Chapter 15
Cultural Relativism and Science

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Abstract In this chapter, Grace Andrus de Laguna examines cultural relativism and its bearing on science.

The relativism of human knowledge and of human standards has been held in some form since the beginnings of reflective thought. Each age since that of the Sophists has furnished its own version, and each fresh version has been attacked by the legitimate descendants of Socrates and Plato. The ground of attack has always been essentially the same: that the current version of relativism is committed to inherent contradictions. It is indeed so easy to show that a complete relativism is impossible because it is essentially self-refuting, that the really perplexing problem is why the doctrine of relativism continues to survive, or to arise like the phoenix from each successive destruction.

We all know not merely that we are ignorant, but that we are incurably liable to error. In recognizing this we show ourselves to be truly wise and we justly claim indubitable knowledge. Hegel criticized Kant's phenomenalism by asserting that in recognizing the limitations of human knowledge we have already transcended

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them. In so doing he expressed a profound truth; yet it is only half the truth. For the limitations still remain as limitations despite our recognition of them. Even though with Socrates we may be wise in the knowledge of our ignorance, we still remain ignorant of what we would know. And if we escape error in asserting our liability to error, we have not thereby gained security against further error. And even though the recognition of our fallibility involves the acknowledgment of a standard of truth through the use of which each successive error is corrigible, it does not follow that we can escape error in the philosophic enterprise of formulating those very standards we implicitly acknowledge; still less in our attempts to apply them. If the absolutism of the Great Tradition is justified in what it means to claim, sceptical relativism is also justified in its criticism of each absolutistic system as itself inescapably relative to time and circumstance in its actual version of that claim.

An adequate system of metaphysics must, as Hegel pointed out, be circular; it must exhibit itself as epistemologically both possible and necessary. But such a system could exist only for infinite thought, which as such is incapable of error. A philosophy of finite human thinkers must be a critical philosophy in a more radical way than Kant or his followers have envisaged. It must, paradoxically, exhibit itself as essentially incomplete and tentative by providing for its own internal regeneration. A system of philosophy, like an individual living thing, contains the seeds of its own death within it; yet like living things it may partake of immortality through its own internal power of continued regeneration.

But my theme tonight is not the reconciliation of relativism with absolutism. That is too vast an undertaking. What I propose to discuss with you is the more particular and concrete problem set by the modern version of scepticism, cultural relativism, in its bearing on science.

The contemporary doctrine of cultural relativism is closely akin to the older doctrine of historical relativism. But it is both more fundamental and more universal in its claims. Anthropology is probably the most liberalizing, as it is the most recent, of the sciences. On the one hand, anthropology has shown that the time honored belief in the inherent superiority of the white race rests on no evidence that withstands criticism. If one race differs from another in native endowments and aptitudes, science has so far been unable to discover just what these may be, or how to distinguish differences in native racial endowment from differences due to the cultural conditions of breeding and education. In the radical criticism to which the whole concept of race has been subjected, it has become increasingly evident that there is no ground for any hierarchical gradations of peoples into ‘superior’ and ‘inferior’. On the other hand, what anthropology has done in liberalizing our ideas about race is matched by its influence on our ideas concerning differences in culture. Along with the abandonment of eighteenth-century ideas of ‘progress’ and the discrediting of the nineteenth-century belief in ‘social evolution’, has gone our conviction that our own civilized culture marks the highest stage in a universal process of development through which all societies and all peoples are passing. The differences in social institutions and ways of life which distinguish one people from another, modern anthropology regards as differences *of* culture and not differences *in* culture. Although the terms, ‘higher’ and ‘lower’, ‘civilized’ and ‘primitive’, are still used, these denote only differences in the

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possession of mechanical inventions, the use of written language, or in the complexity and integration of social organization, and profess to carry no connotation of superiority or inferiority. 'Primitive' peoples are not backward peoples who have been delayed in the natural and inevitable course of cultural development. Although our own civilization is an historically later outgrowth from an earlier uncivilized state, it is equally true that every existing culture has its own age-old history of development behind it. Cultures have been headed in many different directions and have travelled by different roads to different places. Moreover, each culture has selected its own specific purposes and has set up its own characteristic standards of value. If these are not intrinsically incommensurable, at least it is true that any attempt on our part to rank cultures in terms of value must inevitably reflect the particular standards inherent in our own culture.

