and Anglo-Danish; Thomas Hardy of English, Jersey-French, Irish; Flaubert of French and Iroquois; Dumas of French and Negro; Hugo of Lorraine-German and Breton; Zola of Italian, Greek and French; Ibsen of German, Scotch and Norwegian; Pushkin of Russian and Abyssinian Negro."

There is much evidence to support Havelock Ellis's conclusion that "Wherever the races have remained comparatively pure we seldom find any high or energetic civilization."¹² Curiously enough many of the national heroes glorified by nationalistic histories were really foreigners, e. g., Napoleon, Gambetta, Waddington (in France), Chamisso, De la Motte Fouqué, von Moltke (in Germany), Petöfy (in Hungary), Arturo Graf (in Italy), Becker and Hartzenbusch (in Spain).

¹⁰ *Bulletin Amer. Acad. of Medicine*, April 1914, pp. 79-80.

¹¹ Havelock Ellis, "The Ancestry of Genius," *Atlantic Monthly*, LXXI, 383-389.

¹² *Op. cit.*, p. 389

The state of our knowledge does not permit us either to ascribe to any given race any significant mental characteristic or to exclude the possibility that some correlation between race and mental traits may some day be found. In these circumstances all explanations of history in terms of racial factors are pseudo-scientific, since they seek to explain what we know little about by means of what we do not know at all. But the motives that lead to such explanations are not often purely intellectual. Such motives are as varied as the many racial interpretations of history, but one effect they all have in common, namely to exclude from the full claims of human sympathy one or more segments of the human family and to limit the scope of intelligence in our interracial dealings. If Germans, or Japanese, or Negroes are deemed incapable of full participation in the highest civilization, there is no point in taking the trouble to ascertain and cure historical conditions that may have led to particular social evils. If everything is a matter of blood all interracial dealings must have a bloody outcome. Faith in reason, intelligence, and the possibilities of training and education is incompatible with every racial interpretation of history.

The words of John Stuart Mill ring as true today as they did a century ago: "Of all vulgar modes of escaping from the consideration of the effect of social and moral influences on the human mind, the most vulgar is that of attributing the diversities of conduct and character to inherent natural differences."¹⁸

The modern appeal to racist theories, whether used by Nazi apologists to justify the massacre of unoffending neighbors or by Americans to justify the degradation of the Negro, the removal of Americans of Japanese descent from their homes and occupations, or the exclusion from our shores of "non-Aryan" immigrants, is based upon a denial of the plasticity or teachability of

¹⁸ *Political Economy*, I, 390.

human nature and upon a determination to ignore the facts of human history. For human history, as has been well said, "is the story of the diminishing importance of the body and the increasing importance of the superorganic or cultural."¹⁴

A theory that blinds us to the facts of history may have a special appeal to those whose history furnishes no grounds for proper pride. "From Tacitus to Gobineau," writes Barzun, "the great racial ideals have come from disappointed men."¹⁵ And in the same vein Bertrand Russell observes:¹⁶

"The whole movement, from Fichte onwards, is a method of bolstering up self-esteem and lust for power by means of beliefs which have nothing in their favor except that they are flattering. Fichte needed a doctrine which would make him feel superior to Napoleon; Carlyle and Nietzsche had infirmities for which they sought compensation in the world of imagination; British imperialism of Rudyard Kipling's epoch was due to shame at having lost industrial supremacy; and the Hitlerite madness of our time is a mantle of myth in which the German ego keeps itself warm against the cold blasts of Versailles."

In a footnote with reference to Fichte Russell quotes as follows from R. Butler's *Roots of National Socialism*, p. 44:

"Before the war of 1806-7 Prussia had comprised approximately 5,700 square miles and 9 $\frac{3}{4}$ million inhabitants: after it she was left with about 2,800 square miles and some 4 $\frac{1}{2}$ million inhabitants. More than half had gone. It has been reckoned that during the two years in which the French were in occupation the Prussian reparations and contributions amounted approximately to one milliard and 129 million francs. . . .

"In the winter of 1807, when the fortunes of Prussia were thus at their nadir, Fichte, who had lately studied Machiavelli with approval, delivered in Berlin his celebrated *Reden an*

¹⁴ Opler, "Cultural and Organic Conceptions in History," *American Anthropologist* (1944), XLVI, 455

¹⁵ *Race*, p. 284.

¹⁶ *In Praise of Idleness* (1935), p. 114

die deutsche Nation (Addresses to the German Nation) which he gave to Germans for a new sign of the greatness of the nation, of their nation."

There is a sardonic poetic justice in the Nazi tragedy which tore down the strength of Germany—a strength rooted in its science, education, and industrial skills—in the general retreat to bestiality which is characteristic of racism. "It was inevitable," writes Morris Opler in a penetrating study of racist thinking in Germany and America, "that Hitler, in keeping with his glorification of struggle in nature, should repudiate the quality of thought and reflection that most distinguishes man from other animals. As early as 1923 he told his followers: 'Further changes are needed in our system of education. *We suffer today from an excess of culture.* Only knowledge is valued. But wiseacres are the enemies of action. What we need is instinct and will.' Thus knowledge was declared largely independent of the exercise of the intellect. Like every other aspect of culture it was conceived to be the expression of biological excellence to be developed indirectly by the propagation and training of superior organisms. The result of this extension of the biological thesis to the mental sphere was the most devastating anti-intellectualism that the world has ever known. Action was substituted for thought, will and instinct for conscience, inquiry for inquiry."¹⁷

In our own land similar views have been expressed:¹⁸

"Our education is a failure, our social science a farce, and our mechanical science a peril. Man's culture is a vampire dummy which has sucked the organic vigor from its maker. . . .

"We all know what this world needs—not better machines, not more cunningly devised social institutions, not the fabrication of higher ethical and social codes, but better human

¹⁷ Opler, "The Bio-Social Basis of Thought in the Third Reich," *Amer. Sociological Rev.*, X, 780.

¹⁸ Earnest A. Hooton, *Why Men Behave Like Apes and Vice Versa* (1940), pp. 5, 228.

beings: man, woman, and child, in every stratum of its population and in every country. Human evil is not a product of human institutions, but of human beings. The evil human being is the inferior biological organism."

To those who strongly hold such views, the historic development of these views and their consequences in Germany can give no warning. For if biological facts are the key to history, the record not only of Nazism but of the past five thousand years of human experience, which reveals no significant change in man's biological inheritance, is a blank page.

2. The Growth of Population

There is a respectable tradition, developed in Spencerian philosophy and given definitive form in Sutherland's *Origin and Growth of the Moral Instincts*, according to which progress is based upon a lowering of the birth rate and death rate. Just as in the lower forms of animal life there is an enormous production of which only a few survive, so that the life of the organism is mainly devoted to procreation, so it is supposed that savages have an enormous birth rate with a consequently large death rate, so that the life of the individual is consumed in bringing forth children and thus little development beyond mere increase of population is possible. With advancing civilization the age of childhood is prolonged, the birth rate and death rate decreased, leading to prolongation of the life of the mother and a greater freedom for all sorts of activities other than childbearing.

All this has become classic, yet this theory over-simplifies the situation. Various explanations have been offered as to the variation of the birth rate among different peoples. The most careful studies, however, seem to indicate that fertility depends almost directly on the food supply and that while some primitive peoples seem to excel in the number of children born, that is due only to the fact that the restraints on marriage and the practice of birth control are greater among civilized people. If we take the Hindus

we find that for the same periods of time the married English-woman has more children than her Hindu sister. (The Hindu woman, of course, is married for a longer period because of Hindu child marriages.) In so far as the progress of civilization produces a more steady food supply, it leads to a greater birth rate.¹⁹ In any case the studies of Carr-Saunders would indicate that the lower birth rate among most civilized people is due not to a lessened vitality, but rather to a lessening of the years of marriage of women of child-bearing age.

Generally speaking, the birth rate is higher in rural than in urban communities, for in the former children are an asset. They add to the wealth and income of the group, and in a land economy the continuity of the family and its patrimony is the supreme aim, while in the city children are a liability and family ties are somewhat looser. It seems true that the Romans were able to conquer the world not only because they developed the arts of war to a greater extent than any other people of their time but because their mode of life produced more and stronger children. This is shown in the war between Rome and Carthage. For years Hannibal showed himself superior to any general the Romans could produce, but while Cannae was a more complete and devastating victory than Zama (hardly any Roman soldiers were left in the former battle) Rome did not fall after Cannae whereas Carthage did after Zama. This, however, is not due to any inherent racial trait but possibly to the mode of life which made the Romans live on the land while the Carthaginians were a relatively small group huddled together in tall tenement houses in the city of Carthage, so that the Romans were able to exterminate them en masse.

¹⁹ Cf. K. A. Edin, "The Fertility of the Social Classes in Stockholm," in Pitt-Rivers, *Problems of Population* (1932) at pp. 91-101, for an account of the correlation between high income and high birth rates in an urban population where birth control information is generally available.

Rural life, however, is not always more conducive to population increase than urban life. Notwithstanding the popular impression that diseases and plagues take a larger proportion of children in cities because of the greater rapidity with which contagious diseases spread in crowded areas, current statistics indicate that infant mortality rates are higher in rural areas of the United States than in industrialized urban areas.

In general the migration of people from country to city is greater than from city to country, so that the growth of cities would seem to be due to immigration rather than to natural increase. This is often taken as indicating that city life is somehow parasitic.

It is difficult to isolate the various factors which enter into the situation—how far, for instance, voluntary birth control in the cities operates as a differential factor. Taking a country as a whole, however, we can say that city life, by increasing industrial productiveness even on the farm (through improved agricultural machinery, the development of chemical fertilizers, etc.) makes possible a more densely settled land. Urban civilization also increases the available land on which people can live by providing means and opportunities for the exchange of surplus products, since few small regions can possibly raise all the different kinds of food necessary for civilized life.

Increasing populations have been so noteworthy a concomitant of the advance of industrialization and civilization in various parts of the world during recent centuries that it is hard for us to realize that population increase and the kind of expanding civilization that goes with such increase cannot continue forever in a spiral of infinite progress. It is clear that population on a finite earth cannot go on increasing indefinitely. The soil from which men draw their food is not a perpetual fountain. If more is taken out than is replaced it is sooner or later exhausted. In modern times machinery has enabled us to get more out of the soil and to

replace part of it by artificial fertilizers, but this intensification of agricultural production has technical and economic limitations. We know, too, that mineral resources are finite, that some day the coal and oil on which modern machinery is based will be exhausted, just as we know that many mines have been exhausted. Other sources of energy may become available, but there is no reason to suppose that they too may not be exhausted in a finite time.

Limits to progress are found in the nature of the human organism as well as in the character of its environment. No matter what progress medical science may make there is no reason to believe that we can extend individual life indefinitely. We have increased the population mainly by diminishing the mortality of infants, and we may be able to diminish the death rate from certain diseases, but we cannot stop death before the century mark. There is no need, however, to despair of the future of civilization merely because it has entered upon what seems to be a phase of declining birth rates and perhaps even of declining populations. But decreases in birth rates and in populations have important impacts upon the social order and these impacts need to be objectively scrutinized.

A decreasing birth rate entails, first of all, a shift upward in the average age of the population. If there are relatively fewer children in a community, there are relatively more older people, and a community of older people differs in definite respects from that with a lower average age. The first and most obvious difference is that of the kind of goods consumed. There will be less need for toys and baby dresses and more need for false teeth, more homes for the aged and relatively fewer kindergartens. There will be a difference in the family budget and the proportion thereof that goes for rent to provide room for children.²⁰

²⁰ See P. K. Whelpton, "The Future Growth of the Population of the United States," in Pitt-Rivers, *Problems of Population* (1932), p. 83.

More important will be the proportion of people gainfully engaged in industry and business. Intellectually and morally the effect of old age is to make people more conservative. Traditional morality has been framed by old people. The rebels and liberators have been the young ones. Ages of expanding population based on increasing birth rates have brought a larger number of young people to the front.

Where the birth rate goes down below the death rate we have, unless compensation is made by means of immigration, a decreasing population. The first economic effect of a decreasing population is to stop the flow of investments in factories, machinery and other capital goods, to slow up the process of building new homes and of tearing down high structures for the sake of erecting higher ones. Thus the speculative element in business will be reduced, the rate of interest will become lower and incomes more steady. The turnover of labor will decrease and at the same time taxable values of inherited estates will increase, since older people will have accumulated more.

If economic progress is to be made under such conditions, it will have to be made through increasing the standards of living. That involves establishing a more equitable distribution of income, or, more specifically, a raising of the standards of the large depressed classes. As nations rush to expand through the increase of commerce they will resort more to war unless there is some effective machinery to settle international affairs in other ways.

Modern life and modern philosophy have encouraged men and women to increase their demands. Perhaps much of the direction of our future social development will depend upon whether we carry over into a more stable economy the spirit of expanding demands, or whether we return to the philosophy of antiquity which viewed the way to happiness as based upon the limitation of our desires.

3. Does Civilization Weaken the Human Organism?

There is a tradition, sometimes attributed to Rousseau but going back to classical Greek antiquity, that primitive man was strong and robust and that the life of cities, commerce, and the refined arts all weaken the human body. Every schoolboy who has studied Latin is familiar with Caesar's comment that the Belgians were the bravest people of Gaul because they were farthest removed from civilization, and this idealization of primitive vigor goes back at least to Xenophon and even earlier writers. Associated with this conception of primitive strength is the idea that primitive men, like animals, are free from "unnatural practices" (1) in regard to food; (2) in regard to sex; and (3) in regard to overwork.

(1) The only positive evidence for the popular impression that primitive health is better because of a "natural" diet seems to be the condition of the teeth in ancient skeletons. The teeth not only of mummies in Egypt but of man in paleolithic and neolithic times seem to be on the whole in better condition than those of modern man.

"Upon inspecting the many early Egyptian and Nubian crania, for instance, we are astounded at the perfect preservation of the teeth, although the extensive abrasion of the masticatory surface is rather startling, suggesting simple, suitable fare, but mainly of vegetable character, rich in cellulose and with a generous adulteration of sand particles."²¹

An examination of the teeth of modern Arabs, however, does not show them to be better than those of more advanced Europeans. In any case the development and spread of specific pathologies like dental caries, as well as of other diseases and epidemics, may be quite independent of the advance of civilization. We still do not know the causes of epidemics like the virulent

²¹ K. Sudhoff, *Essays in the History of Medicine*, ed. by F. H. Garrison (1926), p. 124.

Spanish influenza of 1918-1919, which, while it lasted, killed more people than the First World War. New diseases develop in the course of history, just as new species of animals develop. Epidemics have cosmic and technologic causes, related to modes of living, back of the pathogenic germs. The course of civilization, however, shows a development of hygienic and curative practices which have minimized the incidence of many primitive ailments.

In many respects, for example the prevalence of trachoma and other ailments, civilized man seems to be in much better condition. The stature of man is certainly greater in countries where men are well fed. This is clearly seen in the increase in the stature of European peoples when they settled in North America. The armor of the Black Prince and other military heroes of the age of chivalry is too small for the ordinary modern soldier, thus indicating a rise in stature of the population of England and western Europe. Studies of various immigrant groups in the United States show that increase of stature in the second and third generation is a normal resultant of improved diet and hygiene.

Our conception of primitive health is partly explained by the inadequacy of reports as to primitive disease. It is hard to reconstruct the history of ancient diseases from the remaining descriptions of them, even from those of observers as keen as Hippocrates. In recent years, however, the inadequate history of mankind from the physiological standpoint has been amplified by new sources of information as a result of the archeological discoveries in the Near East and in portions of America, for the examination of skeletons enables us to trace the prevalence of some of the diseases. Over ten thousand bodies have been found in digging the Assuan dam. These skeletons show a shocking incidence of bone and joint diseases which had been commonly

considered products of civilization. Thus Sudhoff²² reports

"finding in the majority of adult skeletons from upper Egypt and Nubia of five to seven thousand years ago signs of a disease which today appears only under the most unhygienic conditions, and then hardly to such degree as it formerly affected a tremendous majority, even in the third decade of life, causing ankylosis of the joints and spine with almost absolute immobility, so that at an early age these unfortunate people became helpless dependents. Osteoarthritis deformans in that 'Golden Age' afflicted humanity of both sexes with such frequency and severity as to stagger all power of imagination in this our own period, so corrupt with 'refined culture' on the one hand and misery on the other. Even then, constant sojourn along, upon and in the waters, even more perhaps the dwelling and sleeping upon the damp ground, in wet pits and caves, was a fruitful source of disease. . . . Yet, the hygienic coefficient of life among the early inhabitants of Northern Europe, derived from a study of osseous remains, differs but slightly from the results of investigation along the Nile. . . . The primitive Germans who interred their heroes in the long stone passages of the 'giant chambers' suffered to an appalling degree (almost ninety per cent of adults) from gouty diseases of the bones and joints."

A similar conclusion is strongly indicated as far back as neolithic times. According to Sudhoff, "Diseases of the osseous system, such as rickets and arthritis deformans, supposed to be sins of civilization, are already present in Neolithic man" (*Ibid.* p. 163). There is thus no justification for the notion that primitive man had a higher hygienic coefficient of life than his contemporary descendants.

The robustness that is supposed to follow from living in accordance with nature is entirely mythical. In general, savages eat worse food than civilized man, are not regular in their meals, and do not have so long a life span. The best proof of the hy-

²² *Op. cit.*, pp. 124-125.

gienic effectiveness of civilization is the great increase of population in Europe since the industrial revolution. It may be true that ultra-civilized people, especially of the leisure class, suffer more from indigestion than do savages, but that may be attributed in part to the fact that they have more time to think about their aches and pains.

(2) Nor is it true that sex abuses are the invention of civilization. Homosexuality, masturbation, and other sexual abuses are common among animals, and primitive man has nothing to learn from us in this regard. It may be true that city life over-stimulates sex (as Balzac has described in "A Country Doctor"), but, on the other hand, it has also introduced restraints which have become habitual. The attraction of flirtation and generally cultivated gallantry enriches life. It is true that the peasant woman bears many children and is confined to bed for a relatively shorter time than her urban sister, but here we have to take account of selection and training in hard physical labor. In any event, the death rate among children is greater among poorer people, and probably among peasants, than among those who have more of the advantages of civilized urban life. Peasant women may not consult doctors as often as their urban sisters, but their life span is certainly not greater.

(3) Whether civilization brings with it an "unnatural" development of over-work and strain is a more difficult question to answer. Civilization, with its excessive mechanization and specialization, may make work less interesting than primitive work on the farm or in the workshop. But the farm worker prefers to go to the city to enjoy its color and variety after the day's work. Relatively few city workers care to go to the farm—even now when the farm has electricity, radio, and other modern comforts. It is hard to say how the strain of accommodating one's organism to the tempo and rhythm of a machine compares to the strain under which men labored on the Egyptian pyramids or in the mines of

Greece. But certainly disorders of the brain and nervous system were not unknown in prehistoric times.

Whether modern machinery and the noise of modern cities will wear out our nervous equipment, or whether the human organism can change its rhythm to adapt itself to the more rapid rhythm of modern machinery, is a problem as yet unanswered in any conclusive way. The increase in the number of nervous disorders may be the result of leisure and hypochondriac suggestion, and the increase in the number committed to insane asylums may be due to greater strictness in reporting and committing people to such institutions. An idiot boy can readily take care of himself on the farm or in a sparsely settled town under the older, quieter modes of life. He becomes a danger to himself and to others in modern city life. There is, thus, a greater pressure to remove him to a place where he can receive special protection and care.

Perhaps the only fair conclusion that the facts of history will support is that all work is, in a sense, unnatural, dangerous, and wearing on the human organism. Otherwise it would not be work. Accordingly every task that needs to be done must somehow be assimilated into human life by song and romance. In primitive times the songs, dances and legends that make difficult and dangerous tasks attractive are the result of long developing cumulative traditions. The imposition of tasks not so assimilated into a primitive culture has often resulted in the destruction of whole populations. Such was the case apparently with the Indians whom the Spaniards tried to turn into miners in the fifteenth and sixteenth centuries. Many native populations in Africa and Oceania have suffered a similar fate. Civilization, however, while it produces at an increasing tempo new tasks with new dangers, is also capable of developing (if those who control production are interested) new ways of making such work acceptable and attractive. Many industrial plants have found that music in working hours improves production and morale. Safety devices, noise

and shock-absorbing apparatus, air-conditioning, and many other devices may serve the same role that was once served by work-songs, martial music, and sea-chanteys; and the element of romance is not wanting in appeals that seek to endow industrial labor with the values of patriotism, social competition, or the up-from-the-ranks theme of Horatio Alger and the Saturday Evening Post.

