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Source: *Proceedings of the American Philosophical Society*, Vol. 102, No. 5 (Oct. 20, 1958), pp. 469-476

Published by: [American Philosophical Society](#)

Stable URL: <http://www.jstor.org/stable/985593>

Accessed: 02/07/2013 01:53

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# THE SCIENTIFIC STUDY OF VALUES AND CONTEMPORARY CIVILIZATION

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(Read April 26, 1958)

PHILOSOPHERS tell us that there have been four main approaches to the problem of value: the Platonic view that values are "eternal objects"; the position of subjectivism or of radical ethical relativity; the assumption held in common by certain Marxists, logical positivists, and "linguistic" philosophers that judgments of value are merely "emotional" or "verbal" assertions altogether removed from the categories of truth and falsity; the naturalistic approach which holds that values are accessible to the same methods of enquiry and canons of validity applied to all forms of empirical knowledge.

This last view oriented the work of the Values Project of the Laboratory of Social Relations of Harvard University. Behavioral science may as well resign itself to shallow descriptivism unless it can create the concepts and the methods and techniques required for dealing with statements of value and with non-verbal acts influenced by such abstract standards. Otherwise explanation and prediction will be impossible except at the levels of reflexive behavior, reactions under conditions of extreme physiological stress, and sheer statistical conformance to cultural patterns. For human beings do not respond to stimuli or to a stimulus-field as machines respond to the pressing of a lever. In addition to the human organism and its environment (including other people), there is a third factor, an intervening variable which is not directly observable but is ever present. This is the total apperceptive mass which each of us develops both as a result of our strictly personal experiences and by virtue of our participation in a specific society and in particular sub-groups of that society. Only exceptionally do we react in any literal sense to stimuli as they might be correctly described in physical and physiological terms. Rather, we react to our interpretations of stimuli. These interpretations are derived in considerable part from our culture and from each person's specific experiences in that culture.

Human beings, like other animals, try to maintain their lives, to survive in the struggle for ex-

istence. But the human animal complicates his efforts to survive by the use of ideas and symbols. Always and everywhere men say "This is good" and "That is bad." "This is better and that is worse." "This is to be sought and that avoided." "This is preferable to that." Such evaluation is not restricted to what is deemed beneficial or injurious in terms of survival and adjustment. All cultures have their categorical imperatives that go beyond existence and pleasure. Few of us as individuals are content with the mere continuation of physical existence. As Simone de Beauvoir says:

Life is occupied both in perpetuating itself and in surpassing itself; if all it does is maintain itself, then living is only not dying.

We want to live in particular ways and toward selected ends. When the gap between actuality and aspiration is too great, individuals and indeed whole groups choose death rather than survival. For we human beings are not just pushed by our biological needs and psychological drives; we are also pulled by conceptions of the right, the good, the desirable.

Each people's way of life is distinctive precisely because it involves selection between various possible manners of surviving. There are many ways of life which different groups of men have created for themselves in the historical process and in response to the pressures in which these distinctive ways of life have developed. What men have created they can and do alter through time to a significant degree. Each way of life is a pattern—not a mere haphazard collection of customs. The expectations, demands, and irritabilities of a people, whether expressed in economic, political, or moral terms are all manifested in terms of habits of thinking which individuals consciously learn and unconsciously absorb in their daily social experience. Each pattern depends to considerable degree upon the underlying system of ideas and particularly of ideas about values. What men do and refrain from doing is much influenced

by what they feel to be the proper modes and ends of existence.

Western civilization is at present the victim of a certain onesidedness in its own growth. In Faulkner's words: "Man's tragedy in the hateful complexity of the present is that he is called upon to live beyond his emotional and moral means." The result is personal and social disorganization, individual unhappiness and human misery on a vast scale, irrational political movements which both manifest and add to these disasters.