It is indeed precisely with regard to standards of life and thought that the intimate studies of primitive peoples have cast more light on human nature than all the reflections of sages or the painstaking investigations of laboratory scientists. On the one hand, they have shown concretely and vividly the universal kinship of mankind, abstractly recognized by the Stoics and accepted as an article of Christian faith; on the other hand, they have revealed a wealth of human diversity and a variety of human standards and of modes of feeling and thinking hitherto unimagined. The "horrid practises of the savage" have shown themselves to the intimate and unprejudiced study of the field ethnologist at once more amazing and more understandable than romance had painted them. The wider sympathy with men and the deeper insight into human nature which these studies have brought have done much to shake our complacent estimate of ourselves and our attainments. We have come to suspect that even our own deepest beliefs and our most cherished convictions may be as much the expression of an unconscious provincialism as are the fantastic superstitions of the savage. The step to a universal relativism has been made easy and natural.

It is the concept of culture itself which provides the theoretical basis for our modern version of relativism. As the anthropologist conceives it, a culture is an integrated individual whole. It is a complex of all that belongs to a common way of life. On its material side it includes, for example, dwellings and their mode of construction, tools and techniques, articles of food, modes of dress, etc. Equally constitutive of a culture are the form of social organization, language and myth, religious ceremonial and belief, moral standards and ideals, and all common modes of thought. All these fall into a distinctive pattern characteristic of the particular culture. All these traits, both material and immaterial, are mutually dependent and interrelated. Every culture is thus a more or less functional whole, a going concern, self-sustaining and self-perpetuating. There is an implicit nominalism in modern anthropological thought: it is the individual cultures which are real, while culture tends to be regarded as an abstraction.

Just as the meaning of words, the distinction of parts of speech, the function of grammatical forms, are relative to the particular language to which they belong, so the traits of any culture are relative to it. It is not merely that their existence within the culture is causally conditioned by the culture as a whole, but that their nature and significance—their essence, if you please—is involved in the essential pattern of

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the culture. All cultures, for example, have some form of social organization within which there are husbands and wives, parents and children, brothers and sisters. But what it is to be a husband, or a child, or a brother, depends upon the particular form of social organization. The elements which compose one culture are not identical with those of another; there is no one-to-one correspondence of the traits of one culture with those of another. What the ethnologist studies is thus, primarily at least, particular cultures and not 'culture' as such. He endeavors to analyse each culture into its specific elements and their distinctive pattern of interrelationships. He is not oblivious to the fact that no culture exists in splendid isolation, or unmodified by its contacts with other cultures; on the contrary, one of his chief interests has been the study of cultural contacts and the resulting modifications of the cultures concerned. He finds that when there is such contact, each culture is highly selective in its susceptibility to influence. If it borrows a trait, whether a folktale, an article of food, a technical process, or an idea, it does not incorporate this item 'raw', but transforms it by a sort of assimilation to make it fit into its own cultural organism. Even such an item as the bow and arrow, which has passed into so many cultures, has not only become physically modified in the process, but it has been adapted to a distinctive role in each new setting. What it is to be a bow and arrow varies with the cultural complex of which it is a member. Indeed, it is the study of cultural contacts which offers perhaps the most convincing evidence of the essential relativity of all traits to the individual culture to which they belong. As a word or phrase changes its significance in a new linguistic context, so the attributes and worship of a god, or a Catholic saint, take on strange and unexpected form when they are adopted by an alien culture.

Now the traits most fundamental to the life of any culture are the beliefs and valuations of the individuals who are its bearers. The basic ideas and modes of thought, the accepted standards and ideals of human life—these are the very warp and woof of the fabric of any culture. Let these be strained and disrupted, as those of primitive people have so often been in the shock of contact with our own civilization, and the culture loses its vitality, drags on a degenerate existence, or perishes altogether. For these standards of value and the conceptual basis on which they rest are relative to the culture. They have grown up with the culture as a whole; on the one hand, they have been determined by the form of cultural organization; on the other hand, they direct and in turn determine the course of cultural growth, and give definitive meaning to all traits, indigenous and borrowed. Cultural relativism, it is important to recognize, is not simply a doctrine limited to holding that the existence of a mode of thought is causally determined by cultural conditions, as one might say, for example, that a particular fertility rite could arise only among people who practised agriculture. Cultural relativism is a doctrine concerning *essence* as well as *existence.* Beliefs as meanings, and standards as valuations, are determined by, and relative to, the cultures to which they belong, as the meaning of a word or phrase is determined by its linguistic context. The concepts in terms of which the members of one culture think are significant only within and with reference to the frame of that culture. They accordingly constitute a peculiar and untranslatable idiom of thought. Nor are they applicable to the institutions and customs of another culture except in so far as the

