

FOR A HISTORY OF THE
SCIENCE OF MAN

The science of man has not, as yet, had its historian. This regrettable fact demonstrates that the human or cultural sciences have not attained their full growth. They rest upon a fragmentary and indecisive epistemology, the very idea of human reality being, in the minds of the specialists, still quite vague.

Nevertheless, this latecomer among the positive disciplines has had, throughout the ages, its prophets and its precursors; but their affirmations, isolated in the cultural context of the period, merely provide a stepping-stone for the future. Several centuries ahead of his time, Ibn Khaldoun, in his *Prolégomènes*, defined the sociological and human reality of Arab civilization. With the appearance of Montaigne, Francis Bacon, and Jean Bodin, the Renaissance witnessed the first attempts to formulate a concrete anthropology and sociology. But the ways and means of this knowledge of man by man existed solely at the level of intuition. Even Vico was to rely only upon his own genius in order to evolve the total phenomenon of

Translated by Elaine P. Halperin.

human reality in its becoming. A goodly number of the great historians of the nineteenth century, in Germany, in England, and in Spain, were to engage in a kind of doctrineless anthropology, entirely intuitive, extensions of which are encountered today in the works of an Ortega y Gasset, a Spengler or a Toynbee.

All these enterprises, deserving though they may be, lack a clearly defined boundary in the epistemological field. For a long time the establishment of such a boundary was delayed by the persistence of traditional dogmatisms and by a reluctance to recognize in man, this exceptional being, an object among objects, subject to the jurisdiction of a positive knowledge.

THE IDEA OF THE SCIENCE OF MAN IN THE EIGHTEENTH CENTURY

The expression "science of man" was doubtless used for the first time in the *Treatise on Human Nature* (1739) by the empiricist, Hume. Experimental science, which certainly prevailed in the physical domain at the time of the Newtonian synthesis, would have to be applied to the human domain. Hume's *Treatise* has as its subtitle: "being an attempt to introduce the experimental method of reasoning into moral subjects." From the very beginning of the work Hume makes his position very clear: "There is no question of importance, whose decision is not comprised in the science of man; and there is none, which can be decided with any certainty, before we become acquainted with that science. . . . And, as the science of man is the only solid foundation for the other sciences, so, the only solid foundation we can give to this science itself must be laid on experience and observation" (p. 5, Everyman's ed.).

Hume, the empiricist, was in reality one of the first thinkers courageous enough to take as his object man as man, viewed in the perspective of his human reality. The charge of "skepticism" was but the price he was made to pay for his boldness in breaking with tradition. Hume, anxious to shed light on the reality of man as a "natural" being, had to clear away all those accumulated epistemological prejudices that prevent us from seeing him for what he is. One must therefore set aside theological presuppositions as well as conceptual frameworks, and the dogmatism of men of science is no less dangerous in this regard than that of men of faith. Everything that is ascribed to the realm of human experience, either directly or indirectly, can contribute to the ordering of our symbols, so that the science of human phenomena becomes the matrix of all the sciences. "Even Mathematics, Natural Philosophy, and Natural Religion are in some measure dependent

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on the science of Man, since they lie under the cognisance of men, and are judged by their powers and faculties" (*ibid.*, p. 4).

A veritable Copernican revolution can be defined in its principle, and, after two centuries, its program seems far from exhausted. Hume's *Essays*, his *Enquiries*, his *Natural History of Religion* (1757) are but timorous steps toward that human reality of which he proposed to draw up an inventory. The state of knowledge at that time rendered any synthesis premature, but the Scotch philosopher glimpsed some of the directions which the new science of man was to take. Specifically, he is the author of an important *History of England* (1754–1759). Whereas Descartes and Malebranche had entertained nothing but disdain for history, from that time on history appeared as a major dimension for the understanding of human beings. This was already Leibniz's opinion, and Hume's historical works were contemporaneous with those of Voltaire in France. Doubtless the ways and means of historical discipline lacked, as yet, consistency and precision, but the time was near when the metaphysicians themselves would be able to find a dimension of truth in history. The expression, "philosophy of history," was coined by Voltaire, somewhat by chance it seems, as early as 1765.

But the eighteenth century does not merely mark the birth of history; it is also the century of a triumphant natural history. Linné and Buffon are among the great men who acknowledged it with the most enthusiasm. Linné, in his *Systema naturae*, the first edition of which appeared in 1735, completed a classification of the natural species; after 1755 *Homo sapiens* himself was included in it. Man possesses the attribute of wisdom, but he is listed in the catalogue; he is a natural species among many others and belongs to the category of natural history. Here we have a decisive intellectual event, making anthropology possible in terms of a natural history of the human being, analogous to the descriptions that Buffon gave of the animal species. Thus man loses that ontological transcendence, that privilege of extraterritoriality in relation to all living beings which, until then, he had conferred upon himself. One hundred years later the Darwinian theory of evolution was merely to draw conclusions from Linné's classifications by pointing out the dynamic relationships of the human species with other species. Dogmatic prejudices were to be definitively overthrown; from then on they were entirely annihilated. Similarly, as early as the eighteenth century, the quarrel over fossils paved the way for the disputes between geology and paleontology that were to come. Finally, ever since the great discoveries of the Renaissance, contemporary ethnology has been foreshadowed by the tales told by travellers and missionaries which

attest to the limitless variety of human customs over the entire breadth of the world. This evidence was open to conflicting interpretation, either as a contradiction of the Western, Christian claims of rational universality, or as an affirmation of a natural universality at variance with our prejudices. In any case, the documents of this pre-literary sociology achieved an exploration of the human being throughout the world which was to impose itself upon future inventories in the same way that Montesquieu, in his *Spirit of the Laws*, was to provide the future impetus for human geography and political sociology.