Basic to these conditions is uncertainty about and conflict over values. Both aesthetic and moral values are universal in all cultures. Religions have been the traditional repositories of moral values and sometimes of aesthetic values as well. It is an induction from the evidence at the disposal of the anthropologist that religion in the broad sense is essential to the health and survival of any society. That is, there must be codes which unite individuals in adherence to shared goals that transcend immediate and egocentric interest. There must be intellectually and emotionally acceptable orientations to some of the deeper inevitables such as death. There must be communicable symbolisms that appeal to the eye and the ear and the viscera. There must be expression in personal and group ceremonial. On all these points there is now little unity in the West. Belief in God as revealer, judge, and punisher has greatly weakened and with this a whole set of sanctions for adherence to established values. An increasing number of men and women reluctantly accept death as probable annihilation, however much they may continue their formal participation in the Christian church as an institution. Moreover, it is widely recognized that a civilization of the grandeur of whose achievements we are justly proud has nevertheless failed humanity in many ways. Neither Christianity nor Humanism was able to prevent the brutality of Auschwitz and Buchenwald nor the mass slaughter of Hiroshima and Nagasaki.

In this time when Western civilization has begun to doubt its own credentials, Communism's strength is built upon this weakness as well as upon empty bellies, agrarian problems, anti-colonialism, and the like. Hungry for order and certainty, men flock to systems like Fascism and Communism. Their propaganda appeals to the fear of freedom. It capitalizes upon that unconscious flight from the heavy burden of individual responsibility that an open society lays upon its members. Both Communism and Fascism are

aspects of a frightened retreat from the frustrations and terrifying diversities of the twentieth century—the main psychological reaction of the masses to anarchy, economic-intellectual-political-evaluative. Marxism advertises itself as a new synthesis which reduces to order the baffling processes of social, economic, and scientific life. It remains a promise, however false, of order in a disorganized world.

The current struggle in the world is basically a war of ideas, of value systems. Although some Communists dismiss ideas and values as "verbal rationalizations," the spread of Communism is itself the most striking testimony to the power of ideas not only over the minds but over the acts of men. Communism is a kind of worldly religion which appeals to the disadvantaged, the frightened, the bewildered, the worn out with struggle and disillusionment. In the long run the Achilles heel of the West is in the realm of ideas and values. In this war we are currently on the defensive. We know many things we don't want. We have some values, precious to us all, which we want to preserve. But we lack positive and innovating formulations. Our program is overwhelmingly negative and conservative (in the strict etymological meaning of that term). We lack a system of general ideas and values to give meaning to human life in the mid-twentieth century. We live in a period when all of our universals have been challenged.

We can huddle back into the older orthodoxies. We can bear chaos as best we are able and wait for the miracle of a new religion to occur—this is what some of our "wise men" seem to be telling us to do. Or—and this is my thesis—we can bring scientific method and outlook to bear upon these problems. Dewey has warned us "a culture which permits science to destroy traditional values but which distrusts its power to create new ones is destroying itself."

In the bewilderment and splitting of Western thought Communism makes its claims to be the one "scientific" unifying system. In countries like France and Italy a sizable proportion of members of the Communist Party are idealists in the sense in which, historically, we of the Anglo-Saxon tradition were idealists. That is, they think they have in Marxism an answer to the meaningless confusion that they have seen, and they are powerfully drawn and powerfully motivated by the explicitness and comprehensiveness of this scheme. The values that in fact bind most Western men together remain implicit and un-

formulated and backward-looking. I think we shall lose the cold war and a possible hot war if we continue to fight with the technology of 1958 but with the ideas of 1858.

Even our language—both in the literal sense and in the figurative sense of our way of thinking—is utterly inadequate to express what we in actuality know about ourselves and the world in which we live. The common language of an optimal way of life must take account of two scientifically obtainable bodies of knowledge: the needs, potentialities, and limitations of the human animal; the physical world that is the context of human existence. Northrop has argued that the culture of any people rests, in the last analysis, upon that people's philosophy of nature. I should have said "argued in a new and more sophisticated manner," for the basic conception is at least as old as Plato and Aristotle. And the Catholic Church was right, given its premises, to insist that Galileo should recant. The theologians of that day saw quite correctly that a system of religion and morals is not much stronger than its accord with those notions of ultimate natural reality which are the keystones of all cultures.