two cultures are alike. In so far as cultures are individual wholes, the members of one culture cannot understand in the terms of their own concepts the beliefs and differing ways of thought of an alien culture. The logical conclusion, then, to which a consistent and thoroughgoing cultural relativism inevitably leads, is that no concepts are universally applicable and no standards objectively valid.

Actually I know of no anthropologist who has attempted to carry through the doctrine of cultural relativism to its logical conclusion, or who is willing to accept this conclusion when confronted with it. Yet the doctrine is implicit in much of current writing, especially in much of the criticism passed not only on the missionaries who endeavor to introduce their own religious beliefs and ideals among primitive peoples, but on the essentially similar attitude taken by most former writers on such people. What they have done, it is pointed out, and what we all do unless truly enlightened, is to judge these people in terms and by standards which have meaning and validity only for the civilized culture of western Europe. Even if we do not pass judgment on their morals and manners, we do what is just as bad: we naively suppose we can understand their modes of thinking and feeling in terms of our own. We uncritically assume, as arrogantly and provincially as do most other peoples, that our own standards and modes of thought are natural and inevitable and absolute. It is, however, only in the long perspective and the wide range of vision that ethnology alone can furnish, that we are enabled to see our own civilization as just one culture among others. Because our culture is perhaps more complex than others, or because it is now dominant over the greater part of the earth, or even because it has gained an unparalleled control over physical nature, we cannot justly conclude that our standards of life or the conceptual pattern of our thought have any superior claim to universality or objective validity.

Yet it is just this claim to the objective validity of his own thought that the cultural relativist is forced to make. As a scientist he is committed to a belief in an objective truth which science is peculiarly competent to discover. It is this inevitable commitment and the paradox in which the relativist is involved that sets our problem. The concept of culture and the relativism implied in it is assumed by the relativist to be itself universally applicable and objectively valid. It must then apply to his own civilization and the science which characterizes it. Yet the whole notion of anthropology as an empirical science and the basic concepts which it employs belong to the particular pattern of our own culture. Hence the paradox: if cultural relativism is true in the objective sense, it must be applicable to itself as a cultural element. But in that case, it can, like all cultural modes of thought, be significant and valid only in relation to the culture to which it belongs. On the other hand, if it is merely relative to our own culture, it is not universally applicable to all cultures, as the anthropologist assumes, and no objective science of anthropology is possible.

It is undoubtedly true that there is a certain relativism entertained today among scientists generally. They make little pretension to have attained any final or absolute truth. They accept their scientific doctrines tentatively, and hold them subject to constant correction even in their more basic concepts. This is especially true of anthropologists, all of whose scientific concepts, including that of 'culture' itself, are selfconsciously fluid. Yet, as scientists, they *trust* their science, and like you and me, they harbor the conviction that science is a mode of thought inherently superior

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to that of any of the so-called primitives. We all do believe that science, for all its shortcomings, and despite its tentativeness, yields genuinely objective truth. Above all others the anthropologist must trust to the objectivity of his special science, since he undertakes through it to reach an understanding of the life of alien peoples and the standards and beliefs on which this life rests. Yet he also knows that this very science is the unique fruit of our own civilization. Men of other cultures may be as intelligent and endowed with the same rationality as ourselves, but they have not produced science. Moreover, no other culture could borrow our scientific outlook without being utterly transformed in the process. One might teach a native of New Guinea or a Navajo Indian mathematics or formal logic without thereby disqualifying him from membership in his own group. But one could not teach him empirical science without introducing him into our own society and inculcating in him so much of our own standards and modes of thought that he could never again live among his own people as one of them or fully participate in his native culture. The problem that is raised by these considerations is, of course, not merely anthropological. If it were, for me to discuss it with you here would be mere impertinence. How culture is to be conceived, is a scientific question to be answered in the light of the "stubborn and irreducible facts" which only the anthropologist is competent to determine. As philosophers we share the faith of the scientist and his respect for the facts which he discovers. The anthropologist is concerned with science as a cultural phenomenon; the standards of science, like all other standards exemplified in the diverse beliefs of mankind, he must study as matters of objective fact, and refrain from all judgments of value upon them. Yet he cannot continue to carry on his scientific enterprise without a critical appraisal of the standards he employs in this enterprise. All science, it is doubtless true, must make philosophical assumptions, of which it is led from time to time in the course of its own development to become selfconscious and critical. But anthropology is faced in a peculiar way with the necessity of reconciling its basic concepts and its inherent standards of value. How is science as a cultural phenomenon possible? or, conversely, How is science, as an objectively valid mode of thought, possible as a cultural phenomenon, is a problem of vital importance for both philosophy and anthropology.