In the course of this epistemological progress throughout the eighteenth century, there took place a kind of cleansing, a clearing away of rubble from the mental field, freeing it from the doctrinal prejudices that until then had encumbered it. Disciplines began to be established, bridges between the theologies and ontologies of the past and the human sciences of the future; positive intuition remained attached to magical and illuminist themes, in accordance with the pre-Romantic spirit. Gall and Lavater's phrenology foreshadowed characterology and somatic anthropology. A species of human geography faltered ahead with a theory of climates; the sciences of comparative religion and religious sociology tried their wings with Fontenelle and Bayle; Biblical criticism began with Spinoza and Richard Simon—sciences as yet inexact, scarcely aware of their epistemology, but foreshadowings of vaster ambitions. One sector of knowledge stands out and asserts itself: it can be characterized by the appearance of two notions of *nature* and *culture* which are both contradictory and correlative. The idea of an absolute and a temporal truth seems at times to be rectified by a human reference which presupposes the possibility of a specific intelligibility of the personal being.

Among many obscure names, that of Kant stands out. The author of three *Critiques*, he was a philosopher of both history and culture, inquisitive about the excursions that his epoch suggested to the human spirit. He knew and taught cosmology, geography, the theory of climates, the descriptive study of human races. Thus he was led to write *Anthropology, Pragmatically Considered* (1798). Anthropology, he explained, is a systematic knowledge of man; its documents are to be found in the study of near and distant places, in immediate observation as well as in the tales of travellers, in self-observation and in the history of the world, in literature itself. Two approaches are available to the theorist: physiological anthropology, whose purpose is to describe what man is by virtue of his nature, and pragmatic anthropology, which attempts to shed light on what man, as a free being,

can and should make of himself. In this work of his old age, Kant pointed out the inadequacy of theoretical knowledge in this domain. There were still too many uncertainties; that is why he chose to be satisfied with a pragmatic anthropology which applied moral law to the domain of human experience; this involved simply endowing the concept of world citizenship with its full significance.

We must consider Kant in this connection as observer rather than inventor of the new dimension of knowledge of the human being which the eighteenth century explored. Around 1800 the idea was in the air; a program of study began to take shape which was to serve as a concise pattern for more extended researches. The French Revolution, which was also an intellectual earthquake, seemed to have emboldened those who dreamed of substituting more positive symbols for the metaphysical image of man. We find among the Ideologists interesting milestones which evidence this new concern.

Cabanis especially, who lived from 1757 to 1808 and broadened the thinking of eighteenth-century philosophers, worked at perfecting a unitary conception of the human being which would do justice both to the organism and to thought. At the close of 1796 he addressed the Institute in a study entitled: "Considérations générales sur l'étude de l'homme et sur les rapports de son organisation avec ses facultés intellectuelles et morales." This was the first of a series of twelve studies that were to follow one another until 1802. The ensemble comprised his work on the *Rapports du physique et du moral*, a distant forerunner of modern psychosomatic conceptions. In any case, in Cabanis' writings, we find a very clear idea of the science of man, largely influenced by his medical training. "We begin to recognize today," he wrote, "that medicine and ethics are two branches of the same science which, together, constitute *the science of man*. Both of them are based upon a common foundation, upon the physical knowledge of human nature" (*Coup d'oeil sur les Révolutions et la réforme de la médecine*, chap. IV, p. 3). In a curious way, Cabanis' thinking echoes Kantian distinctions with the difference that the former attributes a preponderant influence to physiology and not, as does Kant, to ethics. But the first of the studies on *Rapports du physique et du moral* already specifies the program: "Physiology, the analysis of ideas and ethics are but the three branches of a single and same science which can be properly termed the science of man." And, in a footnote, Cabanis comments: "This is what the Germans call *Anthropologie*; included in this title are, in effect, the three principal subjects we have mentioned."

The idea of a science of man was, then, clearly evident as early as this period. In 1799 a “Société des observations de l’homme” was founded in Paris, but it was not to meet with much success. In 1791, another Ideologist, Volney, a friend of Cabanis, suggested the founding of what we would call a museum of ethnology, next to the museum of classical art established by the revolutionary legislation. “The establishment of a costume room in one of the galleries of the Louvre would be of the greatest interest in every sense: it would furnish quite a lively aliment for the curiosity of many people, priceless models for artists and, above all, it would provide subjects upon which the physician, the philosopher and the legislator would find it useful to ponder. Just imagine a collection of faces and bodies from all the countries and from every nation. . . . What a rich terrain for study and for researches on the influence of climate, of customs, of food! This would truly represent the science of man! Buffon has attempted a chapter about this but it only points up our actual ignorance. It is said that at Petersburg such a collection has been started(. . .) This would be an undertaking worthy of the French nation” (*Les Ruines*, chap. XIX). Astonishing text, if we recall that it was not until 1877 that the Musée d’ethnologie was founded; it was installed in the Trocadéro and was to become, in 1937, the Musée de l’Homme.

THE TRIUMPH OF THE SCIENCES OF MAN IN THE NINETEENTH CENTURY

This science of man, desired by certain advanced thinkers of the eighteenth century, was to become a reality in the nineteenth. Its rapid extension, increasing as it did areas of research, constitutes one of the most striking aspects of the history of knowledge during this period.

We shall not attempt to retrace in detail such a complex evolution, characterized by a decrease in perspectives and by the fact that from then on the philosopher withdrew more and more in favor of the scientist in search of precise data. Man, formerly an absolute subject, and who had knowledge of himself through the divine right of intelligible transparency, became an increasingly mysterious object, whose origins and finalities escaped revealed dogmatisms and the ontological probings of the *cogito*. Scandalous denials were inflicted upon theology and metaphysics, to which these disciplines usually reacted by hurling threats of excommunication, or by closing their eyes. The facts, however, were there, and soon a position had to be taken in the light of these new horizons of knowledge. The persistent contrast between spirit and body, which had increased because of the split between man and the world, lost all of its *raison d’être*.

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Spiritualism, which denied the body in order to stress the soul, materialism which denied the soul in favor of a triumphant, over-simplified physics, no longer describe more than gross schematisms. Human reality appears as a sense of negotiation between man and nature, between thought and organism; the idea of solidarity, of mutual implication, triumphs decisively over that of exclusion.