Northrop explains the ideological conflict between the democracies and the U.S.S.R. by stating that the former's assumptions came from the results of Galilean and Newtonian physics, while the Russian assumptions derive from the results of mathematical physics in the first half of the nineteenth century. He urges upon us the necessity of getting some objective criteria outside the social sciences and humanities against which the postulates of these subjects can be checked.

Whether these contentions be correct or not, it is certainly true that there has developed a tremendous time lag between the picture of "physical reality" held by scientists and the working philosophy of the ordinary educated citizen. In part, this is because specialism has gone so far that we are approaching, if we have not reached, the point where each scientist can communicate with only a few people on earth when it comes to highly technical matters. John Burnet, a generation ago, said:

This system, if pushed to its logical conclusion, would land us in a society where no one knew anything that anyone else knew. The mass of men would take refuge in scepticism, and the dark ages would be upon us at once.

Possibly it is already later than we think. Surely our general ideas, which are the vital stuff of all

civilizations, are remote from the frontiers of physical science. And our deepest beliefs are already weakened by some centuries of criticisms of the foundations of our central myths and by echoes at least of the revolutionary view of the world of nature that has emerged from science in this century.

Each culture is necessarily characterized by a conception of human nature and indeed of nature generally. Such conceptions constitute unifying philosophies—not the less powerful because the average man in any culture cannot give fully articulate statements of them. One of the outstanding properties of the human animal is the need "to make sense out of life," to possess ordering standards that give significance to his life and to his working with others toward goals in accord with values felt and believed in. Our contemporary deficiency is not only the malintegration of these standards but equally the fact that the scientific knowledge relevant to them is largely restricted to scattered groups of specialists.

The human sciences in the West are approaching the creation of a picture of human nature, its capacities and limitations, which could be one foundation of a way of life less distorting, less tension-ridden than any heretofore imagined. The Soviet Union is far behind in this respect—particularly because of its neglect of the unconscious, irrational, and nonrational factors in human living. I think there are good reasons for believing that the ideas which can give rise to new and better ways of life for all humanity will come primarily from the non-Communist world. I do not believe that the resources of Western thought—to say nothing of the potentialities of the free countries of Asia and Africa—are exhausted. The resources of Western thought are merely—at present—too split and diversified. Our diversity, however, is our strength as well as our weakness of the moment. Out of its many strands can come a more true and more powerful conception of human nature. The conceptions both of the great world religions thus far and of the secular religions have been incomplete and inaccurate. Hence they have alike failed in their highest aspirations.

Nor is it only scientific knowledge of human nature which is pertinent. The Confucian concept of *jen* considers nature in general the court of last resort. It seems to have been Confucius and the Greek philosophers who gave the world its first systematic notions of how human beings might derive their values in other than an au-



thoritarian manner and with the possibility for change and growth. Central to the Greek conception of virtue was the striving for congruence between behavior and knowledge. For Plato critical intelligence is virtue, for Aristotle it can be virtue. Both Plato and Aristotle brought values within the sphere of science, making virtue something discoverable and teachable rather than revealed, handed down, and only preachable. The Stoics specifically proclaimed that "to live in accordance with nature" was the highest good. Cicero speaks as a Stoic when he says that "right is founded not in opinion, but in nature."

It is unfortunate that in the Western world during the last century and a half a divorce between nature (as described and interpreted by science) and values has generally been accepted. This is embodied in the famous dichotomy between the *Naturwissenschaften* and the *Geisteswissenschaften*. It is expressed colloquially in such utterances as "Science provides only a car and a chauffeur for us. It cannot, as science, tell us where to drive." I suspect that the division of territory which ascribed to science the realm of "fact" and to religion and the humanities the realm of "value" was, in effect, a temporary resolution of the so-called "conflict between science and religion" which plagued the nineteenth century. The forces of orthodoxy saw very clearly that new knowledge of the physical universe threatened credulity in the cosmogony of Genesis; that palaeontology, biology, and archaeology had deprived much of the Old Testament of other than possible symbolic meaning. During that period organized religion still had great power to block scientific teaching and research. In substance, the scientists were offered a compromise: "You may investigate the non-human world of nature to your heart's content so long as you admit that problems of morality, of ultimate values are, in principle, *ultra vires scientiae*."