Our conclusion, therefore, is that while there may have been certain important changes in the physiologic constitution of man during the period when civilization developed, the weight of evidence indicates that man, like plants or animals, generally thrives biologically under improved conditions, that is, under favorable conditions of climate, food, exercise, etc.; and while there is no evidence that general human intelligence has increased (as a native capacity), there is no sufficient evidence that civilized life has weakened it.

The myth of primitive health has seriously hindered historical insight by obscuring the central role which has been played in the advancement of knowledge by man's long struggle to conquer the ills to which human flesh is heir. We know of no primitive people today among whom specialized knowledge of medicine is not highly valued. So much is this the case that primitive men will undergo most painful courses of treatment at the direction of their doctors or medicine men and make the most drastic economic sacrifices to support a professional healing class. There is room for much difference of opinion as to the amount of sound medical knowledge that is concealed within the mumbo-jumbo of the primitive medicine man, and some have been unkind enough to raise similar doubts with respect to contemporary medical practice. But the fact seems to be that medical learning of a substantial character goes very far back into prehistoric times. We know, for instance, that one of the most delicate operations of modern brain surgery was performed with considerable frequency and apparent success as far back as neolithic times. Over 200 trepanned skulls

have been found in the dolmens and burial caves of France. That these operations, made with a sharp flint instrument, were commonly successful is indicated by the bony over-growth.²⁸ To quote again from Sudhoff (p. 163):

"Not only do the bones of Neolithic Man show evidences of disease or impacted arrow heads, but they also show traces of attempts at the correction of deformities as well as of supuration during the process of healing. Some of the corrective efforts challenge our admiration. Recently Karl Jaeger found 53.8 percent of good unions of prehistoric fractures as against 46.2 percent of bad unions, surely a noteworthy achievement on the part of prehistoric man. Furthermore, on the basis of the treatment of skull injuries Jaeger attributes quite a respectable knowledge and skill to the first-aid healers of the Bronze and Stone Ages."

The fact remains that medical knowledge is so prized by men that even a very small kernel of truth may make a doctor or a doctrine valuable.

The prestige won by a successful cure, as Jesus recognized in his instructions to his disciples, and as many colonizing powers have since recognized, may win receptive audiences for other teachings. In turn, religious sanctions may secure adherence to useful rules of hygiene. The great Semitic contributions to human health—the day of rest and the idea of contagion, with its practical corollaries, the isolation of persons suffering from communicable diseases and the practice of cleansing by fumigation—lie within the field of religious ritual, so that it is hard to say how far sound hygiene was maintained by purely religious sanctions. But certainly the ritual of rest and of prophylaxis against contagious disease has contributed to the survival of the Jewish faith by endowing the adherents of that faith with a higher hygienic coefficient than many of the peoples among whom they have dwelt.

²⁸ Sudhoff, *op. cit.*, p. 164.

Sudhoff, who was not only a distinguished historian but a respected physician in the German Army in the First World War, makes this appraisal of the Semitic contributions to hygiene (*op. cit.*, pp. 130-131):

"Two of the greatest hygienic thoughts of mankind owe their origin to Semitism . . . the weekly day of rest and the direct prophylaxis of disease. . . .

"More than any other factor, it (the weekly day of rest) gave the strength to assert themselves among other races; and by contributing this hallowed day to Christianity and Islam, they thus imparted its hygienic blessing upon the greater part of the world. Had Judaism given nothing more to mankind than the establishment of a weekly day of rest, we should still be forced to proclaim her one of the greatest benefactors of humanity."

After tracing the struggle to rid Europe of leprosy, Sudhoff observes (pp. 132-134):

"The most important point historically is the fact that the Mosaic Law gave to mankind the idea of the imperative necessity of isolating those afflicted with a chronic contagious disease; in addition, the purification measures recommended in Leviticus for infected houses constitute the armament of modern prevention of epidemic diseases. . . .

"In this tenacious fight of centuries, the methods of which were borrowed from the Mosaic Code, the Occident triumphed over leprosy. Guided by this intellectual torch, it accomplished the first great feat in direct prophylaxis: methodical eradication of leprosy by consistently making the affected individuals harmless as carriers of the virus."

Many other common hygienic practices are similarly involved in beliefs of a nonscientific character. Burial of the dead, for example, has throughout historic times been attended by ceremonies indicating consideration for the dead. The effect of the practice, however, has certainly been to protect the living.

Research into the history of medical beliefs and practices may provide a valuable clue to the problem of why certain peoples

have survived and multiplied while other peoples living under similar environmental conditions have dwindled or disappeared. Unfortunately, however, professional historians have seldom possessed the technical knowledge necessary for a just appraisal of medieval and ancient medical practices. And these practices, whether mixed with the ordinary superstitions of popular folklore or with the professional superstitions that abound in Greek and medieval medical theory, have commonly been treated with unscientific disdain by the medical profession. They have thus been more often treated as curiosities than as significant factors in the survival and decay of peoples and cultures. It may be hoped that the new emphasis on public health problems in our more progressive medical schools will contribute to a better understanding of the role of hygiene in history and of the long-range historical effects of various hygienic codes relating to diet, exercise, and sleep, as well as of such preventive measures as quarantine, public sanitation, the shutting of the gates of medieval towns against plagues, the maintenance of pure water supply, and the proper disposition of waste products and sewage.

It seems reasonable, in the light of the available evidence, to conclude that medicine has been one of the growing points of human learning from the earliest times. Indeed in our own day even the most bitter opponents of science and free inquiry have hesitated to stamp out the pursuit of knowledge in the field of medicine.

Like climatic and other environmental conditions, the facts of human physiology are too invariant within the periods of recorded history to explain much of the course of empire and civilization. But the facts of physiology are of vital importance to the historian because they represent, just as does man's geographic environment, the limits of human achievement, and because they pose the basic technical problems which absorb the energies of men and mark the path of intellectual progress.

4. The Role of Philosophy in the History of Medicine

If the facts of physiology, and particularly the facts of disease, set the stage for much of the intellectual endeavor that marks the development of civilization, we should find that the study of medicine is not peripheral but rather central in the history of ideas. The philosophic significance and background of medical doctrine has not, however, been recognized by many physicians or philosophers in modern times. It may help us to appreciate the central role of medical thought in scientific philosophy to examine some of the historical relations between the two disciplines.

It is well to be reminded at the outset that the words "physician" and "physicist" are originally identical, and that both are the Greek equivalents of the word "naturalist" (whose root *natus* points to the generation of things). The modern practice which separates the student of medicine from other students of nature, putting the former in a separate professional school, has its administrative advantages, but nature does not exist for our administrative convenience; and we must not fall into the dangerous delusion that the phenomena of disease form a separate and distinct group which can be understood apart from other natural phenomena. Nature does not keep the phenomena of pathology and those of normal physiology in separate airtight compartments. The phenomena of disease which shorten the duration of life are physiologic phenomena, for all the processes of life lead to death. Indeed, as Huxley well put it, protoplasm manages to live only by continually dying. Catabolism is a necessary and inseparable obverse of anabolism. But not only the phenomena of disease but also the phenomena of therapy are physiologic. The effects of *materia medica* are as chemical or physiologic as the effects of ordinary food; and the effects of all modern therapeutic methods are physiologic in the same way as are the effects of the ordinary exercise of our organs.

The practical physician, like the practical engineer, may not have much time for pure science. He may be more interested in curing people than in understanding the cause of their troubles or the precise manner in which their cures take effect. But if medicine is to make progress as a science it cannot afford to be merely empirical and live intellectually from hand to mouth or from moment to moment. Experience has amply demonstrated the fact that the most practical way of solving the baffling problems of human disease is to study them in the most thorough scientific manner, and this means in a manner calculated to enable us to reach fundamental principles. It is only when we reach such principles that we can control new situations, when empirical routine breaks down.

Scientific medicine, therefore, has from its beginnings been intimately associated with that general or fundamental current of intellectual life which we call philosophy. This observation may sound self-evident and rather trite, but like other rudimentary propositions it needs eternal repetition, for we are too apt to ignore it in our fear of speculation and in senseless talk about the shibboleths, "induction" and "deduction."

To show this in detail, I wish to examine three incidents in the history of medicine and to indicate how the prevailing misconceptions as to their historic significance arise out of a failure to appreciate the proper philosophic background of these three movements. I mean, first, the movement which created the basis of scientific medicine in the body of writings commonly attributed to Hippocrates; second, the Averroist medicine taught at the University of Padua from the fourteenth to the sixteenth centuries; and third the incursion of the romantic *Naturphilosophie* into German medical science at the beginning of the nineteenth century. I trust that this examination will also indicate that in these interactions between medicine and philosophy both have been much the gainers.

(1) *The Hippocratean Writings and Scientific Medicine.* Scientific medicine begins with the Greeks. If any one is inclined to question this he need only compare the medical knowledge contained in Egyptian papyri, in the Bible, or in Assyrian Babylonian tablets with such Greek works as those on *Prognostics*, on *Airs, Waters and Places*, on *Joints*, or on *Ancient Medicine*. No doubt the non-Hellenic sources contain much valuable information. The human race had to accumulate a good deal of medical knowledge before the great oriental civilizations could be made possible. But pre-Hellenic, or rather pre-Hippocratic, medical knowledge is inextricably bound up with all kinds of magical and superstitious illusions without any fundamental principle to unite the various truths and to distinguish them from error. Only determining principles can serve as guiding clues to those scientific methods which make the definite solution of new problems possible.

In the Hippocratic writings we first see medicine based on the great truth that man is part of nature, and that the proper treatment of disease must begin with a diagnosis based on the assumption that its progress is controlled by natural principles operating in the form of causal relations and not by supernatural or magical intervention of demons, spirits, or gods. For the will of spirits or gods is arbitrary and offers no satisfactory explanation of why phenomena occur in one way rather than in another. But natural bodily conditions can be analyzed into elements and these elements can be found to be connected according to invariant law, so that whenever any of them recur we can anticipate what will follow. Accordingly it is of the utmost significance that Hippocrates eliminated the distinction between the sacred and the profane in disease. All phenomena as phenomena are equally sacred or equally natural so far as medical science goes.

This is undoubtedly due to the influence of the Ionic natural philosophy beginning with Thales and Anaximander and coming

down to Empedocles and Democritos. It is to these philosophers that we owe the conception of natural science as a field of sensible material phenomena governed by invariant laws, so that observation and mathematical computation will enable us to anticipate future phenomena and make progress in knowledge possible.

It is not necessary in this connection to trace in detail the influence of the individual Greek philosophers in the body of the Hippocratic writings. We can only mention in passing the influence of the Miletian school in emphasizing the importance of moisture, air, and warmth in the physiologic economy; the influence of Heraclitus in viewing life as a flux or process in which opposing forces are balanced according to some law; and the influence of the Pythagoreans in introducing the notion of number and measure and of just proportion between diverse elements such as food and exercise. Nor can we ignore the scientific genius of Empedocles, or of Democritos, who subordinated final causes to efficient ones and taught men the important and difficult lesson that nature destroys as well as builds, spoils the autumn leaves as well as makes the corn grow.

I wish to deal more generally with the widespread belief that Hippocrates freed the science of medicine not only from theology but also from philosophic speculation. Dr. Osler stated this view as follows (*The Evolution of Modern Medicine*, p. 65):

"What Socrates did for philosophy, Hippocrates may be said to have done for medicine. As Socrates devoted himself to ethics, and the application of right thinking to good conduct, so Hippocrates insisted upon the practical nature of the art, and on placing its highest good in the benefit of the patient. Empiricism, experience, the collection of facts, the evidence of the senses, the avoidance of philosophic speculations, were the distinguishing features of Hippocratic medicine."

This is acute and sound in general but not sufficiently accurate. If Hippocrates and Socrates both had their eyes on human affairs, they were both none the less philosophical. But there is also a

great difference between them. Socrates, if Plato's account be right, was a humanist of the type that underestimates purely natural knowledge—as can be seen by his references to Anaxagoras. In that regard Socrates only continued the humanism of the Sophists, that not only made man the center of its interests, but paid little attention to the wider phases of nature which had interested the non-Athenian naturalistic philosophers. Hippocrates also was interested in the nature of man, but he certainly did not conceive the nature of man as a bare concept or abstraction apart from the rest of the material world. Man's nature is that which manifests itself in an actual or bodily physical environment under different climates, localities, seasons, diets, winds, exercises, etc. The common principles of human nature must be found in the diversity of such phenomena. Without common principles as hypotheses we are lost in a mass of endless details, where all things are equally possible. If we are justified in believing that certain combinations of circumstances cannot occur in nature, the denial of such possibilities is precisely what is meant by the assertion of universals. If the body of Hippocratic writings contains, as it does, warnings against abstract speculations too far removed from practical applications, this is but an anticipation of the great physician-philosopher Aristotle, whose attitude to abstract universals is shown in his remark that a physician cures not men in general but actual individuals and that "he who sees things grow from the beginning will have the finest view of them."

There is undoubtedly a good deal of polemic in some of the Hippocratic writings against purely speculative medicine, and some historians have seen two periods in the history of the Hippocratic writings—first, a period of philosophic influence and then a period of reaction. That may be so. But true philosophy does not consist in uncritical acceptance of over-hasty generalizations about some single primary cause of all cases of disease or death, or in accepting the moist, the dry, and the like as adequate explanations

of actual cases of disease. On the contrary, it is true philosophy which recognizes the limits of our actual knowledge, recognizes that we lack the standards and means of exact science, and that there is a long road still to be traveled before the degree of learning is reached when we shall, in the words of Hippocrates (*On the Old Medicine*, XX), know "what man is from the beginning, how he came into being from the first, and from what elements he was originally constructed." Meanwhile the practice of medicine is itself a source of knowledge.

Still there is no science without universals. The mere accumulation of facts will not indicate their significance. Some general idea or anticipatory hypothesis is necessary to define our field of investigation and to determine what facts are relevant to our inquiry. Diagnosis or clinical observation is no exception to this rule. What is known as the inductive or clinical case-system is undoubtedly part of the Hippocratic system of medicine. But the priests of the temples also had records of remarkable cases. What distinguishes the Hippocratic collection of cases and makes them scientifically valuable is that those who made the observations and the records were convinced that only certain physical factors were relevant to the progress of disease, and that traditional circumstances such as the evil eye and the like could well be ignored.

Continuous observation is a necessary part of scientific method, but not sufficient for the attainment of truth in medicine or any other field. Men have observed disease since time immemorial and have arrived at the most preposterous ideas concerning it. Men generally observe only what their ideas have prepared them to observe. Leaving aside the genius that is incalculable, we may well say that accurate, reliable and fruitful observation in medicine as in other fields is possible only to those scientifically trained. That is why important discoveries are made, not by those who approach the subject without prejudice, but by those whose minds are so full of knowledge and active ideas that they are able to

anticipate nature—the foolish Baconian maxim to the contrary notwithstanding. This is recognized in the most anti-speculative of the Hippocratic writings. Thus it is not sufficient to note that cheese does not agree with some people. We must find out why it agrees with some and not with others and why it agrees and disagrees with the same person on different occasions, and this requires knowledge of man's physiologic constitution. The pure empiric is not interested in knowing the cause of incurable diseases, or why certain experiments at cures have failed. But the scientific spirit of the Hippocratic medicine is not only more philosophic in seeking to learn the reason why certain experiments have failed, but it is also more humane in teaching the doctor to recognize his limitations and to save the patient from useless or worse treatment. It is probably great Hippocrates himself who said: "The physician who is also a philosopher is divine."²⁴

We should not, however, leave the discussion of the significance of the Hippocratic writings without mentioning that to them we owe the distinction between the spirit and the soul, the *pneuma* and *psyche*, which is found in the New Testament and which has influenced European thought ever since.

(2) *Averroist Medicine and the Rise of Modern Science.* One of the current myths which pass as the history of science is the wide-spread belief that modern science sprang into being when a few men like Galileo suddenly conceived the happy idea of observing nature instead of relying on the authority of Aristotle. For entertaining this view, Galileo is supposed to have been bitterly opposed by the great Averroist philosophers who had held dominion at Padua since the beginning of the fourteenth century. Now, I do not deny that some of Galileo's colleagues at Padua thought little of his experiments. But one does not condemn science at Cambridge University for the reason that Todhunter

²⁴ Hippocrates, *Decorum*, V.

refused to look at Maxwell's demonstration of conical refraction because it might disturb his many years of teaching the subject; and one does not condemn science at Columbia University because one of its professors refuses to believe in the Einstein shift in the spectrum. The great outstanding fact is that of the six men who, beginning with Copernicus and ending with Galileo, did most to develop modern natural science, five were connected with the University of Padua—Copernicus and Vesalius, Harvey and Gilbert, as students, and Vesalius and Galileo as teachers. Other great naturalists of that period, Fracastro, Fallopio, Realdo Columbo, and Fabrizio, were also connected with Padua. Surely the dominating spirit of a university that can train or find work for such men could not have been anti-scientific, and sober history shows indeed that when Peter of Abano introduced the study of Arabic or Averroist medicine at Padua, that University became a fruitful center of illuminating study in natural science.

It is doubtless true that the enlightenment at Padua was largely aided by the fact that it became the university of Venice, for the Venetian commercial interests, who used to say, "We are first Venetians and then Christians," found it impolitic to exclude heretics and even non-Christians from their university. Thus it came to pass that Padua was the great free university up to the time when Leyden and Göttingen came on the scene. But a century before the Venetians obtained control of Padua the great liberal tradition of free scientific study had been initiated there by Peter of Abano. The Averroist physician-philosophers kept their studies free from the prevailing ecclesiastical dogmas about the creation of the world and the nature of the human soul, and it was the same Averroist school that resisted the humanism of Petrarch and his humanist followers, who poured contempt on those who studied bugs and stones and other minutiae of nature instead of the noble rhetoric of Cicero and other classic writers.

Peter of Abano's domination over medical thought and general scientific studies is shown by the large proportion of his works among the earliest printed books in the fifteenth century. It has been said with some truth that he did not know much of Arabic medicine at first hand. But he did learn, at Constantinople, the Greek of Aristotle, translated the latter's medical treatise on *Problems*, and effectively used the method of discrimination or conciliation of opposing views, which is the essentially sound element of mediaeval method. His boldness in denying the reality of the Devil and his general leaning towards pantheism brought him the honor of a posthumous burning during the Inquisition. But that the spirit of free thought persisted at Padua is amply testified by Petrarch who, like Bernard Shaw today, disliked the technical or non-literary vocabulary of the Averroist doctors even more than he feared their religious heterodoxy. The writings of Petrarch bear unwilling testimony to the enlightenment of the Averroist doctors, for instance his complaint that they attached more importance to blood than to phlegm and would not bleed everyone.

It is true that some elements of astrology are to be found in the early Paduan medicine, but not much more than in the Hippocratic writings. The Paduan doctors, however, like Giovanni Dondo, cultivated real astronomy, and in the fifteenth century the great Cusanus, who anticipated Copernicus, was trained at Padua, as were Purbach and other great founders of modern astronomy. Even in the time of Galileo, Cremonini and other Averroists of Padua defied the Inquisition and clung to their tradition of free thought in a manner to reflect honor upon their school.

A detailed analysis of the part that the Averroist tradition at Padua played in moulding the conditions of modern free scientific research must be left to another occasion. The subject has been confused by Renan's book on Averroes, which ends with what scholars must regard as one of the most perverse sentences

ever penned—"Who ever heard of anybody getting inspiration from an accurate knowledge of a text?" More accurate knowledge indicates that not only did Averroist Padua develop the basis for the revolutionary work in anatomy, physiology, and other foundations of modern medicine associated with the great names of Vesalius, Harvey, and Fracastro, but that at Padua, under the influence of the Averroist naturalists, were developed the scientific interests in physics which made it possible for Galileo to develop the science of dynamics and for Gilbert to lay the foundations of the more modern science of electro-magnetics. It was the physicians at Padua who first introduced clinical lectures, dissection rooms, anatomical and other museums, botanical gardens, and other helps to the study of nature. That such predilection for the minute observation of nature is not unconnected with the neo-Platonic pantheism involved in the Averroist philosophy is seen when we study the influence of Schelling's philosophy of nature on the growth of nineteenth century biology and medicine.

(3) *Schelling and Modern Medicine.* It has become a tradition among those who talk glibly about science that the romantic *Naturphilosophie* of Schelling and his followers represents the lowest degradation of science and that only by completely freeing themselves from that nightmare were modern biology and medical science able to resume their scientific progress. The incident has been used by empiricists as a moral to warn us against speculative philosophy in the natural sciences. The facts of sober history do not, however, confirm the empiricist philosophy. For among the adherents of Schelling were Von Baer, the founder of modern embryology, Johannes Müller, the founder of modern physiology, Oersted, who first showed the connection between electricity and magnetism, and a host of others, who amidst much that is deservedly forgotten or in bad repute did make important contributions to the biologic and medical sciences. It is true that Von

Baer and Johannes Müller in later life regretted and apologized for some of the intellectual excesses of their youth; nevertheless, their fundamental contributions to science in embryology and comparative morphology were conditioned by the ideas which they developed under the influence of Schelling's philosophy. Speculative excesses did not prevent the romantic natural philosophers from being most careful and loving observers of nature.