Thus, new epistemological categories appear as so many great axes on which the progress of knowledge evolves. The notion of *milieu* corresponds to an awareness of continuity between the living being and his environment: the human fact is contained in the totality of negotiations between the individual and the realities to which he feels himself bound. Reflexive meditation can conceive of itself as withdrawn from the world and nourished by its own substance; but the concrete being asserts himself expansively in a vital domain where he finds himself in constant interaction. As early as 1809, Lamarck, who incidentally invented the word "biology," attempted to shed light on the living being's effort to resolve the difficulties that his environment imposes, in order to remove obstacles to the prolongation of his life. This external policy of the organ induces orientative modifications which Lamarck's transformism attempts to interpret by making use of adaptation. These ideas represent the first form of the theory of evolution, formulated by Darwin in 1859. From then on the notion of nature evokes a dynamism that presupposes the achievement of a balance, which is always in question, between the living being and the other living beings within the milieu. Competition and vital selection are the moving principles of natural history; Linné's classification is inscribed in a becoming that mobilizes it. Man himself has his designated place in the network of filiations that connect the species.

The violence of the reactions against Darwinism attests to man's aversion to take up his rank in nature; to admit that man is "descended from the ape" or even that he has any kinship whatsoever with the ape is to renounce all dignity. But the myths of creation are definitely annihilated by the appearance of new sciences—geology and paleontology. In 1830 the Swede, Lyell, in his *Principles of Geology*, substitutes for catastrophes and floods the idea of the much slower action of wind, water, and the internal forces of the terrestrial globe as the factor which produces inequalities in the surface of the land. The study of fossils has been systematically pursued since Cuvier. Between 1830 and 1840 Boucher de Perthes collected stone objects in the alluvions of the Somme valley. These he attributed to a very ancient human industry going back well beyond the

four thousand years which, traditionally, have separated us from Adam. For twenty years, Boucher de Perthes was ridiculed; it was only in 1859, the same year in which Darwin's *Origin of Species* appeared, that official science resigned itself to accepting the notion of a prehistoric humanity. Meanwhile, in 1856, the first fossils of the Neanderthal man had been discovered.

And so one must admit a kind of temporal variable to human reality. The category of evolution is linked, in this connection, with another category of nineteenth-century thought: *history*. In 1834 Augustin Thierry, in the preface of *Dix Ans d'études historiques*, announced that history "would be the hallmark of the nineteenth century and that it would give it its name, just as philosophy had given its to the eighteenth century." This prophecy was to be fully realized: there took place a progressive historical projection of the human domain in its ensemble. From then on the task of history was to point out the temporal rate of progress of the human presence upon the earth in its most diverse forms. The natural history of the human species is thus extended into a cultural history of humanity; arts and techniques, religion and ideas, must be reassessed according to the perspective of this new intelligibility which makes it possible to understand, the one through the other, the successive forms of each order of expression. We cannot possibly give a summary here of the prodigious development of historical knowledge during the last one hundred and fifty years. Historical method asserted itself everywhere; it pointed up the fact that even where humanity believed itself to be free and creative it was sustained by its own traditions and, one might say, by the offspring of its accomplishments.

Philology was doubtless one of the domains in which historical perspective appeared to be the richest, demonstrating that each expression of man suggests an image of human reality in its entirety. Language constitutes a privileged dimension for the investigation of mental space. It was in 1821 that Wilhelm von Humboldt, Prussian minister of public worship, created the first chair of comparative linguistics at the University of Berlin. Under the influence of Romanticism, the words of a people were perceived as the spontaneous expression of a kind of collective soul. Research progressed in time and space: classical languages were studied with a new zest; Sanskrit, Indo-Iranian languages awakened a growing interest, and the hypothesis of a family of Indo-European languages opened up new perspectives on the origins of Western culture. Moreover, historical linguistics and comparative grammar led to a renewal of comparative religion which is revealed,

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in particular, in the work of Max Müller (1823–1900). In a word, the ground swell of history perpetuated the triumph of erudition which had been scorned earlier by the classical philosophers. For Renan, in 1848, the new disciplines seemed to form the nucleus of a positive knowledge of the human being. “In my opinion,” he states in his first book, significantly entitled *L’Avenir de la Science*, “the only way to plead the case of the philological sciences, and of erudition in general, is to group them into a whole, and to call them *sciences of humanity*, in contrast to *sciences of nature*” (ed. Calmann-Lévy, p. 211).

In a parallel fashion, the nineteenth century worked out, in the guise of sociology, a new dimension of the science of man. The isolated individual, Auguste Comte maintains, is an abstraction; the human reality is of the social essence. Instead of the action of individuals explaining the development of social groups, it is the functioning of groups that decides the attitude of individuals.

The human environment is a social one and the category of the collectivity becomes a factor of increasing importance. Comte is the prophet, or rather the messiah, of this new synthesis of sciences controlled by social authority.

Sociology is a science of man and perhaps the most astonishing of all the sciences since it applies not only to man as organism but also to man as conscience and freedom. Human events are as rigorously determined as material facts, and sufficient epistemological tools are now available to enable us to master them. Curiously enough, Kant himself had foreseen the new possibilities this opened up to knowledge. In 1784, in his *Idea for a Universal History with Cosmopolitan Intent*, he commented: “Thus (it is to be hoped) that what appears to be complicated and accidental in individuals, may yet be understood as a steady, progressive, though slow, evolution of the original endowments of the entire species. Thus marriages, the consequent births and the deaths, since the free will seems to have such a great influence on them, do not seem to be subject to any law according to which one could calculate their number beforehand. Yet the annual (statistical) tables about them in the major countries show that they occur according to stable natural laws. It is like the erratic weather the occurrence of which cannot be determined in particular instances, although it never fails in maintaining the growth of plants, the flow of streams, and other of nature’s arrangements at a uniform, uninterrupted pace” (*The Philosophy of Kant*, Modern Library ed., pp. 116–17).