Communism—and all other forms of totalitarianism—are, among other things, a reaction to certain inherent weaknesses in the value position of democracies from Greek times to our own. The democracies have always had an inherent drift toward relativity in values, possibly toward anarchic relativity. I do not believe this is inevitable if relativism is balanced—as the facts demand—by universalism on some broad but important issues and if relativism is itself conceived as an ordering principle rather than as tolerance of chaos.

Equally incorrect are the views that "science

can have nothing to do with values" and the moral nihilism inherent in the vulgarizations of, say, the older psychoanalytic and anthropological standpoints. There is an alternative between dogmatism and anarchy. Ethical relativity correctly saw the diversity of actual moral codes among different peoples and quite rightly pointed to scientific and logical flaws in specific theological and metaphysical systems of ethics but quite wrongly concluded that there were no pan-human values and that every value judgment had to be considered exclusively in its unique context.

Let me comment upon the present position. At the outset, however, I should like to make it quite explicit that I do not claim for science, any more than for any other field, a monopoly on the study of values. I do agree heartily with H. J. Muller's recent statement that "... values are as legitimate a subject of scientific investigation as any other phenomena pertaining to living beings." But science in and of itself will not "solve" the problems of value. Science does have some important, indeed some indispensable, contributions to make. And some ghosts still need to be laid.

First, the existence of value judgments does not make behavioral science impossible in principle. It is true that the sociology of knowledge has shown how the selection of facts and the construction of theories is indeed conditioned by cultural and individual compulsives. Nevertheless, this is simply a special case of the proposition that all discourse proceeds from premises and that its validity is limited by those premises. This is equally true of physical and biological science. The important thing in all cases is that the independent critic should be able to scrutinize the premises as well as the data. It is required in the case of behavioral science that the values both of the investigators and of the cultures and individuals being studied be made explicit.

Second, values are cultural and psychological facts of a certain type which can be described as objectively as other types of cultural and psychological facts. Fundamentally, one does the same as in other areas of behavior: one listens to what people say and for what they fail to say; one observes what they do and don't do; one gets at what they are unable or unwilling to say by projective tests, "depth interviews," and other techniques.

The circumstance that at present we meet with difficulties in the description of values is a function of our inexperience. Data are never in themselves "tangible" or "intangible." Our *methods*

at a given time point do fall toward one pole or the other. Thus far we have magnified out of all proportion the distance from the indicative to the optative and imperative modes. Yet Charles Morris has demonstrated that factual, wish, and appraisal sentences all have empirical, syntactical, and pragmatic or technic reference, but they differ in the degree to which various elements of reference are present. In any event it is comparatively simple to establish the stated standards of the right and the good held by an individual or the modalities in a population. Less easy—but the work of the Values Project and other empirical studies have proven its feasibility—is the description of preferred paths of behavior that take their direction from varying conceptions of the desirable. In situations where, from the point of view of the observer, there is more than one way open to the meeting of a need or the satisfaction of a want, individuals and groups exhibit stylized preferences derivable from their notions of normative relations between actor or organized group and the press of the environment.

Third, it seems abstractly evident that science can say something about instrumental values as appraised in terms of their relative efficacy as means to designated ends. The psychologist, E. L. Thorndike, in a famous presidential address to the American Association for the Advancement of Science says:

Judgments of value are simply one sort of judgments of fact, distinguished from the rest by two characteristics: they concern consequences; they are consequences to the wants of sentient beings. Values, positive and negative, reside in the satisfaction or annoyance felt by animals, persons, or deities. If the occurrence of X can have no influence on the satisfaction or discomfort of anyone, present or future, X has no value, is neither good nor bad, desirable nor undesirable. Values are functions of preferences. Judgments about values—statements that A is good, B is bad, C is right, D is useful—refer ultimately to satisfactions and annoyances in sentient creatures and depend upon their preferences. Competent students judge the existence of things by observations of them; they judge the values of things by observations of their consequences.