If our culture alone has produced science, and if it alone possesses an organization of which the scientific mode of thought is an integral factor, then it cannot adequately be regarded as merely one particular culture among many. Nor is it sufficient to recognize that its possession of science validates the claim that it is superior to other cultures in an objective way. It is, rather, that the existence of science casts doubt upon the hypothesis that a culture is a merely individual organization. For science is a mode of thought the nature and significance of which is not to be understood simply in terms of its relation to the particular pattern of our own social organization. In the achievement of science our culture has found a means of transcending its own limitations, of embracing ideally all cultures within itself. Our culture thus shows itself as at once unique and universal. But this is to talk in vague terms. We must ask more specifically: what is the distinctive structure of the scientific mode of thought? We must inquire not in what its essential truth lies, but what its characteristic

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conceptual organization is, which makes possible its transcendence of the limitations of the particular culture of which it is a factor.

Science, as we all recognize, rests upon the systematic collection of observable data. From the study of these the scientist discerns, or thinks he discerns, some constant relationships; he discovers, or invents, a conceptual schema into which his data fit with a measurable exactness. This schema he proceeds to test by further observation and experiment. If it does not continue to provide a place for the fresh data, the schema is modified, or even abandoned, in favor of some rival hypothesis. As a scientist he accepts his observations as stubborn and irreducible facts, and he strives, on principle, to distrust his theoretical generalizations. Newton, it will be recalled, repudiated the making of any explanatory 'hypotheses', and professed as a scientist merely to describe the relationships exhibited by the observed phenomena. But this, you, as philosophers, may doubtless hold, is not an adequate account of the actual structure of science. You will admit that modern science did arise as a selfconscious revolt against the dominant Aristotelian tradition of the Middle Ages, and you will recall that *in* rejecting final causes, and the belief in a universe qualitatively diversified in logical genera and species, science felt it was revolting against an a priori dogmatism. But those empiricists who believed that in so doing they had attained a complete freedom were deluding themselves. In rejecting the Aristotelian schema, you will point out, they were already embracing another a priori conception of the ground plan of the universe, and committing themselves to a new dogmatism which threatened to become as rigid as the old. Only a generation ago, you will remember, leading scientists still living in the Newtonian era could believe that all that remained for the aspiring experimentalist to discover were a few minor constants. The scientist, you may further urge, is no observer of pure facts, and can make no use of data which are not themselves determined by some form of a priori categorizing. The empirical generalizations which are tested by observation are merely possible alternatives, all equally consistent with the categoreal schema of the science. Observation and experiment can determine only which of these alternatives is to be accepted; they cannot yield the theoretically possible alternatives themselves. A true analysis of the structure of science shows that theory and fact are mutually dependent. What distinguishes science, then, it may be urged, is primarily its distinctive a priori categoreal schema, which provides a greater range of possible theoretical alternatives and thus makes possible a correspondingly greater wealth of observable data.

In this connection one may refer to Professor C. I. Lewis's brilliant theory of the a priori as essentially definitory. In accordance with this theory, some a priori structure is necessary to rational thought, but a variety of such structures is possible. What the a priori provides are definitory terms of what shall constitute the 'real' as the object of thought; but it does not, as Kant held, organize the given as merely experienced. We may, that is, experience as 'given' what does not correspond to the defining categories of thought; but whatever is thus experienced is automatically discarded—it falls into a sort of waste basket of the 'illusory', or merely subjective. The first requisite of rational thought is thus some a priori schema which operates selectively to separate all experience into the 'real' and the 'unreal'.