Kant, who before Laplace had formulated a comprehensive view of the structure and the operation of the physical universe, at least had had forebodings of the possibility of an economy of the human domain that conformed to the statistical norms of the law of probability. What Kant had foreseen was to be systematically developed by the Belgian, Adolphe Quételet (1796–1874), the author of a book entitled *Sur l'homme et le développement de ses facultés, ou Essai du physique sociale* (1825). The subtitle attests both Comte's influence and the positivist longing for a science of man as clearly defined as the science of nature. Using the statistical method, Quételet undertook to determine a kind of epistemological model of the person in society: "The average man in society," according to him, "is analogous to the center of gravity in bodies. He is the mean around which the social elements oscillate. He is, if you will, a fictional being for whom everything takes place in conformity with the average results obtained by society." Thus there emerges a mathematical framework of the human being, reduced to an obedience all the more rigid because it remains completely unconscious. Quételet's ambition was perhaps somewhat premature, but it defined one of the major principles of sociology and political economy. Despite the hostility of the right-minded people, Quételet became adviser to Leopold I of Belgium and tutor to Albert of Saxe-Coburg, the future husband of Queen Victoria. And Florence Nightingale took notes of page after page of his *Physique sociale*, believing she had discovered in it God's plan in the world. In his youth, Auguste Comte wrote to his friend Valat (September 8, 1824): "I will make it known by the very fact that there are laws for the development of the human species as determinable as those of a falling stone." Although the law of the three stages, a simple ideological notion, did not fulfil this ambition, we must admit that Quételet really was precise about his ways and means. These few milestones in the intellectual history of the nineteenth century attest to the diversity of avenues along which the notion of a science of man was being pursued. Yet at the same time a demand for unity made itself felt. The various disciplines had to be brought together and a common program had to be found for them. The concept of "anthropology" appeared in the middle of the century; in 1855, the chair of anatomy and natural history of man at the Museum received a new name: occupied by Quatrefages, it became the first chair of anthropology in France. In 1859, when Darwin's great book appeared and when prehistory, thanks to the efforts of Boucher de Perthes, finally received official recognition, Paul Broca founded the

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Société d'Anthropologie in Paris. Subsequently he established the *Revue d'Anthropologie* and, in 1875, l'Ecole d'Anthropologie de Paris. Elaborating his program before the Société in 1862, he stated: "We are not gathered together solely for the purpose of studying the actual condition of the human races . . . ; we also propose to seek, through the multiple channels of anatomy, physiology, history, archeology, linguistics and finally paleontology, the origins, the filiations, the migrations, the mixtures of the many and diverse groups which constituted mankind during the historic times and ages which preceded the earliest memories of humanity."

Broca's opening lecture at the Ecole d'Anthropologie in 1876 takes up this manifesto again, linking, in a common endeavor, natural, anatomical, and physiological anthropology with cultural anthropology: ethnology, prehistory, linguistics, and demography. In a vein similar to Broca's efforts in France, further initiative is evident elsewhere. Anthropological societies have been founded in London, Moscow, Rome, and Berlin, all using the Paris society as their model. In Germany, Bastian and then Virchow became the directors of the school. The future belongs to the human sciences which will explore all the dimensions of man's presence on earth; a planetary phenomenon is involved. The new human environment, superimposed upon the natural environment, whose potentialities it utilizes and whose significance it alters, must be perceived in its totality. From now on, human geography appears as the exercise of man's right of redress in the universe. It defines, in a way, anthropology's spatial horizon. In 1817, Karl Ritter published his *Geography in Relation to the Nature and History of Man*. But the great name in this connection is that of Alexander von Humboldt (1769–1859), traveller, explorer, naturalist; moreover he was part of Parisian intellectual life. From 1845 to 1851 he published successive volumes of his great work entitled *Kosmos*, a kind of anthropocosmic synthesis which was still at the stage of prophecy. Here one discerns the rewards which an objective study of man's establishment upon earth could yield. Humboldt expressed his admiration for Laplace's *L'Exposition du Système du monde*. In this work, Laplace made the unitary intelligibility of mechanics subject to a physical universe; he dreamt of an analogous science that would embrace the living and inhabited world, man's presence intervening as a natural factor that went beyond nature by encompassing it. In a sense, human geography refashioned meteorology, the geography of plants and animals. It required the intuition of a poet and a visionary to perceive anew, in the indications offered by the positive sciences, the unitary intelligibility of creation.

THE BLIND ALLEY OF SCIENTIFIC POSITIVISM

The idea of a science of man, advanced by certain forward-looking thinkers of the eighteenth century, thus became a reality of growing proportions during the nineteenth. The theological age of mythical and revealed anthropology, the metaphysical age of dogmatic presuppositions, yielded to the positive age of rigorous and specialized investigation. As the sciences of man evolved, their dynamism became evident. Their progress was so rapid that priority was inevitably given to analysis rather than to synthesis; little by little suitable methods for each domain were worked out, but the time was not yet ripe for a definition of the epistemological rules and regulations of the whole. The regroupings foreseen by Paul Broca and the intuitions of Alexander von Humboldt are expectations, projections into the future. They are not, as yet, a revamping, the second draft of a knowledge already acquired.

Indeed, investigators doing research on the human domain did not have at their disposal a preestablished system of procedure. Rather, they functioned under the impetus of a state of mind, buttressed by facts. Their methodology established itself while they were verifying the facts. And so the scientist, absorbed by his enquiries, was to have but a rather vague view of the entire enterprise to which he lent his modest share of cooperation. That is why, strange as it may seem, his idea of a science of man stemmed more from a psychoanalysis of protest. Theology and metaphysics took it upon themselves to forbid the sciences access to the human conscience; the spiritualist prejudice of an absolute freedom, irreducible to any extrinsic determinism, the prejudice of the soul and of the spirit, those immaterial and unfathomable substances, made the very idea of a science of man seem to be an act of treason toward God and man. The supernatural destiny of man had been regarded as capable of freeing itself from the impediments of necessity. Therefore the birth of anthropology, in its various forms, was enveloped in a spirit of defiance. In order to become an object of science, man had to become a body among bodies, a thing among things; he had to bow to the specifications of determinism and mechanism. That is why the idea of a science of man was to meet with favor first among materialists and agnostics. It gave rise to the disapproval of believers of every faith, each time it met with acceptance. Simultaneously, the disbelief of the unbelieving became more pronounced whenever it encountered resistance, with the result that it, in turn, grew more aggressive. For example, the idea of evolution, an explanatory theory which should have been judged solely on the merits of the pertinent data, was instantly considered

inadmissible, a sacrilege, from the point of view of established prejudices. At the same time, the enemies of these prejudices made the idea their favorite weapon against adherents of revealed religion. It took one hundred years to weaken dogmatism sufficiently to render possible a dispassionate discussion.