No doubt many of these romantic nature-philosophers went off on a tangent in following the suggestions of analogies too far fetched to be fruitfully applicable to the actual details of nature. But as sober a mind as Charles Darwin has well remarked that the progress of science is not hampered so much by false theories as by inaccurate observations. For even false theories have actually proved fruitful in supplying men with points of view for significant observation and the correlation or ordering of the chaos of facts in order to transform them into a scientific system; but that which is built on false observation can only prove a stumbling block and must sooner or later be destroyed before a sound structure can be erected in its place. Certainly the most fanciful of the romantic nature philosophers like Oken made their contributions not only to the general theory of evolution—which Herbert Spencer in part adopted from him—but also to specific issues such as the development of the cranium from the vertebra.

The truth is that science as an exploration of the unknown requires the bold spirit of intellectual adventure. Not only the cautious and industrious spirit of patient verification, but also a soaring intellectual imagination is necessary to visualize that which no one as yet has seen. It requires a bold and creative mind to generate new hypotheses, just as to create new symphonies or other works of art. Such minds not only need to have their insights checked up by patient observation, but they also need to be liberated from the fetters of traditional views, and this is achieved by that exploration of abstract possibility which is the special activity

of philosophy. For ages countless millions had seen the planets move without seeing Kepler's laws, or bodies fall without noticing Galileo's laws; and thousands learned both before the genius of Newton saw their common mathematical element which constitutes the law of gravitation. In the case of Kepler, Galileo, and Newton we know definitely that certain philosophic conceptions of the mathematical structure and unity of nature led them and sustained their faith.

History certainly justifies a dictum of Einstein, that no great discovery was ever made in science except by one who lifted his nose above the grindstone of details and ventured on a more comprehensive vision.

Moreover, it is erroneous to think of Schelling and the other romantic nature philosophers as following exclusively the high *a priori* road. Schelling's whole philosophy was a protest against Kant's empty formalism that offered no light on the constitution of living nature. Philosophy cannot concern itself only with the bare forms of thought. As Spinoza clearly saw, we learn more about the forms of thought as we get to know the forms of nature. These forms, then, must be sought in their actual embodiment in the natural world. Representatives of all the natural sciences collaborated with Schelling in this enterprise, and the pages containing the bare list of their writings are an impressive tribute to the wide diversity of their empirical interests. Particularly noteworthy is the influence of the Brownian medicine. The Edinburgh physician, Dr. John Brown, had made excitability, or the response to stimuli, the key to life and disease. This was developed by Schelling in collaboration with the Brownian school in Germany. Schelling distinguished between irritability, which leads to merely muscular movement, and sensibility, which has higher implications. This view found great vogue because it fitted in well with the prevalent sentimental school of literature, which emphasized sensibility and feeling above everything. This led to a new con-

ception of the relation of mind and body of great significance to psychology and medicine. Instead of the old dualism of mind and body as two substances, one having an influx or influence on the other, there developed the view (contrary to Kant) that sensibility is not mere passivity but is the response of a nervous organism to physical stimuli. Out of this came Johannes Müller's law of specific nerve energy.

(4) *Conclusion.* The romantic philosophy of nature is still with us, embodied in most of what passes as popular science. In connection with medical science we need only refer to the assumed law of universal evolution and to the notion of an unconscious mind so much in vogue in connection with nervous disorders.

The popular myth that there is a law that all things must follow certain patterns of development—the individual recapitulating the history of the race—assumes that the environment cannot affect the order of development; but modern experiments in embryology show this dogma to be baseless.

The present and future development of the human race becomes therefore an empirical issue rather than one to be settled *a priori* by appeal to a supposed universal law of evolution. It is for medical science to determine the question to what extent the human physique is actually changing and more especially to what extent disease and immunity thereto are affected by the conditions of modern life. Medical science must answer these questions in order that an enlightened ethical philosophy may arrive at just views as to the value of modern life.

Another current point of contact between medicine and philosophy is the idea of the unconscious mind, which raises questions of philosophy that medical science cannot possibly avoid; for it forces us back to the question as to what is a mind that is not conscious and what is its relation to the body.

Common sense medical practice naturally falls into the traditional dualism in which mind and body are independent sub-

stances, each capable of causing an effect on the other. Thus certain bodily disturbances affect our mental functions, and worry and fear are recognized as having serious physical consequences. When, however, we come to formulate accurately the cause of disease or death we do not follow this philosophy, but always attribute pathologic conditions to physiological causes. I might mention in passing that the whole doctrine of medical causation—how we can be certain that many of our high correlations between treatment and supposed cures are not just accidental or infected with the fallacy of selection—is a question in which the lessons of general logic cannot be ignored. But, to return to the relation of mind and body, physiologic changes always accompany mental disturbances. We can therefore regard the chain of physiologic causes and effects as a continuous one. Not so, however, *with thoughts or other conscious phenomena*. We do not think always, and our consciousness is interrupted by sleep and other incidents. The whole notion therefore of purely psychic causality, of one thought actually influencing another as invoked by psychoanalytic psychiatry, seems highly dubious from the point of view of scientific philosophy. The objection might be removed if medical science could prove that serious disorders are really cured by psychoanalytic talk, but a philosophic logic sees many difficulties in the way of such a proof.

Medical science in any case cannot avoid taking sides on the issues of materialism and mentalism or idealism. Is the human body merely a physical or chemical set of reactions, and can feelings, fears, worries, and intellectual resistances be reduced to purely physical phenomena? Or can we talk of the mind as a real substance, as if thoughts were entities having a continuous existence and influencing each other apart from the physical body? Or is there a third possibility, according to which mind is like the incandescence of the body, something which the body always has potentially but which comes into actuality only at certain times?

Medicine has to face these issues in order to understand the organism which it has to treat and the meaning of its life, disease, and death. It must also face these issues in order to settle the fundamental questions of policy and ultimate value. The physician tries to prolong life and render it more bearable. It is a question of philosophy whether life is always worth bringing into the world, and whether it is worth prolonging when it becomes an unbearable burden. The medical attitudes to contraception and euthanasia thus show how impossible it is for the physician to avoid religious and ethical philosophy.

Conscious philosophy may not have a ready answer to all these issues, but it can clean and sharpen our intellectual instruments and disinfect them so that whatever we do we do not add to the staggering mass of human confusion.

Chapter 7

GREAT MEN IN HISTORY

If we look at the contents of actual histories we generally find them dealing in large measure with kings, statesmen, generals, religious leaders, great writers or artists. Ancient and primitive chronicles, and even such relatively systematic accounts of the past as are found in the historic portions of the Bible, are largely biographical. In modern times Carlyle has most emphatically expressed the view that history is the biography of great men.

In its extreme forms, this assumes that the multitudes are like sheep which merely follow leaders, or perhaps even clay molded at the will of "great" men. But even if this were true, interest in what happens to whole masses of people cannot be denied. Moreover, it has seemed to many that ascribing any given course of events to the influence of any individual is an evasion of the intellectual responsibility of the historian, for to the extent that each individual is unique any statement about his impact on the course of history is incapable of scientific proof or disproof. Certainly we cannot apply to great men the techniques of measurement and comparison that are applicable to physical facts, nor can we apply the methods of statistical analysis that are applicable to mass phenomena in the social realm. That a great man appeared at a particular instant of world history is itself an inexplicable accident, and if history is a recording of such accidents and their supposed consequences, then we have not really explained the past or established any basis for prediction as to the future. For this and other reasons we have, since the middle of the nineteenth

century, witnessed a violent reaction on the part of those who regard it as unscientific to consider the course of history to be determined by individual men rather than by general geographic, biologic, psychologic, or economic considerations.

The extreme adherents of this view, though professed determinists, sometimes argue as if no individual career could make any difference at all, that if men like Gautama Buddha, Alexander of Macedon, or Shakespeare had died before achieving their historic work, nature would have brought forth other men who would have effected the same results as those which occurred in actual history. Now, it ought to be rather obvious that in any deterministic system the occurrence of any event, whether the deed of a great conqueror or the fall of a pebble, must have some effects different from what would follow from its nonoccurrence. If human beings are actual elements in the historic field they must be supposed to have effects, i. e., the course of events would be different if they did not exist. To deny this, to assert that it makes no difference whether Napoleon or Hitler lived or not, is to accept a fatalistic indeterminism. It is fatalistic because it asserts that certain results are bound to happen no matter what we do, and indeterministic in that it asserts that certain causes which have produced human actions make no difference in their ultimate consequences, so that the actual consequences are not affected by the causes of human volition.

Logically, then, determinists who deny the influence of "great" or other individuals can maintain only that such influence is small or negligible compared with the effects of the environment or the general conditions of human life. Thus one may, without involving himself in contradictions, argue that the effects of the industrial revolution and the consequent spread of commerce, growth of population, and increase of food supply were much greater than those of the battle of Jena or indeed the whole career of Napoleon. In support of this argument one may point out

that the effects of great men like Cromwell or Napoleon pass away, so that the total change in the course of human affairs that is attributable to them is not as large as results from the action of factors which influence the daily habits of mankind. Thus the effects of vaccination and of the development of the steam engine and electricity are more enduring and wide-spread than the effects of Napoleon's victories.

In view of our general inability to measure or even find all the effects of any one historic event, it is very difficult to settle on the basis of adequate evidence whether the impact of any individual upon the course of human events is more important than the impact of factors which cannot be identified with the life of any great man. Nevertheless some considerations in regard to this issue are not irrelevant.

At the outset of our inquiry we face the question, "What men are great and what men are ordinary?" The term "great" is essentially indefinite unless qualified by reference to some standard. People are often misled by local or temporary prominence into calling a man great when history will reverse such judgment. Thus, William James assumes that Frederick the Great, because of his temporary successes, was a great man, whereas he refuses to call Queen Victoria great. But history shows that her reign was more glorious than that of any other sovereign after Queen Elizabeth, whereas Frederick was humiliated by a woman whom no one calls, or thinks of as, great, namely, Queen Elizabeth of Russia, who had at her disposal many more muzhiks, now commonly referred to as "cannon fodder."

All sorts of people have been called great by their contemporaries for reasons which are historically inadequate. King Antiochus, Pompey, Sulla and a host of others may be cited. Subsequent generations did not recognize their historical importance. Indeed, mankind as a whole has refused to call anyone great who has not achieved something constructive of permanent value to

the human race. This rules out all generals or warriors who have achieved extraordinarily great slaughter and thus have proved victorious—Attila, Genghis Khan, and the like. Likewise we do not call Hannibal "The Great," although he certainly manifested high genius in making war on the Romans, for the total result of his work was wiped out in a short time. We can say the same of Hitler. Dr. Francia of Paraguay was certainly an extraordinary figure and his accomplishments were unique. No one thinks of calling him great, though Carlyle in his glorification of brute power came close to regarding him as a hero. Nothing can be called truly great if it does not produce a result of some permanent significance. He who writes on sand, no matter how skillfully, must expect some wave to wash away all the results of his achievement.

I do not mean to identify greatness with benevolence. The inventor of any ordinary useful machinery certainly is a benefactor of the human race, but we do not call him great on that account. We restrict that term to those who show or display some unusual power as well as a disposition to be of service to their fellow men. Moreover, there is heroic greatness in suffering as well as in positive achievement, although Carlyle and his followers do not include any woman among their heroes. The heroes that humanity calls great are predominantly those who made heroic sacrifices, not necessarily in one moment but through prolonged agonies.

Let me drop the word "great" and consider the influence of men who are endowed with unusual capacities or occupy positions generally considered as of importance in human affairs. Surely some individuals have more original ideas or greater powers of persuasion than others. Consider in this regard Buddha or Mohammed, not to mention Jesus of Nazareth. Writers like Homer or Shakespeare do not occur very often, and the influence they have exerted is different from that of ordinary or less gifted minds. Men like Aristotle or Newton seem to have had unusual mental

capacities and the syntheses which they achieved could not have been brought into being by others. All careful biographers of Napoleon note his remarkable capacity not only for long hours of sustained work but also for keeping in his memory an unusually large number of details which he could bring together at the point of decision with a rapidity impossible to others. We can thus explain the fact that the French armies led by him were able to defeat the Austrians in northern Italy, were not able to do so when he was away, were again victorious when he returned, and finally failed when his vitality declined. His early death, then, would have made a greater difference than that of one of the privates in his army.

Had President Ebert still been alive in January 1933 Hitler might never have come into power. The economic situation which was one of the forces favoring the Nazis was taking a turn for the better. Hitler was losing votes heavily in the last election of 1932, his party funds were depleted, and if he had not been called to power in January 1933 his forces might have disintegrated. The first Battle of the Marne might not have been lost by Germany in 1914 if it had not been for a conference between two subordinate officers which brought about the retreat and subsequent defeat of Von Kluck's army.

Sometimes even an individual of no particular or outstanding ability occupies a unique position and his action may be decisive for subsequent history, just as a pebble on the Great Divide may determine whether raindrops shall ultimately flow into the Atlantic or into the Pacific, or a small spark on a hot summer day may set a large forest on fire.

The youthful Gavrilo Princip, who shot the Austrian Archduke Franz Ferdinand in 1914, does not seem to have had any of the characteristics which we generally regard as belonging to a great man, but that his shot helped to bring about the Great War of 1914 seems difficult to deny. To say that the war was inevitable

is an *a priori* assertion which ignores the fact that England and Germany were then on the point of settling their disagreements about the Bagdad Railway and other matters. Had the Archduke not been killed some arrangements might have been effected in 1914 to stave off war as was the case in 1912. Tension between nations rises and falls like atmospheric pressure and temperature.

The futility of any attempt to write history without reference to outstanding historic figures has been vigorously urged by William James, who, in his essay on "Great Men and Their Environment," wrote:

"The causes of production of great men lie in a sphere wholly inaccessible to the social philosopher. He must simply accept geniuses as data, just as Darwin accepts his spontaneous variations. For him, as for Darwin, the only problem is, these data being given, how does the environment affect them, and how do they affect the environment? Now, I affirm that the relation of the visible environment to the great man is in the main exactly what it is to the 'variation' in the Darwinian philosophy. It chiefly adopts or rejects, preserves or destroys, in short *selects* him. And whenever it adopts and preserves the great man, it becomes modified by his influence in an entirely original and peculiar way. He acts as a ferment and changes its constitution, just as the advent of a new zoological species changes the faunal and floral equilibrium of the region in which it appears. . . .

"If anything is humanly certain it is that the great man's society, properly so called, does *not* make him before he can remake it. . . . Can it be that Mr. Spencer holds the convergence of sociological pressures to have so impinged on Stratford-upon-Avon about the 26th of April, 1564, that a W. Shakespeare, with all his mental peculiarities, had to be born there—as the pressure of water outside a certain boat will cause a stream of a certain form to ooze into a particular leak?"

James is clear and devastating in what he asserts about the inadequacy of Spencer and others who tried to explain human

history solely by the character of the environment, but his nominalistic bias and excessive insistence on the individual lead him to do scant justice to general factors which determine the main direction of human events—such factors, for example, as the relative mass or density of population, which is a primary element in political and economic history, depending in turn on such factors as the general food supply and the institutions of child care and public hygiene, which bear on the protection of infant life. The notion that history is merely a record of what great men have done overlooks the distinction that James himself draws between necessary and adequate or sufficient causes. A father and mother are necessary to bring into life a normal child, but they do not determine by this whether the child shall be a literary genius or a mediocre scribbler. The character of the child's education, his literary opportunities, and the character of the public for which he writes undoubtedly enter into the final result. On the other hand, the argument of extreme environmentalists that crises create great men is an obvious exaggeration. Crises cannot create anything. The truth of the matter is that under the stress and disruption of crises great men can come to the fore. In times of peace it is the routinier, the politician, the sensitive man, who gets and maintains power. He accomplishes nothing much but he smoothes things out and prevents blunders. But in a time of crises, drive and ruthlessness are the forces that are needed and get an outlet for their play. A man like Hitler could never have come into power in times of peace under the Kaiser, nor could Lenin have come into power after the Russian Revolution was won and routine was once again needed.

Fundamentally the issue between the "great man" historian and the "social force" historian can never be resolved, because the dichotomy between great men and social forces is a false one. The great men of any age or nation are apt to be precisely those who embody the aspirations of a large number of their fellow

/ men, or who are fitted to manage the new technological capacities of the society into which they are born. Thus in studying the individual life of an outstanding man we may be studying social forces in their clearest expression. The real problem is not whether history is to be written as the biography of great men or as a tracing of social forces, for great men are precisely the points of intersection of great social forces.

The task of the historian is to trace these social forces that flow through the lives of outstanding individuals, recognizing with Justice Holmes that human will is not something apart from the course of historical causation but the means through which the inevitable comes to pass. The appearance of outstanding human capacities at any moment may be an unpredictable accident but the causes and endeavors to which those capacities can be directed are found in a setting of social forces. In this limited sense the production of great personalities is a social phenomenon. Indeed, none of the great men famous in history could have done what they did if they had been born with the same native equipment but under entirely different and less favorable conditions. Aristotle would not have composed his works if he had been born elsewhere than in Greece of the fourth century B. C., Newton could not have discovered the law of gravitation if he had been born in Arabia, in Central Africa, or even in England before Kepler, Galileo and others had prepared the ground for him.

/ Alexander takes up where Philip left off. Napoleon, like Cromwell, rode to power on the crest of a great social wave that represented the rise of the common man against royalty. Newton, taking up the search for physical laws where Galileo and Kepler stopped, devoted his unusual intellectual powers to a task that engrossed the energies of many of his contemporaries. The development or growth of the sciences depends upon such social factors as a relatively high concentration of population, an ample food supply, an intellectual interchange of ideas that is generally

associated with a commercial interchange of goods, and a set of social attitudes that make the enterprise of science an honorable endeavor. Men will not give their lives to research if they have to dig, or fight, or if they are despised for questioning the established opinions of the day. A few may do so by stealth, but their work will not survive, much less grow, if there are not enough to take up the inquiry where those who started it have left it.

The appearance of a succession of great philosophers, musicians, or artists in a given country and century appears to be an amazing coincidence unless we recognize the social character of these achievements, the social fund of knowledge, techniques, and aspirations which reach their summits in the careers of a few outstanding individuals. The great geologic movements of the earth's crust that produce mountains do not often produce them singly in majestic isolation; more often they produce mountain ranges and chains, in which the separate peaks represent the diversified impact of a single great force on different geologic materials and formations. Something of the geologist's perspective is necessary if we are to understand how it is that exceptional human energies in one milieu will turn to business enterprise, in another to military exploits, and in still other social environments to artistic or scientific or religious achievement. It is this sense of the common content of individual careers that distinguishes the historian from the biographer. Without this sense the historian cannot begin to explain how in a little backward corner of the world there could arise the remarkable group of Hebrew prophets; how within such a short period the city of Athens could have produced Socrates and Plato, Aeschylus, Sophocles, Euripides, and Aristophanes, Thucydides, and Xenophon; or how Germany could within 100 years have brought forth Lessing, Kant, Fichte, Schelling, Hegel, and Schopenhauer. Yet we all recognize, on the most elementary level, the cultural preconditions of intellectual achievement. We

all recognize that there can be no writers in a community where writing is unknown, and that these men could not have done what they did if there had not been conditions which made it possible for them to undertake what they did and find some support from others for carrying on their work.

The historian cannot hope to deduce, any more than the statesman can hope to create, the sufficient conditions out of which great individual attainments must inevitably emerge. It is not an impossible task, however, for the historian to chart the necessary social preconditions for great human achievements. And so, as the athletic trainer, without being able to create natural prowess, can often prescribe the conditions necessary to its full development, so the statesman, guided by the light of history, may be able to mark out the social conditions necessary to secure the full fruition of such germs of genius as may appear from time to time among any people.

There remains a problem of emphasis, a problem of the terms in which our available information may be most coherently and instructively cast. From this standpoint it is still possible to defend the traditional historian's emphasis on the role of great men in such terms as those used by Prof. H. W. C. Davis in his inaugural lecture at Oxford on "The Study of History" (1925). The worst of all the innovations of modern historiography, he contends,

"is that of those self-styled 'social historians' who think that they find the quintessence of our common humanity in the life of the common man. They tell us that what we most need to know about any civilization of the past is what its poorer and more illiterate members thought and did. How the social order affected the welfare of these people is indeed a momentous question. But the historians of the commonplace have in their minds a confused doctrine of the wisdom of the humble, which has been eloquently expounded by imaginative writers, and has overflowed from their works into certain schools of historical research. I can find no justifica-

tion in history for the belief that what the masses think today society as a whole will infallibly believe tomorrow; that religions, philosophies, political ideas rise like exhalations from the cottage, the workshop, and the market-place. On the contrary, it would appear from what we know of the history of new ideas that, even if they do not fall like the rain from heaven, they make their first appearance somewhere near the summit of the social fabric and percolate downwards, not infrequently suffering adulteration or corruption in the process. Our common humanity is best studied in the most eminent examples that it has produced of every type of human excellence. Thus much there is of truth in Carlyle's hero-worship, though very few of us will accept without challenge his attempts to define the essential nature of the hero" (p. 18).