Thorndike faces honestly up to the problem of what kinds of satisfaction and the problem of weighting—satisfactions for whom, in what amounts, when. His approach has at least the merit of being an extensional, non-Aristotelian system based on asymmetrical relations involving “more,” “less,” etc. In an Aristotelian system, in

which both the similarities and differences of predicates give us merely symmetrical relations, we cannot have a working theory of evaluation. Thorndike sees very clearly that many important questions cannot be answered with an unrestricted yes or an unrestricted no. He correctly points out that we cannot at present answer in detail the question of what satisfactions for whom because our knowledge of human nature and of consequences of particular courses of action is insufficient because insufficiently studied. He says:

The only safe way to gratify human wants and fulfill human aspirations is by learning the regular predictable modes of action of nature, especially those which relate to these wants and aspirations. . . . Every regularity or law that science can discover in the consequences of events will be a step toward the only freedom that is of the slightest use to man, and an aid in the good life. If values did not reside in the orderly world of nature, but depended on chance and caprice, it would be vain to try to increase them.

Like Thorndike, I am convinced that, if science can chart reliably some of the remote as well as the immediate consequences of various possible courses of action, men's conceptions of the desirable will be clarified and modified.

But, if instrumental values can be tested scientifically in the light of their consequences under the conditions that prevail, the consequences in turn must be looked at in the framework of more ultimate ends. Only to some degree can these be regarded as “given” by nature or the human condition. There is doubtless something to the principle which the Gestalt psychologists call “intrinsic requiredness.” That is, the nature of the human species is such that some needs and wants can be fulfilled in only certain ways, or some fulfillments are basically more appropriate than others. It is not, however, a simple question of “needs” and “wants” as determined by physical and biological necessity. Behavioral scientists sometimes equate “value” with the “drive strength” of the experimental psychologists or the “cathexis” of the clinical psychologists. This seems to me a mistake. For, if all we refer to by “value” is the motivational disposition of the organism, we already have a sufficient repertory of concepts. Biological drives and environmental pressure are only obliquely pertinent to the realm of value. Indeed I would assert that the category of “value” becomes useful only when we are dealing with behavior that is influenced by perduring standards

which do not arise from and may be in conflict with the individual's desires at a specific moment and in a particular situation. To speak of "values" is one way of saying that human behavior is neither random nor solely "instinctual."

The individual gets these abstract, perduring standards primarily from the culture or sub-culture as mediated by parents and other persons from whom he learns and portions of whose—if I may be permitted psychoanalytic terminology—"super-egos" he "introjects." As Lyman Bryson has said:

Our culture teaches us what to want and then sets the rules of the game and provides the stakes and calls the winners. Within the closed world of values that is our culture we learn to want things, and we try to get them, and we judge ourselves and the cosmic plan by whether or not we do get them.

This brings us to some complex issues. Can science contribute to the appraisal of cultures? It must be admitted that the attempts thus far made by anthropologists are crude and unsatisfactory. Leslie White has proposed the per capita energy production per year. He claims that this has increased from one-twentieth of a horsepower per person "at the beginning of culture history" to 13.5 horsepower hours per day per capita (in the United States in 1939). But the cultures of Western Europe, the Soviet Union, and the United States are all based today upon essentially the same technical foundation. From the point of view of White's "social evolution," they all manifest common features commensurate with the technology that provided the conditions for their emergence. And yet they remain very different as regards values. White's criterion "in terms of the extent to which and the efficiency with which human needs are satisfied by cultural means" begs the whole question of value in favor of materialism.