It is within this intellectual context that one must visualize the scientist character of the first science of man. The human person, the last refuge of spiritualist superstitions, finally became submissive to the authority of positive methodology. Man is an object for man. The idea of science that emerged from the progress of experimental knowledge corresponds with the ambition of a truth that converts its object. Since the science of the thing was the first to achieve its purpose, there was no doubt that all truth had to conform to this prototype of the truth, in accordance with the thing. No one asked the initial question: might not the epistemological pattern of the thing, applied to human reality in a direct and clear manner, run the risk of perverting it? Thus, the system of reference selected made the thing the measure of man. The result was a reversal of roles. The first principle was thus found to be in contradiction with the specific dimension of anthropology, and the very people who were its advocates were responsible for this.

Bergson was very much aware of the new epistemological obstacle represented by the very notion of science: "Mathematics goes back to the ancient Greeks," he wrote; "physics has existed now for three or four hundred years; chemistry arose in the eighteenth century; biology is nearly as old; but psychology dates from yesterday. . . . I have sometimes asked myself what would have happened if modern science, instead of setting out from mathematics to turn its direction towards mechanics, astronomy, physics and chemistry, instead of bringing all its forces to converge on the study of matter, had begun by the consideration of mind . . ." (*Mind-Energy*, tr. H. Wildon Carr, New York, Holt, 1920, p. 98). Actually, the first researches on man were pursued along the line of the material disciplines. This, for example, was Berthelot's profession of faith, and he perfectly represented the mood of the triumphant scientific spirit at the end of the nineteenth century: "In the moral as well as in the material order, one must first establish the facts and thus, by observation, control them; then link them together, constantly relying upon this same observation. . . . It is observation and the phenomena of the moral world, revealed either by psychology, history or political economy, it is the study of their gradually generalized and constantly verified relationships, that serves as a basis for

the scientific knowledge of human nature. The method which, each day, solves the problems of the material and industrial world is the only one which, sooner or later, can and will solve the fundamental problems concerning the organization of the sciences" (*Science et philosophie* [1886], p. 14).

According to the great chemist, Berthelot, it is clear that extension of the methods used in chemistry to the entire human domain does not constitute an improper extrapolation. Auguste Comte, founder of positivism, suggested "transforming the human brain into an exact mirror of the external order" (*Système de Politique positive*, [1851-4], Vol. II, p. 382). In 1822, in his *Plan des travaux scientifiques nécessaires pour réorganiser la société*, the young Comte took up again the Saint-Simonian notion according to which "the government of things replaces that of men." The positive age, the last stage of social evolution, is "the scientific and industrial period. All the particular theoretical ideas have become positive. . . . In regard to the temporal, industry has become preponderant. Little by little, all specific relationships have been established on industrial foundations. Society, viewed collectively, tends to be organized in the same fashion, its unique and permanent objective in all its activities being that of production" (reprinted in the appendix of *Système de Politique positive*, Vol. IV, p. 113). Twenty years later Marx was to elaborate on the same theme. Well before Berthelot, Comte was convinced that "scholars, to the exclusion of every other class, possess today the two fundamental elements of moral government—ability and theoretical authority" (*ibid.*, p. 37).

Thus, the first study of a science of man responded to the paradoxical hope of molding human experience into the language of things, which are not man. Positivism, which claimed to put an end to metaphysics, implied an unconscious, metaphysical presupposition, and a formidable one, by virtue of which all reality, in order to be acknowledged, would have to bow to the prefabricated frameworks of the experimental method, which had authority over matter, all the rest being but vain phantasmagoria. Hence, for example, the strictly biological nature of medical anthropology in the nineteenth century: almost instinctively, the doctor was a materialist. He believed what he saw; and what he saw, or believed he saw, was an organism that he had been taught to approach by the physical and physiological avenues of the anatomo-clinical method. Medical materialism was the response to the new conviction concerning the doctor of the body whose techniques were in triumphant contrast to the outmoded practices of the doctor of souls—the priest, the exorcisor, or the healer of earlier days.

The other sciences of man were to follow the example of medicine. Durkheim's sociology attempted to deal with social data as if they were things. Even history wanted to be considered an experimental science, yielding, in turn, to the fascination of the laboratory disciplines. "History," Fustel de Coulanges asserted, "is not an art, it is pure science. . . . Like all science it consists in observing facts, analyzing them, comparing them and in noting what connects them." The historian must merely "see the fact thoroughly; . . . he seeks and finds them by a careful study of texts just as chemists find their facts through carefully conducted experiments" (*Histoire des institutions politiques de l'ancienne France* [1874–1888], la Monarchie franque, chap. I, 3). *L'Introduction aux études historiques* (1897), by Langlois and Seignebos was to be the bible of that positivism that attempted to apply the experimental methods of the chemist, Berthelot, to the human domain. As for psychology, it, too, became experimental and built laboratories with more and more complicated equipment for the purpose of determining data. Or rather, it determined with precision, without knowing too well just what it was determining. In 1888, Théodule Ribot occupied the first chair of experimental psychology at the Collège de France, which Renan had created. In 1860, Weber-Fechner's law defined the constitutive charter of the new "psychophysics."