One may disagree with this perspective, and history would be the poorer if all historians shared it, but it is a perspective as significant as the opposite perspective, more widely held perhaps by the newer and more democratic historians, who view the course of human events in terms of widespread social habits and institutions and the measurable facts of the physical and biological sciences.

Chapter 8

THE INSTITUTIONAL APPROACH TO HISTORY

1. The Multidimensionality of History

A candid survey of the attempts that have been made to interpret history in simple one-factor terms indicates that each of these attempts confuses the necessary and sufficient conditions of human behavior. Certainly, the existence of bodies of water is a necessary condition for the development of fishing and navigation; yet many peoples have lived by the sea for centuries without learning to master the arts of navigation, and to this day there are insular peoples that make little or no use of the products of the sea that surrounds their homes. Certainly, there can be no human history without a biologic basis, yet, so far as we can tell, the same physiological equipment and energy may be used for the most diametrically opposed of human purposes. Some sort of leadership appears to be a necessary element in the development of arts, sciences and societies, yet it seems clear that leadership is necessarily a ganglion of social forces, to which a great man may appeal but which he does not create. The influence of environment, of biological inheritance, and of great men is not denied or minimized when we recognize that each of these influences operates in a complex of forces that cannot be reduced to a single factor without intellectual violence, however much it would satisfy our yearning for a simple key to history's riddle if we could effect such a reduction. History unfortunately has not arranged itself to suit the convenience of historians.

Much of the same analysis might be made of many other one-factor interpretations of history, e. g., the psychological, the political, and the economic. In each case we should come to the same conclusion, namely, that no one of these factors can suffice to explain the manifold patterns of history; on the contrary, if we conscientiously follow any of these avenues of inquiry we find repeated intersections by approaches from variant directions. The further one follows the effects of environment in history, the more clearly loom the ways in which social institutions interact with such influences to bring about an historic result not fixed by geography alone. Pressing the economic interpretation of history to its limits shows how many things men do that are completely irrational from the standpoint of enlightened selfishness. So it is with other oversimplifications of history's tangled web.

It may be argued, however, that some one of these factors is more important than any of the others and therefore has first claim to the historian's attention. But what exactly does such an argument involve?

The category of importance is one of value, that is, it depends on human interest. Is there any objective principle or criterion according to which we can decide which of two facts is more important? The answer is clear in regard to any determinable factor of which we can have more or less. Thus one fact is more important than another if it affects more people for a longer time or in a measurably more intense manner. The fact that such importance varies with time by no means denies its objectivity.

Quantitative measurements, however, will not help us to decide whether the political, the economic, or the religious point of view is more important for a general understanding of history.

The older historians emphasized political (mostly dynastic) changes, and some moderns have objected to political and military history. What is the basis of such objections? Surely the art of

war, its development, and its effects on the fate of peoples are of legitimate interest, and so is the question by whom and how people have been governed. The objection to teaching military and political history is not that they are uninteresting—popular interest in them has always been greater than in any other type of history. The objection seems to be that other types of history, such as the history of culture, are more important, or at any rate should not be left out.

How shall we determine the relative importance of these various factors, e. g., politics, war, race, industrial development, art, humor? We may evade this question by saying that a history which leaves out human achievements in the arts and sciences, in religion and culture, is grossly incomplete, but surely so would a history be which left out all reference to politics and war.

The question of relative importance might conceivably be regarded from the point of view of what is more fundamental in explanation. If war and politics could not explain the art, science, and literature of the Greeks, while the culture consisting of these elements could explain the military and political events, the more primary elements would, for logical purposes, be the more important. It would, however, be difficult to prove that this is the case. The attempts to show that the geographic or the economic factor is primary in some absolute sense are, like all controversies about absolutes in human affairs, interminable because in essence inconclusive.

It is sometimes claimed that the economic phase of human life is more basic because all other factors are subsequent to it or derived from it. Historically or empirically considered, this is an impossible thesis to support, since at no time is human society free from organic and psychologic factors, which express themselves in family relations, religious or artistic expression, etc. It cannot, therefore, be said that one of these factors is prior in time,

and when two factors are equally necessary, such as the work of the lung and the heart, it is meaningless to ask which is more basic.

But surely, one may contend, some factor explains more than another. This test, however, is quite inapplicable where both are necessary and are involved in every social fact. Thus, no matter which economic activity you consider, man's state of knowledge or ignorance and his basic emotional preferences enter as determining conditions.

The fact that no single factor can thus give us a complete explanation of the historic process is no argument against the validity of an avowedly partial account from the purely political, religious, psychologic, or economic point of view. It does mean, however, that no one of these can be said to be the fundamental interpretation. General history must work with a number of factors rather than with only one. Monism, of course, appeals to many by its simplicity and its definitive character, but easy simplicity is an evasion rather than a solution of difficulties. The Hegelian interpretation of history, from which dialectic materialism and economic determinism are admittedly descended, managed to maintain itself only by arbitrarily eliminating from history all except one nation at a time.

Acceptance of the many-sidedness of life and history need not exclude all attempts to explain or simplify the past so as to bring it within the compass of human understanding. We must, however, if we accept the multidimensionality of history, use as our units of analysis multidimensional blocks. Otherwise the substance of reality will elude us as it would elude the sculptor who sought to fashion a monument out of two-dimensional figures.

The facts or events which constitute the substance of human history are more than four-dimensional. They occur in time, as well as in the three dimensions of physical space, and they involve measurable physical and chemical aspects in all cases. Most oc-

currences of human interest also involve biological, psychological, political, and economic aspects, some of which are capable of comparison, measurement, and division.

The units of human history which may thus serve to show recurrent patterns in human development and into which more complex occurrences can be analyzed have been variously denominated. The Hegelian philosophy speaks of "objective mind" as the manifestation of mind in science, art, the state, and other social institutions. The phrase, "ideas-in-action," may be useful in calling attention both to the importance of the rational element in history and to the context of action in which ideas must be clothed if they are to have historic significance. Perhaps both of these phrases are too narrow in so far as they appear to exclude events which are not in any sense mental and do not involve any ascertainable ideas. A more inclusive and noncommittal designation for the units of history would be simply "human events." Such a term, however, takes on definite meaning only as we attain definite ideas about the nature of man.

It is at this point that the approach commonly referred to as "institutional" may clarify our search for patterns of historical analysis. The essence of this approach is the insistence that man is an animal that learns ways of thinking, feeling, and doing and continues to act in these learned ways. Institutions are human arrangements through which this learning takes place and through which learned forms of conduct are maintained. Learning in this context is largely, but not entirely, a product of teaching, of handing down the accumulated traditions of the past; in part, learning must always be an exploration of hitherto uncharted possibilities whose outer limits lie far beyond the horizons that most of us see.

One merit of this approach lies in the fact that while grasping the multidimensionality of historical events it emphasizes that aspect of human behavior which is most amenable to rational in-

quiry, namely, the operation of social arrangements in giving form to the raw material of human life.

Another merit of the institutional approach is that it emphasizes the relatively stable facts of history. The reporting of "events" is the task of the journalist. Only as events involve the relatively stable configurations that characterize social institutions do they become important to the historian. The journalist records the facts that distinguish today from yesterday and this year from last year. On this day the King died; in this year a new island was discovered. But why the institution of kingship or the drive to explore unknown lands and seas and the financial arrangements incidental to such exploration should prevail in a particular milieu and not in another are questions that do not occur to a journalist without historical perspective. And it is precisely these broad or long-range constants pervading culture and civilization that become more and more important as time renders the events of days and years in a particular land less and less interesting to us and fixes our attention on things that have persisted through the changes that the short-term historians and journalists reported.

The significance of the institutional approach to history cannot be appraised on a purely formal basis. We can hardly discuss the influence and operations of institutions in general without picturing for ourselves some of the basic institutions of human civilization. With no thought then of developing either a complete or a necessary classification of human institutions, let us turn to note the basic role that has been played in history by four characteristic institutions of civilized society: The city, the social division of labor, the social contract, and science.

2. The Institutions of Civilization

(1) *The City*. The term "civilization" was apparently never used in any language before the middle of the eighteenth century. Dr. Johnson refused to put it in his dictionary. Its appearance in

the dictionary of the French Academy dates only from 1798. (The term "Kultur" is also apparently a late introduction into the German language.) The word "civilization" thus embodies a modern appraisal of what distinguishes, in degree at least, the things that we regard as our highest attainments and sets them apart from the attainments of more primitive peoples. Literally the term "civilization" means the making of cities or of city life. The terms "urbanity" and "polished" are earlier terms for the complex of factors which distinguish city life.

Since early Biblical times it has been fashionable to deprecate city life, yet I think that the identification of advances in the sciences and the useful and useless arts with city life rests upon a sound insight. Cities do not and cannot exist among primitive peoples who have not developed the variety of modes of life and modes of production that go to make up a city. It may be urged, however, that cities are merely an accidental by-product of advances in the arts and sciences. Indeed, the notion that city life is an excrescence of human development has never lacked doughty champions. Much poetry and more political and religious oratory has been devoted to the idea that true virtue and true beauty can exist only where the countryside is undefiled by cities and commerce.

In the long list of charges that have been leveled against city life, ever since the first cities were built, one of the most persistent is the charge that city life breaks down morality. There is just enough substance in this charge to give it a perennial appeal. In a small town everyone knows what everyone else is doing and generally feels free to express his opinion thereon. The man or woman who goes to the city, breaking away from direct family and neighborly supervision, associating with people who do not know the newcomer or his background, discovers a sudden freedom to act in ways that were formerly not open to him. Some of these ways may be bad by any standards. Others may be bad in the

eyes of one's old neighbors but may seem to other eyes to represent a vast advance in human worth and dignity.

The assumption that the morals of towns or industrial society are lower or more corrupt than those of villages or agricultural communities is one that has only a surface plausibility. It is true that the mores of the latter are more constant. There is less freedom to depart from the established order. But if freedom be a part of ethical life, if it is necessary to change our modes of conduct to make life more viable under changed conditions, then the ideal of fixed routine is by no means the only valid one. Actually, there are forms of viciousness in villages as well as in cities, and while there is little justification for saying that the progress of industrialization brings about a higher morality, neither is there justification for asserting that it leads to moral degeneration. The boy of low mentality or weak character may go to pieces in the complex life of the city, whereas he may find a proper niche and be relatively safe in the simpler routine of village life. On the other hand, the opportunities for greater usefulness as well as for a wider and deeper view of life may come to the city boy. After all, the great teachers of mankind, Buddha, Confucius, Socrates, and Jesus, as well as the great scientists, did their work for the most part in cities.

Despite all the horrors of industrial society, the hideous sequelae of industrialization, the overcrowded slums, and the demoralization of men and women breaking away from the old habits of life, the fact remains that most men and women make the change from rural to urban life freely and do not wish to go back to their old ways. The southern "hillbillies" go to the industrial towns and despite all the squalor of the latter they have, except in sentimental moments, no desire to go back to their former surroundings.

Perhaps the only fair conclusion to reach on the issue of the immorality of city life is the conclusion that city life differs from rural life, particularly in its greater diversification and freedom,

and that those who prefer one form of life are apt to look down on the mores of the other fellow. This, however, is hardly an excuse for those who value the facilities supplied by city life and industrialization, and who use these facilities to denounce cities in general and the cities where they live in particular.

A variant of the old moral attack on city life is the economic argument that cities are essentially parasitic. Consider the thousands of tons of vegetables, paper, cloth, tobacco, wood, and metal that go into New York City every day and are sent up as smoke or sent down to the sea in sewers and garbage scows. Consider the fact that fresh water is fetched from the Catskills and even the Adirondacks and that the river and sea water about the city is thoroughly polluted. Consider, too, the fact that the birth rate of most cities is less than the death rate so that they can maintain themselves only by attracting men and women, young and old, from rural areas with higher birth rates. Does not all this give substance to the view that great cities are parasites upon the national economy and that the farmer is the ultimate producer and the real backbone of society?

{ Again it must be conceded that there is a large element of truth in this view, but there is a larger element of error. What this viewpoint fails to see is the ways in which the tremendous interchange of ideas and commodities and the specialization of labor that make up the life of a great city operate to organize the economic life of the hinterland. If in the space of a few thousand years the proportion of human effort needed to produce adequate food has been reduced from over 90% to less than 30% in highly civilized countries, each of the advances in that process has been dependent upon schools, shops, factories, shipping, and forms of commerce that are an integral part of city life. Only a gross materialism can fail to see the contribution of civilized urban living to the productive power as well as to the cultural level of the nation as a whole.

What these attacks on city life ignore is the close dependence of all advances in the arts and sciences upon the productive interchange of divergent ideas. Divergency of ideas is a shocking thing to small-town moralists and would-be dictators, but it is the source of most human advances, and only men and women who make a virtue of tolerance can build or maintain a great city. Tolerance of intellectual diversity has a positive side represented in part by the maintenance of institutions of higher learning, but in its very lowest terms it means that I do not have to know my next-door neighbor, do not have to spend my time justifying my work to those who do not understand or care for it, and can direct my energies to tasks in which I am proficient while arranging to have other tasks necessary for living managed by others more competent than I to perform them. City life represents a tremendous / release of human energy achieved through the social division of labor. Whether that energy is to be used for good or for evil depends upon the social ideals of the citizenry, and he would be a pessimist indeed who could look at all the changes in human living that have emanated from cities over a long span of time and call them generically bad.

Whatever view be taken as to the comparative merits of city life and rural life, the objective fact remains that what we know as civilization is impossible without the cooperation of a relatively large number of people in touch with each other. The Biblical stories of the patriarchs give us pictures of cultivated nomads, but apart from the question of historicity we may note that Abraham comes from the great commercial city of Ur of the Chaldees. The possession of rings and bracelets would not be possible unless there were groups of people that could dig for gold to make rings while others were providing them with food. Nor could the arts of writing have been invented and developed except in fairly settled communities where a considerable division of labor had become more or less permanent. It is significant, too, that the figure which

the Bible gives us of Moses is that of a man educated at the court of the Pharaohs, and the later history of the Jews revolves about the building and rebuilding of the city of Jerusalem. The history of Greek and Roman civilization is, above all, a history of city life, as is the history of medieval times and of the Renaissance. Only as means of communication and transportation develop to a point where urban influence pervades a surrounding countryside, does it become possible to write history without constant reference to key cities. And this means not that cities have ceased to be centers of civilization but only that the radius of their influence has been extended.

(2) *Division of Labor.* The increase in human power and freedom, and in the diversity of ways of earning a living or spending one's leisure, that characterizes the transition to urban life, is primarily an outgrowth of the social division of labor. Occupational specialization and diversification reaches a peculiarly high degree of development in city life but is not restricted to city life, and the measure of such division and specialization is perhaps the most significant index of human development even on its more primitive levels. Indeed, even such subhuman developments in the animal world as sex differentiation and family life involve rudimentary lines of division of labor, as does the life of the social insects. The human family, however, involves a good deal more than biologic differentiation in the capacities of the sexes and the generations. The allocation of tasks between the sexes varies considerably from one culture to another, and one of the perennial stupidities of intercultural contacts is the naive assumption that men ought always and everywhere to do the things we have seen our fathers do, while women busy themselves with the things our mothers have done—notwithstanding the existence of a quite different pattern of division in the culture to which we address ourselves.

Perhaps the most stable of the divisions of labor in human society is that which assigns to the elders of a community, generally to the heads of families, clans, tribes, societies, towns, or states, the task of training the young and passing on to the coming generation the fruits of a cultural tradition that grows in piecemeal fashion. Where this task is not adequately performed, particularly in preliterate communities, we may find a degenerative culture, which has lost elements through the failure of the old masters to transmit techniques of one sort or another to the younger generation. Indeed, certain arts, such as that by which the ancients prepared pure iron that does not rust, have been entirely lost to humanity through failures in the process of social transmission. On the other hand, even greater losses may result when the institutions by which a culture is transmitted become so ossified that they do not admit of growth or variation in the body of the culture. Certainly the closed economy of the guilds and the fear of new ideas was a major reason for the lack of progressive development in medieval technology. At any rate, specialization in acquiring knowledge and teaching it to others is found in the meanest cultures that we know.

As man emerges into the light of literacy we find a great development of technology, to which historians of the classical tradition, trained in philology, have done scant justice. We are only on the threshold of understanding the technologic achievements which made ancient civilization possible, such as the drainage and canal systems of Mesopotamian civilization. We know that not only priests but engineers were sought after by kings and leaders of the peoples for the building of roads, cities and city walls, water conduits, and other public works. Certainly a highly developed technology is evidenced by such ancient buildings as the Pyramids, the Colossus of Rhodes (a lighthouse), the Roman roads, aqueducts, baths, and heating systems. The successful embalming of bodies in Egypt and trepanning of skulls in the Stone

Age presuppose an ancient specialization of medical skill and knowledge. Pliny recognized that navigation had been made safer by science. Many of our so-called modern inventions and machines can be traced back not only to Leonardo da Vinci but even to Philo of Byzantium¹ and ancient Chinese sources. While it may be true that ancient technology was largely based upon simple principles well understood by many, whereas modern technology rests on complicated principles understood by few, the fact remains that every sustained task of construction involves at the very least a separation of men from agricultural labors and a feeding of them out of an agricultural surplus, which is still one of the most basic divisions of human labor.

Each step in the process of dividing and subdividing man's tasks must overcome the force of social inertia. Rational calculation of the economic advantages of the division of labor has not always sufficed to bring about such division, which often has been a result of political coercion. The conquerors do one thing, the conquered another. The castes in India are possibly the result of successive waves of conquest. Intellectually the opposition to division of labor or specialization is likely to take the form of pity or contempt for those whose energies are directed into narrow and peculiar courses. Along with this contempt we commonly find a glorification of the self-sufficient gentleman who disdains all forms of specialization, has no unique gift or service to render to his fellow countrymen, and makes few demands upon his neighbors. The glorification of self-sufficiency or individual autarchy may take various forms, ranging from monastic asceticism to the installation of home dynamos. Some of the ways in which men idealize self-sufficiency, such as the glorification of hunting and fishing, are comparatively harmless; others, such as organized

¹ See A. de Rochas, *La science des philosophes et l'art des thaumaturges dans l'antiquité* (2d ed., 1920); Carra de Vaux, *Le livre des appareils pneumatiques et des machines hydrauliques par Philon de Byzance* (1902).

antagonism to foreigners or strangers or persons of a different race or religion, are responsible for a vast part of the misery that men inflict upon each other. But through all these phenomena there runs the tension between the civilized drive towards greater diversification of labor and the primitive inertial force which, if unchecked, would make each man and his neighbor alike. Happy the man who in his own life finds the golden mean between the dullness of complete conformity to the ways of neighbors and ancestors and the brilliance of a specialization that removes the specialist from contact with his fellow mortals.

Ultimately the limits of effective division of labor are set by the diversity of human aptitudes and by the breadth of the cultural complex in which potential lines of specialization attractive to human energies may be found. Both these factors are largely functions of the rate of social intercourse. The greatest civilizations have arisen only in communities that mixed with others and borrowed freely. Relatively isolated communities that have to live on their own fat are commonly conservative. They may develop a rich folk-literature and folk-art, as in the early history of Iceland, but isolation slows the pace of development in most of the arts as well as in all of the sciences. Isolation thus sets limits to the expanding division of labor that marks human progress.

(3) *The Social Contract*. It has been a good many years, I think, since any political philosopher has referred to the theory of the social contract except to refute it. The theory which played so large a part in the political thinking of Hobbes, Locke, Rousseau and Kant, which has its historic roots in the Epicurean conception of government drawing its justification from the consent of the governed, and in the Biblical conception of a covenant between a people and its Lord, and which had so large a role in the shaping of American institutions, has been the butt of attacks from many quarters for more than a century. Hume, Bentham, Hegel and nearly all Anglo-American political scientists since Austin have

dealt mercilessly with the theory of the social contract. These critics have generally construed the theory in absolute historical terms. The theory of the social contract as portrayed by its critics is either a myth or a bit of historical falsification. According to this conception, once upon a time there was a state of nature in which there was a "war of all against all" and life was "nasty, brutish and short." The people therefore came together and entered into a contract to give up certain practices inconvenient to each other, to conform to laws based upon common consent, and to obey a personal or impersonal sovereign.