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That this theory of Professor Lewis contains important truth, must, I think, be admitted. For my part I should agree with him that there is a variable and relative a priori essential to all thought. But these variable categories of thought must, I think, be distinguished, as material, from the purely formal a priori logical structure which is independent of them, but which can function only through the content mediated by them. We may find an illuminating analogy in the structure of language. Every language must have a grammar which provides for the fundamental distinctions essential to intelligible communication. But this may be done in a great variety of ways; hence there are many different families of languages, each with its own distinctive grammatical structure. As each grammar has its own peculiar categories which constitute the specific a priori for each individual language, so thought must operate through a specific conceptual structure which is not the pure form of logical relationship, but which is yet an a priori condition of all actual thinking. It is this variable and relative a priori which forms the conceptual pattern distinctive of differing cultures, and which is at once determined by and determinative of the cultural life. It is, accordingly, to the variable and material a priori that we must look for the distinctive character of scientific thought. Now, aside from purely epistemological difficulties which one might find in Professor Lewis's theory (and which are not our present concern), it fails, so far as I can discover, to provide an adequate basis for what is uniquely characteristic of science. According to his theory, the conceptual schema of science may be a more highly integrated system than the vaguer ideas of primitive thought, and it may be pragmatically superior. But these are only differences in degree. Scientific thought differs in kind; it is unique.

What above all else distinguishes science and constitutes its uniqueness is its capacity for progressive modification through self-criticism. A moment ago we referred to the dogmatism of the science of Kant and Newton, and to the fact that, in the last generation it seemed to have reached a dead end. Yet it promptly took on a new life and arose like a phoenix from its own ashes. It is this power of regeneration which distinguishes scientific thought, and it is just this that requires some deeper explanation than we have yet discovered. Such a theory as Professor Lewis's applies better, one may venture to think, to some forms of primitive thought than to science. If the religious ceremonial of the Navajo, for example, fails to bring the hoped for blessing or cure, this does not raise any doubt of the beliefs on which the ceremonial is based. The Navajo can always explain away the failures. Nor is he upset by the inventions of modern science, as Professor Gladys Reichard will point out in her forthcoming work on the religion of the Navajo. The concepts of Navajo thought are such, she holds, that nothing can be new to them; all the answers are fixed in advance by the terms of their mythological thought. Compared with science, primitive systems of thought are, as Lévy-Brühl and others have pointed out, relatively impervious to experience. They remain 'true' 'no matter what' experience offers. They are provided in advance with adequate conceptual wastebaskets for all rubbish. To be sure, such systems do suffer change and do become modified with time and circumstance. But they change in spite of themselves, and from external pressure. Science, on the contrary, welcomes change on principle, and develops from an inner source of life. It is of course true that the scientist, like the medicine man, has a

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means of explaining away the failure of an experiment. The proverbial demonstrator may say to his class: "Gentlemen, the experiment has failed, but the principle still holds good." But if the experiment continues to yield unexpected results the scientist is prepared to modify his principle. He must have his waste-baskets for rubbish, but they can hold only what falls within the margin of error. Or rather, it should be said that science maintains a universal economy in which all rubbish is potentially useful.

Yet, despite its internal changes and through its revolutionary crises, science is continuous; it persists as science. It is like a state with a constitution that determines the conditions under which specific laws may be enacted as circumstances demand, and which furthermore provides for its own modification through amendment by due process of law. As a state with such a constitution has a means of providing for indefinite change in its own structure without disintegration, so science through its methodology is enabled constantly to revise its own theories and the concepts in terms of which they are framed. Compared with science other systems of thought are like societies which rest upon the sanctity of ancient tradition or upon the arbitrary will of a temporary dictator. Once the tradition is broken or the dictator deposed, such a society has nothing to fall back upon, and no means of reorganization except the slow growth of a new tradition from the ruins of the old.

But if science has a methodology which gives it security and which it accepts as valid, it must be committed to some positive beliefs regarding the nature of that with which it deals. For a method will work only if it is adapted to its subject-matter and reflects within itself the very structure of that matter. To accept the methodology of science as valid is to assume the fundamental intelligibility of being. For the methodology of science implies that all that is belongs within a single all-inclusive order. Within this order there can be no fixed and final divisions such as primitive thought finds between the commonplace and the wonderful, or between the phenomenal and the real such as Plato found, nor can there be any shred or trace of sheer irrationality such as Aristotle admitted. The intelligibility of being demands that a place must be found for every item; there is nothing, absolutely nothing, which does not belong within and is not essential to the universal order. Whatever is, lies within a continuum such that it is possible to pass from any point to any other. An infinite network of possible relationships interconnects every item with all others.