The application of this methodology to human reality was not effected without some difficulty. Taine, for example, undertook to explain scientifically the development of peoples according to the positive factors of race, environment, and the times. "In this connection as well as in others, it is merely a problem of mechanics," he explained. "The total effect is a composite entirely determined by the magnitude and the direction of the forces that produce it." But, Taine added, there was one little difference: "The only difference between moral and physical problems is that the direction and the magnitude of moral problems do not lend themselves to evaluation and classification as do those of physical ones. If a need, a faculty, is a quantity that can be measured by degrees like a pressure or a weight, this quantity cannot be measured in the same way as a pressure or a weight" (*Histoire de la littérature anglaise*, 1865, Introduction V). Although later on Taine maintained that the regrettable inadequacy of the "means of notation," which prevents a rigorous equating of the human domain, is not of great moment, nonetheless his scientism emerges far more as a pious wish than as an objective observation. And this was the melancholic conclusion that his friend, Renan, reached when, in 1848, he glorified the future of the human sciences and of philology. Toward the end of his life

he deplored this choice for the very good reason that these disciplines refused to be constituted as exact sciences. "I was attracted to the historical sciences," he confessed in 1883, "little, conjectural sciences that are forever coming apart after they have been made, and which will go unnoticed a hundred years from now. . . . Thanks to chemistry at one end, and astronomy at the other, but mainly to general physiology, we can truly grasp the secret of the being, of the world, of God, whatever you wish to call it. The regret of my life is to have chosen to pursue a category of research which will never make itself felt . . ." (*Souvenirs d'enfance et de jeunesse*, ed. Calmann-Lévy, pp. 230–31).

Strange retraction: the celebrated author of *Histoire générale des Langues sémitiques*, the historian of *Origines du Christianisme*, confesses that he wasted his time by cultivating inexact sciences, and he, too, yields to the fascination of chemistry. . . . A kind of disenchantment comes to light: since the human sciences do not lend themselves to the preestablished frameworks of the sciences of matter, then they are only pseudo-sciences; they are of the same order as art or poetry, about which, in his *Dialogues philosophiques*, Renan says—another sign of his old age—that they are destined to disappear because they are too human in contrast to the certainties of positive knowledge. Then a kind of restriction of the experienced domain takes place, the projection of which can be found today in the theses of logical positivism, so much in favor in Anglo-Saxon countries. This philosophy, represented by thinkers like Carnap, Wittgenstein, Reichenbach, or Ayer, also appears as a "physicalism." In the opinion of these men, the only affirmations that have meaning are those that possess a positive content, in other words, that are verifiable according to the norms of experimental method; other statements are more or less consoling, but they are meaningless, they should not be taken seriously. Human reality cannot be ascertained save to the extent that it can be projected according to the order of physical determinations. Here again, the man who created the science remains trapped by his own creation, the dupe of the idol he fashioned. The ancient adage that man is the measure of things has been replaced by the new rule which states that things are the measure of man.

FOR A NEW EPISTEMOLOGICAL CONVERSION

Thus the intellectual evolution of the nineteenth century is characterized by the development and expansion of the sciences of man: the sciences of culture become as important as the sciences of nature, if not more so. But everything occurs as if these sciences had progressed in spite of their episte-

mology; their real gains are worth more than their professions of faith. The state of mind of the scholar at work—a kind of unconscious epistemology—in a way contradicts the abstract thoughts of the specialist, reviewing his work, who has erred about the ways and means of his discipline. Somewhat earlier, Bachelard observed in the case of physicists and chemists this same division between scientific activity and meditation about that activity: “Science does not have the philosophy it deserves,” he remarked (*Le matérialisme rationnel*, P.U.F., 1953, p. 20). This observation applies perfectly to the sciences of man, whose sponsors frequently remain the prisoners of rudimentary ideologies. Many of them, though capable of excellent work in their specialty, do not understand what they are doing.

Scientist positivism nourished the amazing ambition of establishing a science of man without man. This oft-repeated attempt, to make the determinisms of physics, chemistry, and biology obtain in the human domain, under the control of mathematical formulae, plainly demonstrates the desire to disclaim the specificity of the human being by referring it to norms that are not its own. The triumph of knowledge was to culminate in an intellectual suicide; the scholar experienced a kind of masochistic satisfaction in denying himself as a man at the very moment when he could claim the greatest victory for human genius. Such an attitude on the part of great minds, which, in addition, believe themselves to be the intrepid champions of reason, rather calls to mind the absurdity of Simple Simon.

In order to comprehend this paradoxical situation we must go back to the first epistemological conversion, the cost of which made the first science of man possible, in the days of Descartes. This conversion demanded a drastic change in mental and spiritual habits: nothing is more misleading nor more tenacious than common sense. Now common sense, which is basically materialist, contrasts the visible with the invisible and does not admit that the one can affect the other. One pebble rolls against another pebble; one cog fits into another cog; how can a thought move muscles? This problem obstructed the genius of both Descartes and Malesherbes. Their systems attempted to justify, despite contradictions or complicated subterfuges, that other evidence which attests at all times that a thought can animate a man, even many men, and that, in the last analysis, it can move mountains. A religion, a social doctrine, can change the life of man and transform the face of the world.

The first post-Cartesian science of man eluded this problem. It had the tremendous merit of taking seriously the human body as a body, of considering it as an intelligible domain, of establishing it in the form of a

closed mechanical system that administered itself by virtue of precise norms. This was all to the good. But, in Descartes's opinion, the body of man is not man; man is also, and primarily, a spiritual reality whose ordering conforms to basically different principles. Later on, the Cartesian mythology about the minds of animals was to give way to a more precise biology and physiology; but even after Claude Bernard, the fundamental problem of the human being was not resolved. Descartes speculated about man on two counts—soul and body—to which, moreover, he added a third category. This procedure seemed questionable to scholars, and rightly so. They chose to restrict themselves to what they could see, that is to say, to the body whose mere presence was sufficient evidence of man's reality. And this body naturally had to be explained in terms of other bodies; it was a living body, amid other bodies, whether living or not, of the material universe. Anthropology, as a science of nature, therefore transcribed human reality in terms of things. What remained were the sciences of culture: history, philology, ethnology, sociology. These sciences correspond to a reality of a different order, irreducible to the organism. One has to acknowledge that they possess a certain specificity, but attempts were made to define this specificity in terms of material reality. For example, it was believed that these disciplines bear upon objectively determinable human behavior and that if only an appropriate mathematical language were found, an exact science could be realized in this domain as well.