Conceiving of the social contract theory in these terms, critics of the theory have asked: "Where are these contracts? In what language are they written? What are their terms? How are they enforced?" These are usually asked as rhetorical questions, for if those who have asked such questions were anxious to know the answers they would not have much trouble in finding actual contracts setting up governments. Consider, for instance, the government of one of the first colonies which united to form this nation. The Mayflower compact declares:

"In y^e name of God Amen. We whose names are underwritten, the loyall subjects of our dread soveraigne lord King James, by y^e grace of God, of great Britaine, Franc, & Ireland king, defender of y^e faith, &c.

"Haveing undertaken, for y^e glorie of God, and advancemente of y^e christian faith and honour of our king & countrie, a voyage to plant y^e first colonie in y^e Northerne parts of Virginia. Doe by these presents solemnly & mutuallly in y^e presence of God, and one of another, covenant, & combine our selves together into a civill body politick; for our better ordering, & preservation & furtherance of y^e ends aforesaid; and by vertue hearof to enacte, constitute, and frame such just & equall lawes, ordinances, Acts, constitutions, & offices, from time to time, as shall be thought most meete & convenient for y^e generall good of y^e colonie: Unto which we promise all due submission and obedience. In witnes wherof we have

hereunder subscribed our names at Cap-Codd ye .11. of November, in ye year of ye raigne of our soveraigne lord king James of England, France, & Ireland ye eighteenth, and of Scotland ye fiftie fourth. An^o: Dom. 1620."

(*Bradford's History "Of Plimoth Plantation," From the Original Manuscript.* Boston, 1898. Plate facing p. 110.)

Consider too, the Constitution of the United States which begins with the preamble:

"We, the people of the United States, in order to form a more perfect Union, establish justice, insure domestic tranquillity, provide for the common defence, promote the general welfare, and secure the blessing of liberty to ourselves and our posterity, do ordain and establish this Constitution for the United States of America."

In form, as well as in spirit, the Constitution of the United States is a contract. It carries the signatures of thirty-nine signers and one witness, includes a provision for the ratification of the act of these thirty-nine agents by the electorates of the various independent American states, and carries the proviso that no state should be bound by the agreement except in consideration of eight other ratifications.

Numerous other historical examples might be cited of government originating in formal compacts. Certainly the whole conception of feudal government is based on this notion. The man who finds the freedom of anarchy too oppressive will select as powerful and reasonable a sovereign as he can find in the neighborhood and enter into a compact offering fealty in exchange for protection, surrendering an interest in land, and receiving the right to call upon the lord's laws, courts and arms. Depending upon the variety of the tenure the tenant may undertake to contribute agricultural produce or services, to render military service, or to say a certain number of prayers each year for the soul of his lord. Such an exchange of rights and obligations agreed to by both parties strictly exemplifies the notion of the social compact as an historical fact.

This, however, is answering the critics of the social contract theory in terms of their own misconception of the theory. Actually, the theory of the social contract as developed by Hobbes, Locke, Rousseau, and Kant was put forward not as an explanation of remote historical origins but as a scheme for interpreting contemporary processes of government.

A similar answer may be made to many of the critics of the philosophy of natural law, as I have elsewhere suggested:²

"This argument assumes that the old doctrine of natural law rested on a belief in the actual existence of human beings in a state of nature prior to organized society; and as history has not shown that such a state ever existed, natural law falls to the ground. To this very simple argument the reply is that the old doctrines of natural law rested on no such foundation. Even Rousseau disclaims it in his maturer work, as is well known to those who take the unusual course of actually reading his *Contrat Social*. When Grotius, Hobbes, and their followers speak of a state of nature they do not as a rule mean to refer to a past event. The 'state of nature' is a term of logical or psychologic analysis, denoting that which would or does exist apart from civil authority. It is logically, not chronologically, prior to the 'civil state.' Similarly the 'social contract' is not a past event, but a concept of a continuous social transformation.

"This comes out most clearly in Kant, who discusses the whole matter on purely ethical postulates. That Hobbes, also, kept free from historical assumptions is clearly brought out by Dunning, *Political Theories*, Vol. 2. There are two or three passages in Locke and one, at least, in Kant—not to mention Rousseau's immature discourse—in which the 'state of nature' is spoken of in the past tense. But these lapses into the common way of speaking cannot be shown to have had any influence on the general ideas of Locke or Kant."

Government is not something which was created once and for all in a remote past. Rather, like language, it is something that

² M. R. Cohen, *Reason and Nature*, pp. 402-403.

grows by piecemeal accretion and development. A social contract theory, therefore, ought to enable us to understand not how government first arose in the unknown past, but rather how it is arising today. Every international treaty, every new type of government regulation, every new statute, administrative policy, or judicial decision is an element in the process through which government comes into being. We have government today in many fields where there was no government half a century ago. If a theory of government should explain not what happened in an unknown past, but what is happening before our eyes in the world about us, I think the social contract theory fills the role a little more adequately than most of us have been inclined to suppose.

Consider, for example, what happens when a corporation is created. Clearly, a corporation involves a governmental relation among individuals and between these individuals and a state or nation. Just as the feudal vassal promised fealty to his lord, submission to the jurisdiction of the lord's courts, and material contributions of one sort or another in exchange for the protections of sovereignty, so the modern corporation promises submission to the law and jurisdiction of the charter-issuing state and makes payments to that state in exchange for the protection which the state offers in shielding the incorporators from liability for what would otherwise be their just debts. Here, certainly, is a fragment of government arising out of contract and one can hardly attain a realistic understanding of modern corporate development without viewing the process of incorporation in the light of economic concepts of competition and bargaining. A would-be corporation shops for a sovereign in much the same way that it shops for its office supplies. States like Delaware, Arizona and South Dakota have for many decades actively competed for the business of incorporating.³ One may still say, if one wishes, that the validity of

³ See W. Z. Ripley, *Main Street and Wall Street*.

corporation law is derived from the sovereign out of which the law issues. But the fact of the matter is that the corporation laws of some states are mostly dead letters, because people will not incorporate in those states. It takes at least two parties to make government. Without such mutual consent there is no government.

The same sort of competition for patronage that we find among the states with regard to the transaction of incorporation can be found in a variety of other governmental relations, of which divorce, taxation, money lending and insurance may serve as striking examples.

What is true among the states of the nation is to a certain extent true of international relations generally. Despite all its professions of patriotic nationalism capital combats every project for increased taxation or industrial control with the threat to run away from the country and to find greener pastures abroad. In general, we find that a government which promises stability and protection of private property will attract a large share of the world's financial dealings to its sovereignty. This may involve the actual location of factories and stores, or it may involve the location of financial offices and operations, or it may involve a purely formal choice of sovereigns, as where a contract of sale between a Frenchman and an American specifies that French law is to control the interpretation and enforcement of the contract. The competition of sovereigns to attract business and capital is to a certain extent paralleled by the competition for the allegiance of human beings. The nation that promises freedom and opportunity to its nationals will attract men and women who value freedom and opportunity. The oath of allegiance required of would-be citizens is certainly a part of a social contract in which loyalty is a promissory consideration for the counterpromises of protection which may be found in the constitution and laws of the sovereign. While the native-born citizen is generally exempted

from such oaths or pledges, unless he holds public office or serves in the army or goes to public school, our courts have regarded the mutual obligations of the nation and the native citizen as constituting an implied contract, and there is much substance in this assumption so long as men are free to renounce their national allegiance and to exercise what Congress has referred to as the "natural right" of expatriation.

The competition between states and nations for allegiance and jurisdiction is paralleled by the competition between governmental and nongovernmental institutions, e. g., the church, the business corporation, the labor union, and the family. If people prefer the authority of the state to that of the family or the church, the scope of government is broadened. In the converse situation the scope of government may be narrowed. The more a state offers that cannot be obtained more reasonably from another state or another institution, the more it can demand and secure in return from its subjects. The measure of fealty and homage that a government can expect from any group in its population is not unrelated to the services and contributions that government makes to that group.

The fact that government is permeated by the form of the command tends to obscure the very large degree to which government actually rests upon the consent of the governed, upon the acceptance of authority, upon the free choice of sovereigns, upon the common agreements and compromises reached by conflicting groups within a society and formalized as treaties of peace on the statute books of the Nation. Government by simple majority rule is practical only in moments of great stress. No community can stand the social cost of coercing forty-nine percent of its citizens to do something they do not wish to do, except on very rare occasions.

I do not mean to deny that there is a coercive element in all government. It may equally be said that there is a coercive ele-

ment in all human relations and particularly in all commercial relations. But government is also, in large part, a series of consensual transactions subject to the laws of supply and demand, diminishing returns, monopoly price, and all the other laws that govern the exchange of services and commodities. Whether we look at government in the realms where its achievements are solid or in realms of industrial and international anarchy where government is a hope rather than an achievement, we can find, I think, keys to understanding in the hypothesis that government is the outcome or product of interpersonal and intergroup agreements. This, rather than the explanation of a mythical past, is the real contribution which the social contract theory has made to the contemporary problems of many earlier ages. I see no reason why it may not make as great a contribution to the understanding of our own contemporary history.

(4) *Science*. That modern civilization rests on science not only for its industrial but also for its intellectual and moral progress has been recognized since the founding of scientific academies in the seventeenth century through the support of governments or enlightened aristocracies. Yet in the historical studies which have dominated our thought since the beginning of the nineteenth century the history of science may be said to have been a most neglected field. Of course, any student of the subject can readily name a long list of admirable studies on the various sciences and a few notable books on the history of science in general, but the references to the progress of science in general histories are meagre and even so might as a rule be advantageously omitted. There has been relatively little critical reflection as to what are the objectives, scope, and proper methods of historical investigation in this field. As a result, highly important scientific considerations are inadequately appreciated, and in few if any other branches of history are there current so many fundamental misconceptions, myths, and downright errors.

Amateurish views as to the nature of induction and the meaning of scientific observation propounded by men who have had as little direct experience with scientific investigation as Bacon and Mill are so dominant that an eminent historian, indeed a specialist on the history of the intellectual class, can speak as if there were no real science in Medieval and even Hellenistic civilization, and as if it all sprang suddenly out of the minds of Bacon, Galileo, and Descartes like Athene out of the brow of Zeus.⁴ Not only do we have the popular myth that Darwin and Spencer originated the doctrine of evolution, but obviously ill-informed and unscholarly works such as those of Osborn and Fiske pass as authoritative. Even of recent events such as the discovery of electric waves and x-rays highly inaccurate accounts of their "accidental" character are current.

Some of the reasons for this situation are rather obvious. Scientists as a rule are seldom interested in historical researches and even more seldom are they adequately trained in the methods of historical investigation. Even such a modern work as Newton's *Principia* is very hard reading for any one who is not familiar with the Greek mathematicians and with the scientific terminology of the seventeenth century. The high degree of specialization required in the modern physical sciences does not readily permit the time and attention requisite for historical studies. On the other hand, professional historians are not as a rule sufficiently familiar with the subject matter of the various sciences. It is not enough to examine an ancient manuscript carefully and give its contents accurately. One must know enough of the subject matter to appreciate its role in the advancement of knowledge as well as the limitations of the views there expressed.

If the recent notable awakening of interest in the history of science is to bear fruit we must clarify our ideas as to what is

⁴ James Harvey Robinson, *Mind in the Making*.

science, what we mean by its history, and what factors determine its progress.

A very large proportion of the history of science is still in what might be called the anecdotal stage, i. e., it contains accounts of the doings, of the lives and discoveries of scientists. Now, it is most urgent that the history of science should, like all history, be based upon verified facts rather than upon the play of plausible schematic ideas *à la* Hegel. Unless we can establish what actually happened, talk about the differences between ancient and modern science, about the absence of science in the Middle Ages or the scientific revolution in the sixteenth and seventeenth centuries, is no better than mythology. It is equally certain that the mere accumulation of facts according to the biographic or annalistic procedure is inadequate. Bricks alone do not form a building. We must see how the facts are connected, and for this reason we must have, if not a formal definition of science, at least a clear idea of what discoveries are to be included in science. We do not, of course, want to impoverish our idea of science by unduly restricting it and severing it from its connections with technology and popular beliefs in magic and even mythology. But obviously some conception of what is relevant and what is irrelevant to the history of science is necessary; otherwise we have chaos rather than an organization of knowledge. Is geographic research a science? Is the progress of metallurgy, of agriculture, of fur trapping, part of the history of science? Doubtless there is a great deal of knowledge involved in all forms of technology, but there is also some knowledge involved in all the arts and even in the practice of Black Magic. A history of human knowledge in general is of course a legitimate topic though one may be skeptical as to its feasibility. It seems that some distinction between science and less methodical forms of knowledge is necessary, and if so, the history of science requires special attention to discover the connection

between any scientific discovery and the previous knowledge which was the necessary condition for it. This always involves considerable research.

There is a peculiar and subtle fallacy to which those trained in the examination of documents in this field are subject, and that is overlooking the fact that before the printing press created easy access to the written word much of our learning was handed down by oral tradition. The limitation of the traditionally trained historian in this respect is illustrated in the otherwise eminently scholarly work of Prof. Lynn Thorndike. No one can question his thorough technical competence in dealing with the manuscript sources used in his *History of Magic and Experimental Sciences*, but this work, for all the illuminating material that it reveals, gives us only a series of sketches and not a continuous or connected picture. Our genial author is not sufficiently interested in the continuity and development of the fundamental ideas of science, which cannot be traced without taking into account the Greek foundations of Arabic learning and oral traditions.

If this is true of such an accomplished scholar as Thorndike, what shall we say of more popular histories written at second hand in reliance upon popular errors?

(a) *The Function of Analogy.* In the first place we must get rid of the popular myth that the growth of science has consisted in mere accumulation of facts. It ought to be obvious that unless we have some ideas or hypotheses we shall not know what facts are relevant to any inquiry.

Where then do men get the leading ideas which guide their investigations and help them not only to see old facts in a new light but to discover new facts? The conventional way of stating this question seems to imply either that the facts supply the requisite hypotheses or that there is somewhere a storehouse of ideas where we go to select one suitable for our purposes. This, of

course, is obviously not a highly fitting account of the situation. The men who make discoveries in any science are generally men well acquainted with what has been achieved. I do not mean that the most original ideas come from those who are most learned—Einstein is a notable disproof of this—but it is true that no one can make discoveries in a field with which he is not acquainted or with the problems of which he has not seriously grappled. The various accounts of accidental discoveries, such as electric waves by Hertz or x-rays by Roentgen and others usually cited as examples, can be seen on close examination to have been the results of prolonged study and reflection. This is not to deny the inventive element of genius, but it calls our attention to the continuity in the history of science.

Let us for a moment put ourselves in the position of a man asking a hitherto unanswered question; for instance, What is the cause of cancer, or of the various disturbances of the thyroid gland? The number of possible causes to be considered depends not only on the capacity or fruitfulness of one's imagination but also on a knowledge of what factors are irrelevant and what factors do more or less directly or indirectly bear on the problem. Thus, the number of available analogies is a determining factor in the growth and progress of science.

The most fruitful developments of modern mathematics can almost all be analyzed into the application of old ideas to new fields. The development of fractions, negative numbers, irrationals, and complex numbers, all indicate the extension of fundamental operations which originally were applied only to integers. Concretely, we see this in the extension of the binomial theorem to all sorts of indices. In the field of geometry we see how the principle of duality enabled Monge, Poncelet, and their followers to find new theorems on the analogy of old ones, and a striking example of this is Plücker's development of line geometry on the

analogy of plane geometry. Possibly the most striking example is the application by Klein and others of group theory to geometry as well as to algebra, and today we see the development of remarkable analogies between Boolean algebra and topology or analysis situs.

A very striking example of the fruitfulness of analogy is the application of the notion of a fluid to voltaic electricity. The elementary facts concerning the lodestone and amber, or that certain substances will under certain conditions crackle, have been known since the days of the early Greeks. The beginning of a science of electricity comes with the suggestion that electricity is like a fluid, or that the earth acts like a magnet on the needle of a compass. These analogies suggest all sorts of consequences which may be experimentally verified. Electric phenomena seem to be transmitted like water in pipes, although, as shown by Faraday, the fluid runs on the outside rather than on the inside of the pipes. Faraday's work, indeed, introduced a new analogy, that of strains and stresses in the ether similar to those of elastic bands running along the conductor. More recently the electron theory of electricity is based on the analogy of star clusters, and the modern theory of the atom is based on the analogy of a solar system.

The success of the theory of central forces when applied to the solar system led to its application, by analogy to capillary action, to the theory of gases. Even earlier the atomic model of discrete bodies held together by forces of cohesion was applied to psychology to give us the idea of atomic sensations tied together by the laws of association.

In biology the atomic model or analogy led to the doctrine of the independence of the cell and later to the theory of the genes which constitute the chromosomes. Of special interest to philosophy and general thought was the analogy of the work of breeders and the doctrine of natural selection.

In psychology William James replaces the atomic analogy with the analogy of a stream applied to consciousness.

(b) *The Rhythm of Abstractive and Hypothetical Procedures.* Rankin, one of the founders of modern thermodynamics, distinguished between the abstractive method, in which we abstract certain observable aspects of phenomena and formulate invariant relations between them, and the method whereby we postulate the existence of invisible elements behind the observable phenomena. The whole history of science may be viewed as a rhythm according as one or other of these elements is stressed or comes to the foreground. In ancient times in astronomy, for instance, the hypothetical method is illustrated by the intelligences which move the various celestial bodies. On the other hand, Hipparchus and Ptolemy quite definitely espouse the abstractive method, being interested only in a coherent description of the actual motion. In medieval physics and chemistry occult qualities play a large role as they do in Descartes's physics. In Newton, on the other hand, such hypotheses are banished, but in the theory of gases and in nineteenth century physics generally, the reign of mechanical models and theories of the ether show the hypothetical method dominant, despite the protests of Mach, Ostwald, and others. Then came Einstein's relativity theory, a perfect illustration of the abstractive method, to be followed by Bohr's and other models of the atom after the analogy of a solar or other physical system, and this has given place to the quantum theory of Born and Dirac, which is purely symbolic and makes no pretention to describe the hidden structure of things.

(c) *Ideas and their Environments.* What is it that makes an idea especially fit for scientific development? Obviously it must be definite enough so that we can definitely determine whether certain consequences do or do not follow from it. But furthermore, it must be capable of suggesting consequences that are both fruitful and verifiable, i. e., we must be able to deduce hosts of consequences which can be submitted to experimental tests. Naturally, those ideas are most fruitful which have already received large mathematical development.

Thus, the ideas of attraction and repulsion are familiar enough in our daily life and there is relatively little uncertainty as to whether they occur or not, but though applied to physics by Empedocles, these ideas did not prove fruitful before they received mathematical development in the theory of gravitation and thence in the theories of electricity and magnetism. This was made possible by two elements: first, measurement, which transformed the results of observation into numerical data; and, second, generalized mathematical methods, which enable us to use mathematical analogies to suggest physical ones. Thus, the ancient doctrine of atoms led to plausible speculations but became a useful scientific idea when the development of mechanics enabled us to apply the analogies of billiard balls and statistics to groups of atoms.

(d) *Values in the History of Science.* What is the ultimate value to be aimed at in the history of science? Here we must distinguish two different kinds of uses which the history of science, like any other history, offers us. The pragmatic interpretation of history is that it offers us the lessons of human experience, and certainly it is true that anyone working in any special field can save himself a great deal of wasted effort by knowing what others have done or have failed to bring about. They may call this the pragmatic use. There is, however, a general recognition that the pragmatic use of history is by no means its sole or even its principal value. Men are interested in history for its own sake as an exercise of human intelligence and imagination. A narrow conception of utility may minimize the importance of this, but in the end the most important service of any study is precisely the extent to which it widens the human horizon, liberates us from too narrow ideas and enables us to see things in a new light. And this is as true in the history of science as anywhere else. Too often has the history of science been written from what may be called the "snobbish" point of view, that the present results of science are the only ones that are true and that the ancients,

like foreigners, are all ignorant. A truly competent and worthwhile history of science tries to understand what were the problems that agitated people's minds and what were the conditions available for their solution. By thus fixing ourselves into other points of view we get out of our own narrow limitations and enlarge our being.

(e) *The Manichean Interpretation.* The first attempt in modern times to find a unifying thread in the history of science came in the age of the Enlightenment, of which Francis Bacon is forerunner. The old Augustinian philosophy of history viewed it as a conflict between the heavenly city of light (represented by the church) and the earthly city of darkness ruled by Satan. Under the influence of the Reformation and the growth of modern literature in the vernacular (instead of Latin) the philosophers of the Enlightenment simply reversed the role of the church by making it take the place of Satan as the enemy of the light which comes of natural reason and (earthly) experience. They held that it is the church which throughout the ages has fostered ignorance and superstition and prevented the growth of science, but the latter is bound to triumph in the end.