The standard proposed by V. Gordon Childe is also unsatisfactory, though life expectancy may be a more sensitive indicator of level of material civilization. Childe would have us judge "changes by the extent to which they have helped our species to survive and multiply." Survival and multiplication are linked, and both are measured by the biological standard of population increase. The sheer operation here is objective enough again, but how many will agree that the criterion is sufficient? To follow either White or Childe would be to purchase simplistic objectivity at too high a price.

Nevertheless, I believe there are some barely reconnoitered terrains of ultimate or intrinsic values which ought to be explored thoroughly by scientific methods. One is a thorough empirical examination of the relation of instrumental and ultimate values in specific cultures. Are the culturally supplied means harmonic with the ends? What proportion of the population *can* approximate to the culturally defined goals? An answer to this question would not, of course, dispose of the problem of having to act as a moral man in an immoral society but it would supply a basis for comparing cultures as to degree of integration and "realism."

Second, a rigorously factual and comprehensive cross-cultural study of values and their linkages should be instructive. On the basis of what is now known to me, I suspect that one would conclude that both instrumental and intrinsic values may turn out to be either: (a) "free"—i.e. "taste" values, or (b) cultural values that are local in time and space, or (c) universal values embodied in all cultures.

Let us take a somewhat trivial example of an instrumental "taste value" which varies both at the individual and cultural levels. From the point of view of protection against the weather and preservation of modesty, a Japanese kimono or the flowing garb of a desert Arab or a Oaxacan huipil are about equally effective. Yet one would be amazed to see huipils or Arab dress in the streets of Kyoto. Similarly, if one observes acutely enough, one detects amid the superficial similarities of Kyoto kimonos a stylized discrimination characteristic of each individual. One woman prefers certain colors and slight peculiarities of cut. Another woman will use only silk from a particular factory. There are also innovations, most of them initially slight. In the last analysis it is clearly from individual variability that new cultural values take their origin.

"Taste values" represent, as it were, "free choices," conditioned only by the accidents of history and the biological variability of individuals. Some cultural values, however, that are distinctive of particular epochs and places presumably represent responses to the requirements or stimulation of these specific environments, at present or, more often, in the past. Thus, high status given to women may reflect the role they played in the subsistence economy or in the ritual that was presumed to protect and enhance that economy. Or, the high value Americans place upon

technology is surely related to our long preoccupation with conquering a new continent.

Finally, there are those values that, in some form, are built into all cultures: prohibition of incest, a concept of unjustifiable killing, conformity to the dictates of the culture itself, speaking the truth, and others. The details of prescription and proscription vary; symbolizations vary. Yet the central idea is always there. The existence of these universal values raises many interesting problems. They are one evidence of our common humanity, but this fact does not, as some have concluded, lead directly or inevitably to human brotherhood. The universals constitute similarities rather than identities, and history shows that men can have as deadly quarrels about small differences and modes of implementation of ultimate values as they can about the ultimates themselves. Nor can one proceed glibly from the "is" to the "ought." A universal may not be facily transmuted into an absolute. When confronted with the anthropological evidence, many philosophers very properly ask: "why ought I or anyone else accept as obligatory or worth while what men universally or almost universally have taken as obligatory or worth while?" Still—given the amazing gamut of cultural variability in most respects—I would argue that the burden of proof is upon those who deny that the universals rest upon factors of intrinsic necessity or appropriateness.

The third area that requires working through is that of the mutual implications of cognitive-existential and normative propositions. Northrop's doctrine is not that of a naive social Darwinism in which values are deduced from supposed natural science knowledge. Rather, he insists that none of the primitive categories or primitive postulates of a value system must be contradicted by validated natural science knowledge of physical and biological nature.