In this way the false, initial, preconceived notion of a science of man that tends to ignore the very idea of the human being was perpetuated. Whatever the difficulties of analysis might be, one must admit that any science of man presupposes man; it contradicts itself if it attempts to restrict this essential idea, which defines its specificity. This would mean, for example, that a science of the body is not a science of man so long as it has not elected to be a science of the human body. The biologist, J. S. Haldane, observed that in biology, "it is physics which is not an exact science." (Cited in Canguilhem, *Connaissance de la vie*, Hachette, 1952, p. 191.) This pronouncement by a scientist destroys one of the mirages of scientism, which believes in the possibility of a totalitarian language, capable of expressing all the reality of the real. Haldane's statement grows more meaningful on the threshold of each new dimension of knowledge, for biology itself, at the level of anthropology, ceases to command a rigid authority, and cultural anthropology challenges anew the indications of somatic anthropology, whose meanings it can modify. In other words, a purely physico-chemical science of the human body would be a science of

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the cadaver, whose elements return to matter. Organic life imposes a new ordering of the materials of which it is composed; but a human body is still different from a living organism. A living body which had the shape of a man, but only the shape, and the biological functioning, nothing more, would be the most frightful kind of monster. All we have to remember in this connection is that a human body, even unclothed, in a sense never appears to us merely and uniquely as a nude body. It is immediately enveloped by a variety of meanings—aesthetic, for example, or erotic, or medical—which keep it from being solely what it is. Moreover, the shape of the body is a fact of civilization; it varies with the particular “techniques of bodies” of each social group. Marcel Mauss has stressed the importance of this point. Moral and aesthetic canons, athletic disciplines, tastes and habits, refashion the external aspect of the human body, whose elementary nature thus appears adorned and altered by culture.

The fundamental postulate of any science of man consists in defining it as the knowledge of man by man. It is precisely this initial condition, which has been considered restrictive and humiliating, that scientism wishes to avoid because it would seem to imply an anthropomorphism that is incompatible with the very notion of truth. But, in order to escape anthropomorphism, it is not enough to give an absolute value to such and such an order of knowledge; any knowledge of man, even the most abstract mathematical one, is still human knowledge. In the last analysis, it refers to man's place in the world, of which it axiomatizes such or such an aspect. The most dangerous anthropomorphism is one which is unaware of itself because it deceives itself. Recognition of the human character of human truth, far from destroying the science of man, enables it to become established; it defines a second epistemological conversion of which many manifestations can be observed in contemporary thought.

This new Copernican revolution emerged little by little from ideas about the development of the historical sciences during the nineteenth century. The initiators in this domain were a group of German thinkers who, upon reconsidering the excessively systematic ideas of Hegel, undertook what they called the “critique of historical reason.” Among them, Dilthey (1833–1911) was the one who attempted, with the greatest clarity, to demonstrate the specific characteristics of the human sciences. This is especially true of his *Introduction aux Sciences de l'homme* (1883), and of his collection of studies on *La construction du monde historique dans les sciences de l'homme*, elaborated between 1905 and 1910, shortly before his death. Credit goes to Dilthey for having stressed the necessity of endowing the science of man

with an epistemological set of rules of its own, radically different from that which is applicable to the sciences of nature and which ruined, in principle, the scientism's affirmation, based as it was upon the improper extrapolation of the experimental method applicable to the physical order. The methodological split between sections of knowledge was restated in Dilthey's well-known remark: "We explain nature, but we understand mental life."

From then on what characterized the human sciences was that they took for granted the idea of man. Certainly one could define the state of the universe at a given moment, including the human species, in the language of atomic physics, as, for example, the statistical distribution of a certain number of grains of energy; the material mass of the world and of beings could be condensed into a few mathematical formulae. But this physical truth would not take the human reality as such into account—the fact that man is more than an assemblage of molecules and quite other than an organism. To do justice to man, he must be handled differently than a mass of electrons, a pebble, or a blade of grass. The positivist attitude as regards the electron, the pebble, or the blade of grass ceases to be positivist when it is applied, in this form, to man himself. The human fact can be understood solely by virtue of a suitably human intelligibility.

Dilthey had strongly emphasized the true nature of any science of man, which is a knowledge of man by man. In other words, human reality, seen as a presence inhabiting the world, now becomes the object of research; chemistry and physics no longer suffice; anthropology is what is required. Moreover, while it is man who is known, it is also he who knows. All research in this connection—linguistics, sociology, or history—is called upon to account for man by man himself. Every area of knowledge I possess is a variation on the theme of my personality; the mental reservations of scientist methodology can change nothing about this. There is no absolute observation; the human being's personal equation intervenes twice, in the object and in the subject of the inquiry. Dilthey expresses quite a theory of hermeneutics, that is to say, of understanding as man's exegesis by man; the idea of human life must be utilized as a conduit for all interpretation. In short, there is always a dialogue between the self and the other and between self and self, so that autobiography marks the first threshold of all human science.

Fifty years after his death, Dilthey's affirmation still seemed scandalously inadmissible to most of the specialists, enclosed as they were in the narrow limits of their particular technology, and more or less prisoners of the earlier positivist ideology. Anthropology and the sociology of knowledge

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seemed to them an affront to the idea of pure knowledge that was universally and eternally valid; the historical and personal restriction of knowledge seemed a crime of high treason. Despite this resistance, our epoch still is witness to a complete reversal of the epistemological situation. The human sciences, formerly the province of the sciences of nature, tend to take their revenge by a kind of counterattack: in mathematics, in physics, the contemporary challenge of basic tenets has demonstrated the fact that the most positivist disciplines are themselves a mirror of man; they point up an awareness of man in time. The evolution of mathematics and physics during the eighteenth century, of history during the nineteenth, is invested with a human significance. Each creation of intellectual free enterprise is inscribed, not in the absolute truth of pure knowledge, but in the human reality of becoming. The sociology of knowledge enables us to reassess the history of geometry or of mechanics and, by a second reading, to discover that they are true sciences of man.