No friend of humane civilization wishes to underestimate the great services the philosophy of the Enlightenment has rendered towards removing the restraints on free intellectual inquiry, which is the essence of science and liberal civilization. But candor compels that we recognize the inadequacy of the conception of the history of science which has developed as a result of this attitude in such works as Draper's *Conflict of Religion and Science* or White's *Warfare of Science and Theology*. These writers, like Huxley, John Morley, Lecky and Bury in England, have strengthened the faith in science and have advanced its prestige. Nevertheless, they have labored under certain obvious limitations which history cannot overlook.

In the first place, these rationalistic historians have labored under the difficulty of not being sufficiently familiar with the older literature of science. When they talk of Roger Bacon as if he were an exception to the intellectual darkness of his age, they ignore the superior scientific work of typical scholastics such as Albertus Magnus, Vitello, and others.

Anyone who wishes to maintain a thesis is tempted to select the facts which go to prove his contention and ignore the other facts. This makes for effectiveness of argument, but not for accurate history. Thus White in his *Warfare of Science and Theology* mentions Dante as believing that Jerusalem is the center of the earth, but omits to mention that in his poetic version of scholastic theology the sphericity of the earth is central. White mentions some obscure pastor in St. Louis still maintaining in 1873 the flatness of the earth, but he ignores the fairly accurate knowledge of the scholastic philosophers as to the circumference of the earth.

It is not necessary to ignore the spirit of intolerance and fear of new truths on the part of a church of which the Inquisition was one of the central organs. This, however, does not justify exaggerating the extent to which the Church persecuted the modern pioneers of science. Giordano Bruno was not burned merely for his scientific views, if indeed we regard him as a scientist. Other elements certainly entered into the case. So too the popular accounts of the persecution of Galileo ignore the fact that if he had followed the advice of Cardinal Bellarmine in good faith and had treated the Copernican hypothesis as an hypothesis—which indeed we now know it to be—he would have avoided all his difficulties. It might also be added that while Galileo was within his rights in criticizing the Pope's theory of the tides his own views were no better. The main point to be noted is that despite its predominant interest in theology, the Church was throughout the Middle Ages the only agency promoting all the sciences. All those who contributed to their advancement were in the service

of the Church. In fact, periods of scientific progress or prosperity coincide with periods of prosperity for the Church. There is only one scientific doctrine which the Church has ever definitely opposed and that is the Copernican astronomy, which it condemned between 1616 and 1728. That is the one mistake that the Church has made—for if it had maintained its original position that the Copernican astronomy is a mere hypothesis, it would now be seen in the light of the theory of relativity to be on irrefutable ground.

A much more fundamental limitation of the rationalistic school in the history of science is the absence of any realistic analysis of the human motives that make for or against the pursuit of science. Why have theologians been so hostile to science? We can say today that it is a matter of professional rivalry between clergymen and lay scientists, but this is hardly an adequate explanation of medieval heresy hunting, since the heretics were themselves clerics.

It would take us far afield to consider the causes of such persecution, but it is well to note that the basic warfare is primarily between religion and science, i. e., between a devotion to the customary or traditional views which have become hallowed by use and wont, and the attitude of science which ignores authority and regards nothing as too sacred to be questioned. The hindrances to intellectual progress are not exclusively inventions of theologians but result from deep and widespread human attitudes that center about dislike at having traditional views disturbed.

Draper, White and the others of their school, would have a better understanding of the difficulties which science has had in the past if they could visualize the modern difficulty of free inquiry into the social realm. Consider the attitude of the great mass of people to one who genuinely questions institutions of monogamy or private property or dares to raise the question whether the assumptions concerning the benefits of our Constitution and our

Supreme Court are founded in fact, and you can better understand why the questioning of certain theologic doctrines was so disturbing to good people in earlier ages.

(f) *The Social Interpretation.* This brings us to the view now becoming very popular, that science is the result of the civilization or the social organization of any period, and in a narrower form that science is a product of, or is evoked by, the economic needs.

Though science is in large measure the result of a highly individualized craving which may be called curiosity or wonder, its history or progress is certainly socially conditioned. Why, for instance, were not the various inventions of Hero of Alexandria followed up? Though his works like many others were lost to the western world for some centuries, they were well known to the Arabic scientists. That they evoked relatively little interest is undoubtedly due to the fact that the dominant theoretical and practical interests were in a different region. The process of discovery or invention depends on mental genius or on factors which are unpredictable; but the development of any idea, its nurture, depends on the extent to which it satisfies or serves some actual interest. It is obvious that Watt's invention of the steam engine fitted into the practical needs of British industry in the eighteenth century far more than Hero's invention into the economy of Hellenistic or Saracen culture.

The interaction between industry and science is not restricted to modern times. From the beginning of human culture man's successful mastery of nature has depended upon a certain store of true knowledge. Whether it is fishing, hunting, or agriculture, man early learns to watch the ways of nature. Thus, fishermen and trappers know a great deal about the habits of fish and animals, and similarly those who cultivate the soil learn about the nature of plants. Especially is this true when there is a leisure class that makes it a point to conserve and hand on such knowledge,

as, for instance, the priests of Babylonia or Egypt, the scribes of ancient Judea, or the leisured gentlemen or professional scholars who succeeded the clerics at the universities. Men's myths may sound fantastic when we fail to realize how essentially mythical are the popular views of science. Primitive people's actual knowledge of phenomena in which they are interested is commonly as adequate as our own. If we excel them in some of our acquired learning, they excel our modern city dwellers in their detailed knowledge of nature. It is important to realize, however, that there is a distinction between technology and theoretic science. Practical knowledge is prized for the most part for its specific utilitarian results. These soon get imbedded in social habits and generally it is only through great social changes or revolutions or perhaps disasters that such knowledge is ever lost. The interest which leads to theoretic knowledge, like devotion to the fine arts, does not make such a continuous appeal to the multitude, and those who devote themselves to pure science are more apart from the central concerns of human affairs, so that they are not so well supported. Indeed, they are very often under suspicion and are protected by prudent obscurity.

We cannot understand the growth of science without a fair idea as to the human motives which make men devote themselves to it. The modern notion of science as a profession, as an occupation by which men earn a livelihood, cannot be ignored but will not go far. The roots of science as an art are many and go deep.

One of the roots of science is to be found in the curiosity of which the beginnings are to be found in certain animals. More specifically, the natural sciences owe a great deal to a natural love for the out-of-doors and a passionate interest in close observation. This is certainly true of the early geologists and field naturalists. Men like Lyell and Darwin, as well as the German romantic

Naturphilosophen, had a love of nature not less ardent than that of poets like Keats, Wordsworth and Ruskin.

It is true that some of the great heroes of physical science like Newton or Faraday were men who liked to play with machinery and to illustrate their ideas in concrete models, but the purely speculative element has always been an indispensable factor. We may well note in passing that mathematics and mathematical physics are remarkably often the occupations of young men who are ready to start from a few simple ideas and deduce their consequences regardless of the judgment of authority. That is the great characteristic of the new physics. Einstein, Bohr, Heisenberg, Dirac, Schrödinger, and Pauli all did their epoch-making work as mere boys.

The Greeks seem to have developed for the first time in history a class of people primarily interested in the preservation and cultivation of purely theoretic science. The Ionic philosopher Thales and his followers, including Pythagoras and Xenophanes, Empedocles and Democritus, as well as Aristotle, were interested in science for its own sake even though they may also have made practical application. They were bent on proving general theorems even when such general theorems offered no immediate advantage for the practical techniques of surveying, making musical instruments, or the like. Pure mathematics is the field which the Greeks discovered and in which they excelled; and all science, if it is to be distinguished at all from technology, is mathematical in the sense that it deals with the dialectic consequences of principles. All people, of course, have speculated as to the origin of things, as illustrated, for instance, in the first few chapters of the Book of Genesis. What distinguishes the Greek cosmologic speculation is the persistent effort to eliminate arbitrary elements or purely authoritative traditions and to found everything upon self-evident invariant relations—to question everything until we

arrive at the things that are unquestionable. This involves a cultivated delight in contemplation which is perhaps out of tune with the temper of most modern historians and indeed of most modern life. This only makes it the more important that any historian who seeks to portray the intellectual temper of another age should recognize the role of fashion in our conceptions of the intellectual virtues.

From the institutional point of view every age may be characterized by the type of character which it most admired. Of old, the ideal that dominated education was the saint—the godly man who went about preaching and doing acts of charity, ministering to the bodies and souls of the needy but himself quite indifferent to worldly fortune, in the world but not contaminated by it because his mind and heart were fixed on a higher and different world. Today our ideal is the practical or efficient man and we no longer regard other-worldliness as a virtue. Indeed, a prominent school of American philosophy regards practical life, the affairs of the market place, as the test of the highest truth. That, I suppose, is quite in accord with the view expressed by John Hay in "Little Breeches" concerning the conduct of angels, that doing something useful "is a derned sight better business than loafing around the throne."

The view of Aristotle and the Scholastics that contemplation is the most divine of human pursuits holds, I think, more promise for the future of science as well as for the understanding of its past.

Chapter 9

PATTERNS OF HISTORIC DEVELOPMENT

1. The Theory of Human Degeneration

To those who have searched for a linear pattern in the unfolding of history, the theme of man's downfall and degeneration has exercised a perennial appeal. The placing of man's Golden Age in the past, rather than in the future, is an essential part of the world view set forth in the works of Homer and Hesiod, as well as in many portions of the Bible, notably the story of the Garden of Eden and the Book of Daniel. Heracleitos speaks of the dissolution of all things; and the glorification of the virtues of the ancients runs through classical and medieval poetry and historiography.¹ The finality of the Roman Empire and of classical learning is accepted without question in the thinking of the Middle Ages² and only in the last few decades has this assumption ceased to dominate grammar and politics.

Since the Hebrew prophets there have never been wanting critics of man's lapses from the supposedly more virtuous simple life of his ancestors. Rousseau and his predecessor Fénelon were following an ancient and classical tradition in ascribing the evils of the human scene to innovations and complexities of which our less civilized ancestors are supposed to have been wholly free.

The notion that all history shows a degeneration of human virtues and powers has a special appeal to conservatives in every age who are persuaded that the younger generation is more self-

¹ See Hesiod, *Works and Days*, 90 ff.; Ovid, *Met.* I, 89.

² Ernst Bernheim, *Lehrbuch der historischen Methode* (5th ed., 1914), p. 75.

ish, more licentious, less disciplined, and less religious, than its progenitors. If these lapses are but the natural manifestation of a world-historical trend they are not only less surprising than they might otherwise be but they are also less of a reflection upon the teaching abilities of the older generation. Thus a civilization dominated by reverence for the past, of which societies for ancestor worship (e. g., the Daughters of the American Revolution) are characteristic, is normally one in which the urge to freedom, the needs of youth, and the opportunities for human progress receive slight consideration.

It is often alleged (e. g., by Pitkin and Spengler) that modern life demands captains of industry or of other enterprises, that such captains must be possessed of unusually high intelligence, and that the relative number of such men is decreasing. This claim, however, has not been supported by any available evidence. In the literary field we are often tempted to assert that there are no longer great writers such as existed in former times, but it is by no means certain that this is not an illusion due to the fact that the proportion of outstanding men naturally diminishes in a large crowd of fairly competent persons. On the whole the art of writing on its technical side has improved, that is to say, if we take a large number of writers at random today and compare their work with an equally representative group of a century or two ago we will find those improvements in fluency and relevancy which are acquired by training. But originality and distinctiveness are not the result of training, and those writers who through our educational system have become familiar classics receive an admiration out of proportion to more recent writers who have more competitors for recognition.

Progress in the arts is of course not to be expected to the extent that they involve originality, for progress is a matter of cumulative results such as is possible in mathematics and in the demonstrable natural sciences, where by continual additions the general

fund of knowledge is increased. Whether modern sculpture is superior to Greek sculpture is largely a matter of taste or preference, in which fashion plays an important role. Raphael, formerly considered the greatest of all painters, is now the object of considerable depreciation, and future generations may well wonder why our generation so extolled Cézanne and other moderns.

Glorification of the past is largely a matter of emotion in such realms as religion and art, where a preference for ancient ways is not subject to logical refutation. Such glorification of the past, however, cannot prevail unless cumulative human enterprises such as science be either suppressed or relegated to an inferior position in man's scheme of values. But where science and scientists refuse to be suppressed and insist on bringing to public attention new developments in man's knowledge of, and control over, his natural environment, it ceases to be possible to regard earlier generations as generally superior to their contemporary descendants. So today, in Europe and North America, and wherever the influence of modern science reaches, the old simple view of man's career on earth as a course of degradation has ceased to dominate the writing of history.

2. The Cyclical View of History

Intermediate between the view of history as a record of man's degeneration and the doctrine of perpetual progress is the view that history reveals a series of undulations or cyclical transformations, so that while particular segments of history show general progress and other segments are marked by degeneration, neither of these trends is capable of indefinite extension.

The Pythagorean view of historic cycles, the Aristotelian idea of endless undulations, and the Vergilian view of the return of the Golden Age⁸ to which Dante and others gave so large a religious

⁸ Fourth Eclogue.

import, are paralleled in later centuries by the cyclical views of Bodin, Nietzsche, Vico, and Spengler.

In its modern form, the cyclical view attributes to every culture or civilization the characteristics of infancy, adolescence, maturity, and senescence. It invokes the principle of limited possibilities to disprove the emergence of real novelty in the world. This view is subject to at least two serious difficulties.

In the first place, the notion of a governing life-cycle of civilizations assumes that external influences cannot change the course of a civilization. But even the path of a planet can be changed by external occurrences, and there is no reason to suppose that the paths of societies are more immutable. It is true that the order of the periods of a human life span cannot be changed. But the analogy between the individual life cycle and the life cycle of civilization is very far fetched. We know the factors that bring about the hardening of the arteries, decreasing oxygenation, etc. Do we know the factors that break up and change the character of a civilization? The whole idea of the life of a civilization is neither clear nor definite. The test whether a man is or is not still alive is definite enough, but when did Greek civilization fall?

A second difficulty in the way of any cyclical conception of history lies in the fact that historically no two known civilizations have gone through the supposed cycle in the same way, for no two civilizations have started at the same point. Later civilizations have learned from the experience of others.

These difficulties make it impossible for any sober historian to accept the cyclical view as a guide in the actual writing of history. Yet there is a real insight in the notion that both progress and degeneration occur in human history, that neither is of infinite extent, and that in so far as we can subject various periods of history to abstract questions with a limited range of possible answers, some of our answers are bound to recur. Recurrences relative to a given abstract factor are not a sufficient guide to the

writing of history, since they cannot exhaust the concrete fullness of any event or period, but they are the stuff out of which generalization in the social sciences emerges.⁴

So qualified, the theory of cycles or undulations may guard us against the more violent extremes of optimism and pessimism, and at the same time help us to focus attention on the ups and downs of history which are no less glorious or tragic because of their limited scope. If, as has been well said, those who do not study history are doomed to repeat it, we can find more guidance in a view that recognizes the reality of triumph and defeat than in a philosophy which banishes either of these to a world of illusion.

The optimist or meliorist insists that tragedy and error are unreal except as they may be lessons or foils for some larger good. The pessimist insists that progress is always and everywhere an illusion. Those who, like Schopenhauer, deny the reality of time agree with both these antagonists and attribute both the tragedies and the glories of history to a world of unreal imaginings. A tougher and more catholic conception of history accepts the reality of the triumphs and the tragedies alike and suggests that we learn from both. It insists that history shows real novelty and that any long-range balance of forces which history reveals must be viewed as a process rather than a state of inertia. The oscillations of history about a given norm are at least as real as the norm. High tide and low tide are as real as mean sea level. And though the tides of history are less easily charted than the tides of the sea, their charting is still the chief task of the historian.

3. The Liberal Interpretation of History

Most of the historians that are generally studied today either belong to classical antiquity or have lived since the middle of the

⁴ See my remarks on "Generalization in the Social Sciences" in L. Wirth, *Eleven Twenty-Six: A Decade of Social Science Research*, pp. 229 ff., 241 ff.

eighteenth century, and both of these groups have been, for the most part, of the liberal school. It is therefore interesting to institute a critical inquiry so as to discriminate between the true and the untenable elements in their philosophies.

I take the modern liberal tradition in historiography to have been launched by Voltaire and his disciple Gibbon—though not initiated by them—and to have its faith sublimely expressed by Condorcet's lyric *Tableau*. I confess that to my mind the spectacle of Condorcet hiding in a garret, writing this enthusiastic sketch of human progress while the Revolution which he had befriended was seeking to kill him, is a scene of the same grandeur as that of Socrates discoursing on immortality while the jailer was preparing the hemlock, or of Jesus saying, "Forgive them Father," as he was nailed to the Cross.

The note of progress has since remained the dominant one in the thought that calls itself liberal, and historians have taken their keynote accordingly. The faith that progress was a law of history soon became associated with the evolutionary philosophy that everything develops through stages, and this affected many who are not usually counted among the liberals, e. g., Hegel and Wundt; but in the philosophy of liberalism progress was associated with a growth of reason and enlightenment and a decline of superstition and violence. The older defense of the established order governed by church and state rested its case on the evil or sinful inclinations of the human heart and of the divinely unaided intellect and on the consequent need of a temporal and spiritual restraint upon the wicked and irrational impulses of the flesh. The philosophy of the Enlightenment could not deny the historical fact of man's inhumanity to man nor could it deny the stupid cruelties that mark the pages of history, but the doctrine of human perfectibility disposed of the difficulty. Primitive or natural man is good, or at least blameless. It is the cunning fraud of priests and the brutal violence of kings and soldiers, according to this

view, that has misled men into the way of superstition and violence, but history shows a constant progress or recovery of man's goodness. Man is rising in science and enlightenment and all the ills that afflict him will in the course of time disappear.

This liberal view of history fitted well into the intellectual temper of the nineteenth century. The nineteenth century was one of great hopes. It hoped first in the growth of popular education and then in the introduction of science into education. It centered great hopes on the separation of church and state, and especially on the removal of those laws and arrangements which prevented the great mass of the people from having any voice or participation in government. Its basic hope, perhaps, was in the removal of restraint on economic enterprise and in the removal of monopolies and privileges in the economic field so that anyone could engage in any enterprise for which he felt he had talent.

All of these hopes were gradually realized to a large extent, but their achievement has brought disappointment. The progress of education has resulted mainly in increased literacy and has given vast power to the owners of the press. The progress of science has not brought greater popular enlightenment, and its technology has given us some comforts but also more distress. It has lengthened life for the young but has not made it more immune to man-made terrors and nervous strain.

Happiness is not a simple function of the number of commodities produced or consumed. It depends also on our expectations. Thus we cannot accept the thoughtless identification of the growth of machinery with the increase of well-being. There is probably less happiness in Europe today than in the eighteenth century or even in the nineteenth, and certainly one factor in bringing about this result, quite apart from the advance in man's power to kill his fellow beings, is the development of easy communication by railroad, telegraph, telephone, radio, and newspaper, which breaks up the old isolation of communities and individuals. When

people see others enjoying goods that they never thought of they are apt to become unhappy because they do not have similar possessions.

The failure of the hopes on which the liberal faith of the nineteenth century was pinned has brought the ideal of liberalism into general disrepute, not only abroad but even in the United States. A century ago the future seemed to belong to the liberals, who believed in removing the chains or restraints which prevented free human thought and enterprise. In the intellectual realm liberalism meant the freedom of science, the freedom to inquire into the truth, which means to question what has passed as true on the basis of custom or authority. In economics it meant *laissez faire, laissez passer*, allow manufacture, allow exports, as opposed to the regime of monopolies and privileges. In politics it was likewise opposed to the theories of divine rights of kings and hereditary privileged classes. Its philosophy was thus one of faith in human energy: Give it a chance to work freely, open careers to talent, and the greatest good will result.

The term "liberal" thus used to be an honorific one, as can be seen from the way it was applied in all sorts of relations—we spoke of the "college of liberal arts" or a "liberal allowance." Today the liberal is a despised creature, generally regarded as a man who stands in the middle of the road and takes one step to the right and one to the left. Today the world is divided between the revolutionists of the left, and the reactionaries of the right, and both parties agree in despising the liberal. He is reviled by the conservative or reactionary as a spineless pink or parlor socialist who flirts with the Reds and allows them to undermine the foundations of our social order by his doctrine of tolerance and opposition to a drastic and efficient suppression. On the other hand, the radicals or revolutionaries call him a social fascist who hinders the progress of the revolution and whose timidity is an aid to the fascists or counter-revolutionaries. Both

ends are thus against the middle and both agree that the despised liberal is timid and spineless, without any definite program in a world that requires vigorous action, and that his characteristic doctrine of tolerance must undo him since he is bound to tolerate those who are illiberal.