Moreover, theory construction in the behavioral sciences must not be based upon generalized notions of natural process which have been abandoned or sharply modified by physical science. Much present confusion in the area of values rests upon the supposed distinction between means-end and cause-effect relations derived from a unilateral, atomistic view of causality no longer held in most aspects of natural science. The machine models of classical mechanics continue to underly too much of our thinking in the behavioral sciences. We need to re-orient ourselves along the lines indicated by the English biologist, J. Z. Young, in

his remarkable little book, *Doubt and Certainty in Science*:

Each human society usually has some central model as the canon of its system, a symbol that provides . . . something that everyone agrees is important, so that conversation and writing can proceed . . . the more we come to know of the flux of chemical changes in the body the more one great weakness of the machine analogy stand out. The concept of a dynamic organization, such as that of a whirlpool, demands a consideration of time—of before and after and of the gradual development and change of pattern, but the machine models of physiology allow no place for this element. . . . Individual chemical atoms remain in the cells for only a short time; what is preserved must be the pattern in which all these interchanging atoms are involved. . . . Biology, like physics, has ceased to be materialist. Its basic unit is a non-material entity, namely an organization. . . . The early scientists . . . compared the universe and the human body with machines—that is to say with our tools. Now we are learning to speak by comparison with human and animal populations, which present the widest expression of continuity that we know. What will be the results of this change? There are already distinct signs that in future there will be less sharp separation between physical, biological, and sociological science than there is now. All of these scientists report the behaviour of the same population of observers. . . . The aim of the new unified science might be said to be to define those relations between populations of people that enable them to communicate information and so to maintain life. This is the way of speaking that can unify all our scientific activities. That, of course, does not mean that we may not be able to doubt it in the future; one may expect that further and better models will be developed, just as this one is now arising out of previous systems.

Each culture is based upon conceptions of nature and of human nature. Often these conceptions are left largely unstated and unexamined—and are the more compelling for that reason. But in the end bad theory falls under the force of logical analysis and stubborn and irreducible fact, and new and truer theories are built. They can be built upon knowledge of the nature of the world and of the nature of man as one part of the world of nature. The proper postulates can be discovered by scientific enquiry, to the extent that we will look at the world and our experience in it freshly, divesting ourselves to the necessary degree of the blinding preconceptions of our particular cultures.

Both in the East and the West conceptions of human nature urgently require re-examination.



There is, for example, much greater similarity among the cultures of the world than appears superficially. The attention of anthropologists and others has been caught too preponderantly by the differences. Both things are there: the similarities and the differences. The similarities result from the similarities in human biology and in the human condition, regardless of culture, and from the fact that every culture has to make some provision, however limited, for the variety of human temperaments which is the consequence of biological variability.

To the general proposition that the behavioral sciences have a contribution to make to the understanding of human nature and especially of its non-rational and irrational components, I call to witness a humanist, the Regius Professor of Greek in the University of Oxford, E. R. Dodds:

We too have witnessed slow disintegration, starting among the educated classes but now affecting the masses almost everywhere, yet still very far from complete. We too have experienced an age of rationalism, marked by scientific advances beyond anything that earlier times had thought possible, and confronting mankind with the prospect of a society more open than any it has even known. And in the last forty years we have also experienced something else—the unmistakable symptoms of a recoil from that prospect.

Is it the hesitation before the jump or the beginning of a panic flight? Once before a civilized people rode to the jump—rode to it and refused it.

Was it the horse or the rider? I believe it was the horse—those irrational elements in human nature which govern without our knowledge so much of our behaviour and so much of what we think is our thinking. And if I am right about this I can see in it grounds for hope. The men who created the first European rationalism were never—until the Hel-

lenistic Age—mere rationalists. They were deeply and imaginatively aware of the power, the wonder, and the peril of the Irrational. But they could describe what went on below the threshold of consciousness only in mythological or symbolic language; they had no instrument for understanding it, still less for controlling it; and in the Hellenistic Age many of them, too many of them, made the fatal mistake of thinking they could ignore it. Modern man, on the other hand, is beginning to acquire such an instrument. It is still very far from perfect, nor is it always skillfully handled; in many fields, including that of history, its possibilities and its limitations are still to be tested. Yet it seems to offer the hope that if we use it wisely we shall eventually understand our horse better; that, understanding him better, we shall be able by better training to overcome his fears; and that through the overcoming of fear horse and rider will one day take that decisive jump and take it successfully.

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