Modification of habits of thought is as difficult to achieve as a social revolution. Yet the time has come for a reform of the structure of the encyclopedia of knowledge. We must allow man to come into his own, that is to say, we must acknowledge his right to take the initiative in regard to the meanings of the universe. Because the difficulties of analysis are not so great in such disciplines as mathematics or physics is no reason at all to decree that they provide the prototype of all intelligibility. Man is the master of mathematics and physics, and it would be a ridiculous abdication if he were obliged to be typified exclusively by an abstract ordering that he himself created out of whole cloth in order to clarify certain aspects of his universe, forgetting that the universe is a human one. Speaking more generally, the determinist patterns applied to human reality do not take into account that this reality was molded by the achievement of what was most improbable, and by a constant lack of the most elementary requirements, which would have maintained cosmic reality in a state of mineral immobility.

Any understanding of man requires a prior comprehension of the human being. To believe one could achieve a science of man that did not have man as its basic unity was a ridiculous dream. Today, the naturalists have realized that the study of a dog, a horse or a hippopotamus must have, as its guide, the species under consideration. A dog's behavior can only be understood by its own structure, its mode of life, and its universe. One cannot explain a dog save by the dog's ways, beginning with the notion that a living dog is not some vague organism, but a dog's organism, adapted to a

certain way of life within a particular environment. In this connection, the positivist attitude is not to deny man what we grant the dog or the hippopotamus. Indeed, anthropology presupposes a kind of natural revelation of the human being—the only being that makes possible an investigation of the phenomenon of his totality. The so-called exact sciences cut across human reality without stopping to investigate it; human causality possesses a metaphysical characteristic going beyond material reality and reclassifying it.

The fundamental human fact is seen in this regard as proof of a presence. To see a face, for example, is not to decipher an ensemble of geometrical lines, of biological organisms, a material configuration. It is always and immediately to perceive life itself, whose expressive meaning animates the elements that manifest it. This very simple example demonstrates the misleading nature of the materialist point of view which, whether conscious or not, contrasts the body one sees with the spirit one does not. Actually, when we see a body or a face, it is not the face or the body we perceive but the very life of a human being.

To simplify matters, the Cartesian type of dogmatism made a distinction between the metaphysical domain of radical freedom in man and the physical domain of bodily necessity. This dualism was the answer to a sound intuition, but it simplified the situation in a way that was misleading. Material and spiritual domains are closely linked, thanks to this lasting symbolical relationship which defines man's very condition. Pure determinism and radical freedom define the doubtless inaccessible limitations of the human domain; what is essential takes place in the zone that lies between them. Man is delivered over to himself as a creature of intentions, plans, and choices, ever capable of challenging anew those meanings suggested to him but never thrust upon him in an absolute way. Freedom is always possible, even under slavery; slavery is always a threat, even where there is independence. At every moment man is forced to negotiate, to forge a path for himself through circumstances, progressing thus from the possible to the real.

Hence the ambiguous nature of the sciences of man; they are not merely an inventory of facts; they also constitute a statement of meanings. In this regard man is his own matter; he is busy searching for his own image. Mathematics and chemistry can confine themselves to the deciphering of their raw materials. The sciences of man have far more difficulty confining the experimental field in such a way as to prevent an investigation of the data from also becoming an examination of the conscience. Hence, for ex-

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ample, the very significant fact that history, for a long time, was in doubt about its true vocation. At the beginning of his career, in 1827, Michelet was named chief lecturer in history and in philosophy at the Ecole Normale; in 1838, he was to occupy the chair of history and ethics at the Collège de France. The very structure of this course of instruction corresponds to the difficulty of separating the human sciences from concern over the destiny of humanity, which presupposes a value judgment. Today, the historian as well as the sociologist avoids moralizing or philosophizing; specialization is more sharply defined. And yet scholars in both of these fields must take into account the fact that man is a being who chooses his values and can either adapt his conduct to the values he has chosen, or not, as he sees fit.

The entire evolution of civilization, in its material and technical as well as in its truly cultural and spiritual aspects, appears to be a road that humanity has followed in search of that balance which would best express it; thanks to this progressive education, it becomes the offspring of its own works. The history of the Hebrew people is an ensemble of developments, just as Greek civilization, or the eruption of life and culture during the Renaissance, or again, the countercivilization which Nazism achieved, is a great human fact. Any science of man is inscribed within the framework of a sociology of values. Objectivity in the evaluation of man cannot be a mathematical or physical objectivity. It must be a human objectivity; man alone can serve as the criterion of man. Anthropology is an attempt to define a sense of personal life, but this life, in its concrete totality, is always hidden; it seems to be an inaccessible horizon because of its eschatological remoteness.

In each destiny there is both more and less than in the science of man, whose patterns of interpretation always remain approximate ones. No destiny can exhaust all potentialities, but each of these, by its determinations, enriches those patterns which it realizes. Thus, all anthropological disciplines provide avenues of approach for understanding the personality; they contribute to a theory of human ensembles by determining the backgrounds against which the reality of each of us is outlined. Kardiner and Linton have given the name of "basic personality" to this historical and social predetermination of the human being, which provides it with a primary approximation of data for the self-awareness which it is called upon to achieve. Each science of man contributes its share in outlining this pre-intelligibility of the human form in a vital space and at a given time. There is no question of denying or of belittling the person, but only of assessing

his true place. The notion of a conditional freedom replaces the metaphysical notion of an unconditioned freedom.

The human sciences are sciences of a general order and therefore they remain limited in regard to the life, in every case unique, of a particular individual. But they make it possible to illuminate this life by comprehending it within the context of its times, its traditions, and the values it has in common with other lives, both past and present. They take us as far as it is possible to go, to the point where each of us stands apart one from the other.

The human sciences, which today have mastered their object and their methods, have proved their value. They assume an increasing importance in the spiritual panorama of our times. We can only hope that the specialists in these disciplines will adopt a positive attitude toward the only philosophy capable of uniting them in the realization of a same anthropological end. We must also hope that the philosophers, as they come into contact with the human sciences, will no longer continue to be misled about the meaning of their effort and that they will give up prophesying in absolute terms and devote themselves more modestly to the elucidation of human reality. The human sciences, far too dispersed, still await their Descartes, or rather their Leibniz—the thinker who will reunite on a large scale all the affirmations concerning our condition. The superb isolation of too many of our contemporary philosophers from the sciences of man and from history is a real transgression against the metaphysical spirit.