Not only is the liberal despised, but all his works are being overthrown. The immediate prospect is that in our own country, and perhaps in many others, military psychology will dominate us as it did not in the past. Quite apart from recent happenings the trend against our traditional liberalism has been going strong ever since the Spanish-American War. Addressing the members of the Anti-Imperialist League at the turn of the century William James told them that their cause was lost, that since the free land economy and the expansion westward had stopped, America was bound to follow the path of the Old World, and the fight for liberalism would be along lines similar to those in the Old World.

What has happened to the liberal viewpoint in the last half century? In economics *laissez faire* is definitely receding and has few friends left. The free market is disappearing through combinations of capital and labor and through government interference. Free trade between nations has been buried under high tariff walls even in England. In politics we in this country still profess to believe in democracy, but our professions are becoming thinner and thinner. Our immigration laws are based on the definitive denial that all men are created free and equal and embody the ideal of racialism as opposed to humanity. We no longer believe in making this country a haven for the oppressed who want to live in a land of freedom. When Kossuth, the president of the First Hungarian Republic, came to this country in 1854 he was feted in every city. Indeed, the United States prevented his extradition from Austria and offered to bring him here in one of our warships. When the president of the Second

Hungarian Republic, Karolyi, came to this country he was refused admission.

In the intellectual realm we see a definite reaction against the free use of reason. "Rationalism" and "intellectualism" are terms of derision. All sorts of superstitions are rearing their heads and in the background looms the church that claims absolute authority. Freedom to investigate is excluded from history by the American Legion and the Daughters of the American Revolution, who want history to be taught as propaganda against another revolution.

I shall say nothing about the reactionary interpretations of history. They were discredited in the nineteenth century, and the new reactionaries are too busy and too illiterate to write history. As to the merit of the history they are making, only a prophet can venture to tell.

The left revolutionaries are not only making history, but they are writing it, and it is all on one simple note—the class struggle. In my opinion that is a manifestation of the monistic mania to simplify all the facts so that they will fit into a preconceived scheme.

It would be unfortunate if the present decline in the liberal faith, which may well be a passing phase of public opinion, should lead us to appraise unjustly the liberal historians who have, since the middle of the eighteenth century, moulded so much of human thought. Certainly the prophets of disaster who have risen in reaction to the liberal tradition in historiography have not yet made great contributions to historical scholarship.

In general I think we may say that the liberal historians underestimated the psychological roots of irrationality in human nature:

1. They ignored the evil in human nature, attributing human evils to externals with kings and priests replacing devils, forgetting that all the evils of human life would be impossible if they did not have some roots in human nature.

2. They ignored men's irrationality, forgetting that men have not generally developed the calculating mind and that most of us are moved primarily by inertia or force of habit and secondarily by contradictory impulses which we find it very difficult to rationalize to a point where our conduct embodies some definite pattern. Enlightened selfishness cannot operate where there is no adequate enlightenment.

3. The liberal historians neglected to take full account of the fact that we all idealize history as well as nature. The same tendency to glorify our own career, to overlook our failings and to magnify our achievements, shows itself in a large scale in our accounts of the career of our country or our own people. What we think about ourselves is part of our life processes, which are set to enhance our vitality.

4. They forgot man's romantic and irrational love of war, the sort of thing that Mommsen shared and glorified in his account of Caesar and Caesarism with its aggrandizement of Roman power and its contempt for legalistic or moral squeamishness when there was a choice between acquiring more power and maintaining true faith or loyalty to one's treaty obligations. At the same time liberals failed to recognize the tonic effect of hate, of hitting out or kicking when we are angry. They forgot that hatred is a cure for depression and a tonic for morale on the individual as well as the social level.

5. The liberal historians were mistaken in assuming that men always want freedom and that kings or dictators impose themselves exclusively by force. The liberals just missed, or were blind to, the fact that men, like children, love to follow a leader. Far from loving to be free to decide, most people find the necessity of making decisions a strain and prefer to have it taken off their shoulders.

6. Finally, liberalism ignored the influence of traditions and institutions, exaggerating the self-sufficiency of the individual.

Paradoxical though it sounds, the fact is that the eighteenth-century historians were generally contemptuous of the past, and their special contempt for the middle ages still obscures our view of non-commercial societies.

If, as has been said, God weighs the faults of the warm-hearted and those of the cold-hearted on different scales, the faults of the liberal historians, e. g., Voltaire, Condorcet, J. W. Draper, Leahy, and A. D. White, will be indulgently viewed when final judgment is passed. If they hoped for too much from and for humanity, we can perhaps qualify the assumptions on which those hopes rested without casting aside the vision that liberalism has brought to the writing of history. Above all we must recognize that the free thought and scientific method which liberalism cherished make it possible to revise the liberal creed in its own terms, just as a flexible democratic constitution provides for its own amendment and thus diminishes the need or the danger of revolution.

This is not the place to attempt a recasting of the traditional assumptions of liberalism,⁵ but one aspect of such revision deserves mention in any account of history, and that is the line of development which may be called the *socialization of liberalism*. The liberalism that began by glorifying freedom of speech, thought, religion, and association in terms of absolute individual rights is learning at last to speak the language of social welfare. Today these freedoms are defended on the ground that they lead to a richer life not only for those who choose to exercise such rights but for the larger mass of society that is freed from the arduous duty of suppressing heterodox views and is instead enabled to profit from the competition of the market place in ideas as well as in goods and services. This shift of emphasis from the individual interests to the welfare of society as a whole opens the way

⁵ That task I have attempted elsewhere. See *The Faith of a Liberal*, and especially the epilogue, "The Future of American Liberalism."

for greater communal control of certain aspects of life. Thus one may recognize the necessity for a return to medieval conceptions of socially controlled prices and economic relationships while we continue the fight for freedom in matters of the mind. We may, with such heroes of liberalism as Giordano Bruno, accept a social control of the production and distribution of the material means of our subsistence, while insisting on the maintenance of policies of freedom and tolerance in the more important realms of politics, religion, and intercultural and international affairs.

Liberalism cannot afford to be doctrinaire, for its greatest source of strength is its power to incorporate new discoveries, its flexibility and resilience in the face of attack. To those who suggest new forms of social economic controls designed to guarantee a decent standard of living to all members of society, the liberal must give respectful ear and a willingness to embark on controlled experiments to discover the truth. To those, however, who urge that the whole process of exploration and argument, doubt and discovery, controversy and compromise, be thrown in the discard in favor of some authoritative pattern, the liberal can reply that even on the lowest level of physical force liberal democracy and wise courage have proven superior to totalitarian fanaticism, and that, in the words of Jefferson, the toleration of ideas (as distinct from action) that we hate is a monument to the safety with which error may be allowed free expression so long as truth is free to answer it.

4. Conclusion

Liberal historians have sinned in believing in steady, inevitable progress and minimizing the powers of darkness. No candid observer of man's past can find in it any guaranty of the triumph of light. Shall we then give up hope? The fact remains that while history does not support the theory of perpetual progress

neither does it entirely support the prophets of despair. It does not refute all our hopes. It shows that previous periods of darkness have been followed by periods of relative light, though it does not guarantee the triumph of the light. Past dictatorships and tyrannies have not been able to suppress freedom completely. The despotic ruler or rulers need science and truthful investigation to be able to function effectively and such investigation serves as a leaven to disintegrate the accepted ideologies. It may not, however, prevent such developments as the triumph of the counter-reformation and the suppression of science and free thought in Spain. Dictatorships may also be entirely destructive, as were the barbarian invaders of the Roman Empire.

To my mind, the idea of polarity and oscillation between opposite poles has a good deal more to contribute to historiography than the notions of perpetual progress or perpetual degeneration. The idea of polarity involves the assumption that every force meets with a resistance, or contrary force; that all action is necessarily accompanied by a contrary reaction, so that when anything persists we must find opposite forces in it.

The dominant forces in human nature which seem to me relevant for an understanding of history are the expansive forces, which involve adventure, and the centralizing or organizing forces, which protect us against those elements that would destroy us. Fear and freedom are thus two poles of human life. Without freedom to expand or grow life would become impossible, but without fear, which leads us consciously or unconsciously to guard against danger, life would soon be destroyed. We would run into all sorts of fatal situations if we did not instinctively recoil at the strange or the uncouth.

There are those who believe in or emphasize only one of these factors. On the one hand we have those who cling to the good old ways, who are opposed to innovation of any sort. They may

admit that their ancestors were revolutionists; but these ancestors are dead, and under no conditions must we have any more revolutions. On the other hand we have those who identify life with change, who think that only a civilization or culture which is constantly changing its institutions is worth while.

Somewhere between these obviously untenable extremes a balance must be found. The balance that any society or civilization attains between the forces of fear and freedom is always a precarious one to the long range historian, however stable it may appear to the day-by-day journalist. Oscillations in the direction of total freedom and in the direction of total regimentation may be inevitable. The task of the historian is not to deny that resurgences of freedom and relapses into a coercive society occur but rather to identify and, so far as possible, measure the changes of direction that history reveals.

It may well be that today we stand at one of the turning points of history, and that the power of freedom, the adventurous spirit which makes the growth of civilization possible, has reached a natural limit of expansion. It may be that the expansion of Europe which began in the eleventh century with the Crusades, was checked by the Mongols in the thirteenth century and by the Black Plague in the fourteenth only to resume at the end of the fifteenth century under the leadership of figures like Henry the Navigator, has come to an end.

Certainly we cannot assume that populations will continue to expand indefinitely. In the end we have to recognize that no animal species, least of all the human race, can go on increasing in numbers forever. Not only is the food and natural space available for life limited, but there is always resistance to lowering the standard of living, and this resistance shows itself in falling birth rates. At some time in the not too distant future, if not today,

we shall be face to face with the problem whether civilization can continue to develop in an economy of static population.

If we face a lack of new lands, a cessation of population increase, a return to a fixed economy at least in the essentials of subsistence, there will still be the need to reconcile the demands of fear and freedom. Society cannot afford to be governed by fear alone or by the fanaticism which fear engenders and which has been responsible for the most horrible cruelties recorded by history from Biblical times to our own days. Hatred of the cruelties practiced by totalitarian states is not only perfectly consistent with liberalism but a necessary adjunct of any liberalism that can hope to survive in the world of today and tomorrow. Yet the liberal will differentiate between hatred of institutions and practices and hatred of a people that so long as they are human are teachable by men who are wise enough to teach. I do not know what form the new synthesis or balance between fear and freedom will take. I think that the contribution which liberalism will make to that synthesis will depend in large part upon the wisdom and courage with which liberals analyze the achievements and the tragedies of the past, realizing that light will not come to succor abandoned hope but is a hard-won prize of strenuous effort.

Chapter 10

THE TRAGIC VIEW OF HISTORY

I have always regretted that Felix Adler's practical duties did not leave him with more time to write on the general philosophic issues that occupied his mind. He was not only an omnivorous but a highly critical reader, and the expression of his observations on many topics of perennial human interest would have been of great and enduring value. One of the principal domains of his reading during his whole keenly intellectual life was the history of the great religions. Yet throughout it all he maintained an acute and, it seems to me, sound view as to the limited extent to which history could offer any solution to the great problems of human existence.

A personal reference may serve to illustrate the point. Before entering Professor Adler's seminar at Columbia I had been lecturing for several years at the Thomas Davidson School on the history of civilization and was full of enthusiasm for the historical and evolutionary method. Thomas Davidson had urged me to work in the field of history in order to temper my interest in the direct analysis of political, economic, and other social issues. The reason he gave me was that a young man without sufficient experience or knowledge of historic backgrounds could not hope to deal properly with those practical issues. Felix Adler made me realize the limitation of that point of view and compelled me to re-evaluate my previous assumptions as to history and evolution. He made me realize, in the first place, that all our knowledge of the past is too fragmentary and uncertain to constitute a sufficient guide or basis for determining what we have to do in the world

before us. It is not only that questions of the conduct of affairs have to be decided as they come up before we have time to acquire complete knowledge of their history. What is more important, though perhaps not so obvious, is that we cannot formulate an intelligible account of human history without the use of ethical categories and viewpoints. When, with Felix Adler's aid, I later pursued graduate studies at Harvard, I devoted those two years mainly to the philosophy of Kant, which had been the inspiration of Adler's own ethical reflection. This led me to see the limitation of all interpretations of history—be they physical, biologic, economic or even theological—which minimize the purely ethical or moral element.

In recent generations it has passed as a truism that we cannot understand the present unless we know the past and how the present came to be. It ought to be even more obvious that we cannot understand the life of the past unless we already have some knowledge of life in our own day. Without any knowledge of technology and economics we cannot understand the minds, motives and aspirations of remote ages. Now, a true understanding of the past is not only an intellectual good in itself but a vital necessity if we are to avoid clinging to those narrow ethical standards which make us misjudge the minds and motives of our predecessors as well as those of our contemporaries who live under somewhat different conditions. History is necessary to control the exaggerated idea of our own originality and of the uniqueness of our own age and problems. To live from day to day without a wider vista is to fail to see all that is involved in the issues of the day.

Ethical evaluation as an element of history is the theme of this chapter,¹ and if I cannot claim that Felix Adler would have ap-

¹ I distinguish between the ethical and the moral. The moral refers to conduct and its conformity to certain standards or rules. Ethics has to do with the rational or theoretic formulation of the system of such rules.

proved every one of my statements, I am confident that in nursing and developing an idea which he suggested more than forty years ago I am paying the kind of tribute which a scholar owes to a revered teacher.

The keynote of Felix Adler's whole lifework was his insistence on the autonomy of ethical truth, i. e., its independence of religious, metaphysical, or any other creed or dogma. Following, in the main, the Kantian doctrine of the primacy of the moral conscience, he held that faith in the supreme value of righteousness and the pursuit thereof does not depend upon any religious belief in a personal God or other supernatural influence in human affairs. The primacy of the moral imperative is incompatible with its being a mere corollary or deduction from physics, biology, descriptive sociology, or any other natural science. If we reject the view that might is right, if the long struggle of heroes and martyrs against prevailing injustice and iniquity has any meaning, then that which has prevailed in the past can no more be the test of what is right than that which prevails today. The God which is on the side of the heaviest artillery is not necessarily the God of love and righteousness. Hence no history which limited itself to telling us what actually did happen could by itself decide what is right or what is wrong. Some ethical principle or principles must be elaborated and applied to the historical material before we can possibly draw any moral lessons from any account of past events. This is a simple matter of logic. A syllogism cannot yield a conclusion about what ought to be unless the premises contain statements about what ought to be. They cannot contain or involve what ought to be unless they are more than factual in character. It may be a fact that God has ordered me to pray but this does not persuade me that I ought to pray unless I value the commands of God and obedience to them. I may, however, choose to roast in hell.

This is not to deny that preferences involve assumptions about fact. A rational man can be shown that some of his preferences are mistaken, but to do so we must appeal not only to objective facts but also to the man's own preferences. John can be shown that his preference for Helen is mistaken if we can show him that she is not as pretty nor as witty as he originally thought. Showing him this, however, obviously involves his preferences for beauty and wit as much as it involves Helen's factual lack of these qualities.

But how can ethical principles be applicable to the course of actual human affairs if they are not identical with or derivable from actuality, natural or supernatural? An adequate answer to this question requires clarification on two points:

- (1) the inadequacy of all non-ethical interpretations of history; and
- (2) a positive theory of history and of ethics that will help us to understand the consequences of human conduct and enable us to discriminate between good and evil in the temporal course of human events.

1. Non-Ethical Interpretations of History

The first and most familiar philosophy of history is the religious one, according to which the course of human events shows the hand or the finger of divine providence. History is given a unity and even dramatic interest by postulating some far-off divine event to which all creation tends. This is a matter of hope or a result of assuming a given law or plan for all history. In Deutero-Isaiah we have the conception, which in a general way unifies previous Hebrew views, in the thesis that God created the world in order to have a holy people as a high priest to serve him, so that light may shine from Zion unto all the children of men. In various Christian writings, especially in modern times (since the conception of progress has become dominant), the kingdom of

Heaven is the ideal which replaces the Messianic kingdom. These are fundamentally identical in content, however, owing perhaps to what might be called the gradual secularization of Protestantism. In any case, the Christian philosophy of history becomes substantially indistinguishable from secular utopias except in terminology. This is clearly seen in what is known as Christian socialism or, in the American version, the Social Gospel.

It is, however, necessary to distinguish between ethical and non-ethical religious views. Belonging to the latter is the view that God, like the sovereign national state, is above the moral law, and that it is irreligious for mere man to pass judgment on the God-head's conduct² as it is unpatriotic for the individual to pass any moral judgment on the action of his country. Thus we have the Calvinist view that God's sovereignty precludes us from considering the justice of His selecting some for salvation and condemning all the rest of His human creatures to eternal punishment. Nor are the Calvinists the only Christians who assign a place in hell to innocent children who die before baptism.

In modern times this view that man has no right to demand human justice from God has been expressed by the Russian, Nicolas Berdayev,³ who sees in the demand for visible justice "an unwillingness to accept the Will of God." He continues: "There is a resistance to God, an arbitrary assertion of a purely human justice and truth and their fulfillment on earth, against that destiny of all mankind revealed in the life and history of the world according to God's inscrutable will and design. . . . This fulfillment transcends the logic and justice of man's limited rational and ethical nature."

² St. Paul's philosophy is indicated in Romans ix: 14-21: "What shall we say then? Is there unrighteousness with God? God forbid. . . . Nay, but, O man, who art thou that repliest against God? Shall the thing formed say to him that formed it, Why hast thou made me thus? Hath not the potter power over the clay, of the same lump to make one vessel unto honour, and another unto dishonour?"

³ *Meaning of History*, p. 93.

A variant of this amoral religious view is found in the attitude of those who define goodness in terms of conformity to divine commands. Archbishop Whately, with his customary acumen, summarized the emptiness of this view:

"If one attaches no meaning to the words 'good' and 'just' and 'right' except that such is the divine command, then to say that God is good and his commands just, is only saying in a circuitous way that he is what he is, and that he wills what he wills, which might equally be said of any being in the universe."

The religion of the Old Testament is generally considered a high form of ethical monotheism, not only relatively to other religions which involved such practices as human sacrifice and sacred prostitution, but also when judged by any absolute moral standard. I do not wish to deny the ethical value of the moral teaching of the great prophets and some of the humane elements of the laws included in the Pentateuch, yet Yahveh punishes innocent men who touch His Ark or who look into it. He kills 700,000 Israelites because David, who offended by numbering them, prefers that course to three months of exile. Because of a past sin of Saul against the Gibeonites, He sends a severe famine of three years and His wrath is appeased only by hanging seven innocent descendants of the offender.⁴ God hardens the heart of Pharaoh and then punishes the Egyptians. That He should send a lying spirit to induce King Ahab to wage a war in which thousands of Jews were destroyed did not trouble the ethical conscience of the Biblical narrator or of many readers. Later writers did ask: "Why does God permit the righteous to suffer and the wicked to triumph?" And one of the answers in the Book of Job takes the form of Yahveh displaying His Omnipotence and challenging Job to declare by what right he, a mere man, a worm of the dust, dares pass judgment on the ways of the Omnipotent.

⁴ 2 Samuel xxi.

Taken literally this form of religion involves an abdication of the application of human intelligence to the interpretation of human history.

Of course, religion and ethics are not always or necessarily opposed. The two overlap and influence each other intimately. What I am urging is that they are independent in the sense that neither can be derived from the other. Men of quite different religions, as well as agnostics like Huxley, naturalists like Spinoza, and atheists like Shelley, sometimes arrive at the same ethical attitudes toward their fellow beings, while those who recognize the same religious authority, e. g., the Bible, may draw different moral rules from it.

In general, Brahmanism and the mystical forms of religion are not interested in an ethical interpretation of history, because they do not consider the temporal process of historic change to be more than a passing illusion (*Maya*). The temporal scene is of no moment in itself; it is only a springboard whence the soul goes up to eternal union with God (or down to eternal darkness). The particular ways in which kingdoms are won or lost, the ways in which men change their habitat or techniques for conquering nature all belong to the realm of vanity. The kingdom of heaven is not on earth though it may be within us if we enjoy the beatific vision. In the ordinary sense of history this is strictly a non-historical view. Christian writers, however, who for the most part hold to the secular or more temporal view, cannot altogether rid themselves of elements of this view, since it is undoubtedly an integral part of such sacred Christian writings as the Gospel of St. John and the Epistles of St. Paul.

Equally incompatible with a scientific or rational historical viewpoint are the theistic religions that stem from the Old Testament and insist on supernatural elements. This insistence must lead to the breakdown of all natural explanation and land us in a mysterious dogma which can only be accepted on faith. This is

specifically true in regard to the persistent and frequent triumph of evil forces in human affairs. Our prevailing religion regards God as both the omnipotent creator of the world and the benevolent director of its affairs. But if everything He does is good, how can there be real evil in the world that He creates and governs? To say that ultimately everything *is* good is to wipe out any real distinction between good and evil, which is the essence of all ethical distinctions and the condition of moral striving. But our religions generally subordinate morality to theology.

Of course, in practice, religious teachers recognize and even stress the evil in the world, but they have not offered a real explanation of why a benevolent and omnipotent Father tolerates it. The common explanation that what seems evil now will turn out to be ultimately good carries no more rational conviction than the idea that what seems good now will turn out to be ultimately evil. We can invoke a Hereafter to balance the evil of an individual life, but this will hardly explain or justify the larger evils of history. The believer in justice can always ask: Why should the present generation suffer in order that future generations may be happy? And the idea that later generations should be punished for the sins of their ancestors shocks our consciences, as it did the conscience of the Hebrew prophets,⁵ though the earlier historical books of the Bible, treating the family or tribe as a moral unit, justify divine retribution even to the third and fourth generation.⁶ A modern illustration of this type of ethical interpretation of history is afforded by Sir Walter Raleigh's *History of the World*. The Lancastrians are punished in the third and fourth generation for the sin of Henry of Bolingbroke, and the Tudors are punished in the third generation (by dying childless) because of the sin of Henry Richmond in assuming the crown.

⁵ Ezekiel, xviii.

⁶ Exodus xx: 5-6; Deut. v: 8-10.

The comforting belief that history is the account of God's judgment on the people ("Die Weltgeschichte ist die Weltgericht"), punishing the sinners and rewarding the virtuous, perverts the idea of justice by making material success the test of righteousness. This confusion of righteousness and power makes a perennial appeal not only to those who enjoy power and like to think that their power is a reward of righteousness but also to those who are oppressed and look forward to an accession of power that will enable them to crush their oppressors. The schoolboy who is kicked around may take refuge in the devastating retort to oppression, "My father is a policeman"; and a people that is kicked around may take refuge in the doctrine, "Our Father is a Policeman."

That the worship of power may corrupt those who begin by *subordinating power to righteousness*, is illustrated by the modern development of the Communist movement. Certainly a great many sincere souls who have embraced Communism as a revolutionary protest against assaults on human equality and the freedom of the human spirit end by justifying such assaults as practical necessities when committed by a great power like the Soviet Union. In this process the sensitivity of the human conscience to issues of justice almost imperceptibly melts away. Communism is, of course, not the only movement in which worship of the power tools necessary to some great transformation of society comes to displace regard for ultimate ideals. But whether power is worshiped under the guise of dialectical materialism or under traditional terms of divinity, the effect is to import confusion into our moral categories. The deeper wisdom of religious insight recognizes that brute power is brutish and that there is no distinction between brute power and the power of darkness. The only God that a free man can worship is the God of light, the God that is *distinguished from an abyss of darkness which He did not create* but which serves as the starting point and background of all the acts and strivings that we may call divine.

The fact is, however, that the great interest of religion is not to explain the evil of human history but to strengthen us to bear it by offering us faith and hope in a better and higher world.

Since ethics is concerned with the difference between what we ought and what we ought not to do or be, and since such judgments cannot be deduced from premises which deal exclusively with existence, no metaphysic can provide an adequate basis for ethical judgments unless it also contains some normative assumption or moral imperative that certain ends ought to be pursued. A materialistic metaphysic may emphasize, and a spiritualistic one may tend to minimize, in our minds the importance of bodily needs or pleasures. Still, no ethical consequences would follow from either without a distinctly ethical assumption or premise.

Any one who rejects the infamous dictum of Pope, "Whatever is, is right," because he knows that unrighteousness does exist in our world, must reject the assumption that evolution is necessarily a moral good. Degeneration is as much a fact as regeneration. The last stage of anything is not necessarily the best. Thus we must reject the Hegelian and Spencerian evolutionary philosophies for their failure to deal seriously with the natural and tragic evil in the course of human events. The jaunty and atrociously optimistic belief in the inevitability of progress involves an obtuseness to the natural and social calamities which crowd the pages of history, e. g., the great plagues, or the barbaric destruction of Greek, Roman, and Saracen civilizations.

Hegel pretends to support his view on necessary logic, and Spencer on the laws of physics, but it is now generally recognized that Hegel's application of his logic is a deliberate violation of the difference between the temporal order of particular events and the logical order of abstract categories, while Spencer's hazy ideas on the laws of matter and energy are based on sheer confusion and ignorance of physics.

Hegel is able to show a world progress by ignoring not only the relapses into barbarism in the Dark Ages, but also the existence of a contemporaneous plurality of civilizations. His monistic logic will allow him only one nation at a time to represent the Absolute, and this makes him rule out all others from history. Therefore, it is not surprising that the progress which he claims history shows in the consciousness of freedom culminates in the freedom to obey the Prussian state and its police. Hegel's scant attention to American history⁷ is only an extreme instance of the classic tradition which identified the history of certain parts of Europe with the history of the world to the utter neglect of the rest of humanity.

Spencer's doctrine of progress is popularly supposed to rest on the evidence of biology, but this is an obvious fallacy based on a confusion between the moral and biologic meanings of the term "survival of the fittest." This fallacy has been pointed out by Huxley, who showed that in a prolonged intense heat only some miserable Indians on the Amazon might survive, while for a prolonged intense cold only the Eskimos would be the most fit. The Spencerian attempt, followed by many sociologists, to show that all peoples go through the same succession of stages in their evolution has really no historic support. Indeed, actual history provides many instances that are flatly in contradiction with these supposed laws of social evolution. The Pueblo Indians became agriculturists without going through the pastoral stage. They could not at the time become herders, since there were no cattle in their country. Some Indians in British Columbia changed from the patriarchal to the matriarchal form of kinship, despite the theory that the latter must always precede the former.

Those who have rebelled against the attempts to make ethics a branch of theology have generally tried to establish it on the

⁷ Although Hegel expressed some confidence in the future of America, he found no place for it in world history.

basis of natural science, confusing moral rules with the laws of nature although the difference between the two ought to be obvious. Moral like legal rules can be, and unfortunately are, frequently violated without impairing their validity, just as mistakes in reasoning cannot invalidate the laws of logic. What we call a law of nature, for example the law of gravitation or of multiple proportion in chemistry, cannot be violated. A single exception would destroy its validity as a universal proposition.

Naturalistic philosophies of history, such as Durkheim's school of sociologic positivism or the Marxian school of economic determinism, smuggle in uncritical evaluations while pretending to be indifferent to all moral considerations. While Marx pretends to be indifferent to considerations of justice his theory of value really goes back to St. Thomas's theory of the natural or just price, and without the indignation at the exploitation of the laborers there would be no force in his arguments and his followers would lose their chief talking point. Self-styled immoralists like Nietzsche really set up a morality of their own. Instead of the Kantian categorical imperative of respect for human personality, or the utilitarian morality of a maximum of pleasure or happiness, Nietzsche sets up the categorical imperative: Be hard, give and suffer blows. In short, I think it fair to say that all interpretations of human events which profess to exclude ethics actually smuggle in uncritical ethical judgments.

2. Ethics in History

I come now to the second part of my task, and that is to consider the requisites of any theory of ethics that should be genuinely applicable to history. It is customarily expected that after a philosopher has critically disposed of inadequate views he should then give his own positive doctrine in a not too critical manner so that those who follow him may apply to him the same correction that he rendered to his predecessors, and it would be vain

to hope that I have escaped undue dogmatism for reasons other than the need of brevity. But I wish to affirm that I do not believe in the sharp antithesis between critical and constructive philosophy. Without the critical spirit philosophy degenerates into sheer dogmatism, which is fatal in the realm of ethics. Ethics, as the science of morals, deals with questions in which human emotions are more involved than in such questions as the nature of numbers, electrons or protons, or protoplasm. Thus, a thoroughgoing critical attitude to prevailing mores and currently accepted moral principles is generally regarded with horror as subversive and indicative of moral deficiency. The result is that most of those who set out to explore the nature of morality end at the port whence they started, i. e., they end by justifying the moral rules of their time and place and of the particular sect or society in which they move. This may intensify moral conviction, but it does not add light on the causes of moral conflict. It is to my mind one of the great achievements, if not the greatest, of Felix Adler that he courageously accepted the logical consequence of the Socratic view that moral truths are to be discovered by rational inquiry. If, however, moral truth is not revealed once and for all by some supernatural authority, it must like all human wisdom be subject to continual correction. "New occasions teach new duties, time makes ancient good uncouth" (Lowell).

This is not merely a matter of theoretic importance. To question what has long passed as moral truth is a vital duty if we are to be saved from the blind moral fanaticism which has been one of the worst oppressions of mankind. I may mention as an illustration the heroic struggle to cure mankind of the obsession which prevailed from the time of King Saul to nearly the end of the seventeenth century, namely the belief in witchcraft and in the duty to kill the witches.

It is because of this urgency that the claims of any professed moral rule be critically examined that it is important to distin-

guish between adequate and inadequate evidence. While certain metaphysical and factual scientific considerations may be necessary parts or elements in an enlightened moral chain, they are not sufficient in themselves to constitute an adequate logical ground of justification.

The foregoing enables us to understand the seemingly paradoxical fact that while history cannot prove any moral rules its study still has a vital ethical interest. For one thing a sense of history can save us from the habit of attributing our own motives to ancients who lived under conditions different from ours. An illustration of this fallacy is the attempt to explain the conduct of primitive people in terms of economic motives which have been acquired rather late in history.

Thus William James writes as if our remote primitive ancestors endured all their hardships in order that we might be comfortable, and Professor Myres (*Who Were the Greeks?*) speaks as if the men of the Ice Age deliberately preferred to face the difficulties of the cold by making fires and clothes rather than retreat to warmer climes.

History is not irrelevant to value in so far as it gives us knowledge of the present. When we try to answer the question of what we ought to do knowledge is never totally irrelevant. Factual knowledge can tell us what it is possible for us to do and inform us about the mechanisms of social and individual activity. As anyone who has tried to operate a strange machine appreciates, knowing its mechanism is a necessary even if not sufficient guide to knowing what we ought to do with it.

If history were a complete account of the past or a complete explanation of the present, it would tell us in detail what we could do and so enlighten our choices. History, however, is fragmentary because the source material for our knowledge of the past is fragmentary. If, moreover, there is genuine novelty in the universe, and if events occur that have never occurred before,

history must be an incomplete explanation of the present. In order to learn from the past there must be recurrences and similarities both throughout the past and between it and the present. There are enough recurrences and similarities to enable history to give us some account of the past and some explanation of the present. Thus our choices are at least partially illuminated and enlightened.

A thoroughly objective study of human conduct in remote ages shows us the variation of customary morality and the relativity of moral judgments. If it makes us less indignant at practices abhorrent to us, it makes us more sympathetic and appreciative of the difficulties facing those who either live under different conditions or have been habituated to look at life from a different perspective. Every one of us is properly certain that the zenith is over his own head, and the great weakness of human flesh is the failure to realize that others who live far from us have the right to say the same thing. In my youth it was difficult for me to respect any one who desecrated the Sabbath by smoking or who ate pork. As for the Christians who did this regularly, they seemed to be inferior creatures who had not arrived at the intelligence to see the truth of the Law. It would have been impossible to convince me that many Christians had the same superior attitude toward Jews. Later I viewed with horror those who lived in extramarital relations. I shared the view of Hardy that a man who finds that his wife had previous sex relations must either kill her or kill himself (*Tess of the D'Urbervilles*). I now believe that many who live together out of formal wedlock are more refined and live more admirable lives than many who have solemnized their marriage in legal or religious ceremonies, and this quite apart from the fact that in the long run, for most people, some regulation seems to me necessary in the interests of men, women, and children.

We have a right to say that if men's moral ideas were different, *their subsequent conduct would also be different*. It is curious that those who insist that human ideas cannot influence the course of history are almost continually complaining of how people are misled by false views. To deny that actual events such as the spread of certain moral ideas have any effects is really not consistent with determinism. In general while an interpretation of human events in ethical terms must necessarily take into account the factual knowledge supplied by the natural sciences, such knowledge cannot by itself suffice to determine uniquely what we ought to do about it. We need also a critical examination of normative ethical ideas, i. e., ideas of what courses or directions human conduct *should* take.

Therefore, while history cannot solve our ethical problems, and the history of the labor movement from neolithic times up to this century may not tell us what the present duties of employers and employees should be, history when pursued with an ethical interest may have a liberating force, widening our experiences and horizons, like intelligent visits to foreign countries or conversing with great and unique personalities. *Our problems may not thereby be solved, but they are illumined*. Therefore while we must reject history as a sufficient condition for the solution of moral problems, we must also accept it as a necessary condition for their better understanding.

Those who are certain that history teaches the particular lesson of their particular sect or creed ignore the fact that quite different and often opposed lessons can be drawn by the adherents of different sects or creeds. Thus in the political field some have pointed to the history of Athens as a horrible example of the failure of democracy, while others have pointed out that only under democratic conditions can we have such contributions as the Athenians made to civilization. The old historians bemoaned the corruption of the moral probity and integrity which enabled the Romans

to rule the world; but others, like Gobineau, pointed to the fact that while the corruption began in the second century B. C., Roman rule continued to expand and Rome continued to rule the world for centuries thereafter. There are those who claim that the mixture of races caused the downfall of classical Greco-Roman civilization, while others show with at least equal cogency that only mixed races have ever made significant contributions to the world's culture.

Facing these diversities men are tempted to fall into despair and adopt a course of dogmatic scepticism: There is nothing that we can learn from history. The heights of truth, however, are not attained by violent jumps. Ethical truth, like all truth, is attained by the patient labor of critical reason. We must avoid sentimentality as much as cheap cynicism. Indeed, cynicism is only sentimentality grown old, or, if you like, it is the maturity or inevitable decay of sentimentality.

Moral cynicism is the result of the impossibility of maintaining a monistic theory of ethics which disregards the fact that moral rules are rules of living and therefore fails to take account of the variations of nature. Nature is the material of moral life. We cannot act or achieve anything except by learning to utilize natural mechanisms. We cannot lift ourselves except by applying natural force to some lever and fulcrum.

A theory of ethics which is genuinely applicable to history must embrace the essential insight of utilitarianism that the moral significance of our actions depends upon their actual or probable consequences. For if every act contains within itself, as many moralists have maintained, its own moral justification or condemnation, the consequences of human action, which form the substance of human history, can have no significance for the moralist. We can determine the moral significance of habits, customs, laws, and institutions only as we are willing patiently to pursue the knowledge that history affords of the human weal and woe to which they give rise.

Such a conception of ethics assumes the reality of evil and the reality of human mistakes. We cannot learn from our mistakes if we never make any, and so to those who believe that the King, or the Party, or the Church can do no wrong, the study of history is superfluous. We must accept the reality of human error if we are to learn anything from the tragedies that fill the pages of history.

The contemplation of the tragic human failures recorded in history, the brutalities and stupidities and the failure to learn by experience, may and alas often does lead to a kind of despair of which cynicism is the natural product. But this need not be the case. On the contrary, the knowledge of the truth is in the end the only truly liberating and thus ethically sustaining force. The pragmatic historian who tries to teach particular lessons is soon dated, because even if his lessons are correctly drawn from his data changing conditions soon make his wisdom inapplicable. But the historian who devotes himself entirely and wholeheartedly to the understanding of what happened serves to widen our experience and liberalize the mind.

Now, a theory of ethics which is at the same time rational, free of external authority, and applicable to natural conduct is found in the Socratic ideal of free inquiry into the principles by which our natural human activities can be harmoniously integrated. It is a mistake to assume that we all know what will make us happy. How often we say to ourselves, "If only I could have that man's home or business or position!" Yet how disappointed we may be when we achieve what we so ardently desired. There can be no moral judgments where there is no preference, but any actual desire or preference may be wrong when it interferes with a maximum satisfaction of all human needs.

Human knowledge and ignorance are themselves factors in determining the course of human events, and if history does not show that the growth of science coincides with the growth of

righteousness it may be because our science has in the main been only of the material field and has not as yet succeeded in adequately clarifying the real desires of the human heart. Nations, like individuals, are often grievously mistaken as to what they really want, as to what will bring them real happiness. This is shown by the large amount of regret and disappointment that fills national as well as individual life. How many political hopes built on faith in the beneficial effect of direct primaries, or proportional representation, or profit sharing, or progressive methods in our education have ended in frustration! History is, among other things, the cemetery of human hopes.

It is commonly assumed by liberal historians that to recognize the evil in human life, especially with regard to its future, operates to discourage effort and is thus in itself a hindrance to further progress. But is it true that we must ignore difficulties and dangers in order to put forth our greatest efforts? Does the belief that we shall all die and leave this mortal scene prevent men from pouring their energies into any of life's endeavors? Though we know that the fatal illness of mortality is incurable, we try to cure our special ailments and thus prolong our days as much as possible, so far as lies within our power. The knowledge of the certainty of death leads us to undertake special provisions for our children and frees us from the wastes involved in purchasing elixirs for everlasting life or undertaking enterprises that depend for their success upon our personal presence beyond the span of human life.

But a realization of the tragic aspect of human history does more for us than free us from vain endeavors. Above all it purifies our spirits, as does the witnessing of any great tragedy. Tragedies personal to ourselves are apt to dispirit if not to crush us, and the suffering of multitudes is more likely to produce resentment than to instill generosity towards others. But witnessing the great tragedies of history chastens our spirits and widens

our sympathies, making us recognize our common human limitations and our common humanity.

Through the great tragedies that history reveals rises the recurrent vision of noble ideals frustrated by the course of actual events. Consider the failure of the Hellenic ideal of enlightenment. According to the Socratic idea wisdom was organized in the Hellenic conception of city states, serving the freedom of their citizens for their maximum development. At the height of Hellenic prosperity this pattern of organization seemed invincible; the brute power of Persian numbers withered before it. Nor was Persia itself devoid of a certain nobility. It gave freedom to the Jews, so that Cyrus, King of Persia, was hailed by the prophet Isaiah as a deliverer sent by God Himself. The Hellenic ideal took root in the hearts of many in the West as well as in the East for numerous generations. But the fratricidal jealousy and strife brought on its Nemesis. Sparta would not share the Periclean ideal, and at the Peace of Antalcidas the Spartans sold Ionian Greece to the Persian King, Artaxerxes. Later on, internal dissension—the obverse of civic freedom—led to the conquest of Greece by Philip and his son Alexander, who represented a well-knit and well-organized military power. Athens in the days of its greatest glory was an island empire whose strength was based on its navy. It lacked adequate and sustaining man power, and could not maintain itself against the superior might of a well-organized land power embodied in Macedonia. This situation was again illustrated by the triumph of Rome over Carthage. The same pattern has kept repeating itself in the various struggles between freedom and military power, as illustrated by the triumph of Rome over the Hellenic city states, and later on by the triumph of Napoleon over the French Revolution conceived as the pursuit of Liberty, Equality and Fraternity.

The triumph of brute power over idealistic aspirations and generous hopes may be said to constitute a recurrent theme of

history. It characterized the sweeping triumph of Bismarck, which substituted the cult of efficiency for the old German *Gemütlichkeit*. The cult of efficiency demands attention to means which are necessary to achieve fundamental human purposes. In the end, all efficiency fails to realize the more fundamental truth of the old saying of Jesus, "What is a man profited, if he shall gain the whole world, and lose his own soul?"⁸ But while history shows many cases of the defeat of good causes by brute power, it also shows that good causes are more often defeated by negligence in the pursuit of the right than by positive forces of evil; and while it is true that brute power can for a limited time crush the human spirit, history also shows that the spirit of truth has a superior vitality and thus truth, even though for a time crushed to earth, rises again. The Hellenic spirit has outlived the Roman conquest, and Napoleon could not permanently wipe out the ideal of Liberty, Equality and Fraternity.

So long as men lack omniscience human history will continue to be full of tragic failures. This need not breed despair, for "if hopes were dupes, fears may be liars," and there is no reason for denying the hope that the future may be better than the past. Wisdom only requires caution that we do not sow vain hopes to harvest a bitter crop of disappointments. The tragic view of human history widens our sympathies and prevents us from becoming dull to the finer possibilities which wiser conduct or a different turn of events might have realized. Above all, it enables us to do our best in an actually imperfect world, and if it warns us that in the language of Kant man is a crooked stick and that we cannot build a perfect kingdom of heaven on our own limited earth, it also provides us with the vision of an ideal which, even though not completely attainable at any one time, illumines the direction in which our efforts should be exerted if the history of the future is to be brighter than the history of the past.

⁸ Matt. xvi :26.

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