But while the methodology of science implies this as an ideal, and while science rests upon a final faith in a completely unified order, it is forced to operate from day to day with some particular and partial version of this order. Science has always conceived of a uniformity of nature manifesting itself in a system of laws, although the very conception of 'law' has itself undergone great modification in the course of time. Formerly it was supposed that the laws of nature formed a single hierarchy, and that one might pass deductively from some ultimate universal downward to the particulars which were its logical consequents. Or alternatively, that the scientist must begin with particulars and find his way back by some sort of inductive procedure from particular uniformities through the more and more general to the universal. If a more sophisticated philosophy of science finds such modes of thought naive, it still recognizes that science is committed to the task of formulating the order of nature in terms of law. If no system of laws is a literal transcription of, or revelatory of,

a natural order, it must still be assumed that being is indefinitely amenable to such representation. Science still confidently pursues its aims of establishing systems of intelligible communication between all that is observable.

We may compare scientific laws to systems of roads which serve to connect the habitations of men. There are the great arterial highways which run between important centers. These are like the fundamental laws of physical science; from them branch roads lead out to smaller centers and to scattered hamlets. As men push out and settle in the remote hinterland, new roads must be laid out to connect with the existing system, and the old system may be altered by the necessary extension. An old system of wagon-roads which served for local needs may be superseded by a modem system with its cloverleaf intersections to unite the outlying districts with the great centers and so indirectly with one another. As roads are built between settlements already established, so new settlements spring up and become consolidated along established routes of communication. However well designed a system of roads there may be, there will always remain localities off across country which are potential habitations. Roads, like lines which lie in a plane, can connect and determine only those sets of points which lie on them. Analogously, the laws of science can connect only those instances to which they are applicable. If, like the earlier pathways and trails, they originally grew up between the things of common life, they become replaced by the direct highways laid out by engineers, which may by-pass towns in order to provide more extensive and rapid intercommunication. But however extensive and well integrated the system of the sciences may become, its laws, like roads, can connect only selected points. Established and exact scientific laws tend to determine or define their own ideal instances, as established routes of travel tend to determine men's places of business. But natural science must apply to the real world of common experience. Whether, as the formulae of exact science, the laws determine and connect ideal instances, or, as the generalizations of empirical science, they seek to connect observed facts, laws, like roads, are essentially linear. It is only to what is relevant, and so, significant, that laws can apply. What is irrelevant must be ignored by the scientific observer. And there always is the irrelevant to be ignored. At every stage the effective conceptions of science determine a zone of relevancy, they define what is the 'real' for the science, as Professor Lewis has pointed out. Science must operate with some selective set of a priori concepts and principles which at once define and organize its subject-matter. But, if any such set could constitute a complete system, whatever appeared as irrelevant would be absolutely irrelevant, unreal, and utterly insignificant. Actually, if such ideal completeness were realized by science, it would be because nothing scientifically irrelevant could appear even to sense-perception. It is because science is incomplete and is aware of it that it undergoes constant change. It is able to recognize its own limitations because it holds an ideal of completeness; because it rests upon the implicit belief that whatever is or can appear to sense belongs within the single all-inclusive order of being. The scientist may ignore what is irrelevant to the purpose of his inquiry, but he actually perceives it *as* irrelevant. And if he is a genuine scientist he is painfully aware that what he thus ignores may be relevant. The archaeologist, for example, is not content with written notes of what he observes as he excavates; he photographs his site at frequent stages in order to preserve a more direct

and objective record. But even this is not enough, and he scrupulously leaves a part of his site undisturbed for later excavators. He knows that future knowledge will throw fresh light and reveal as significant and relevant much that has escaped his own most careful observation. Nothing, no record, however full, and no set of photographs, can take the place of fresh direct observation of the concrete. At the opposite extreme from archaeology is the laboratory experimentation of exact science. In the ideal experiment, as we learned from textbooks on logic, the conditions are all known and analysed; the ideal experimenter knows exactly what he is doing in setting up his experiment or in altering condition A to condition B. Hence the experiment can yield an exact and final result such as is impossible to mere uncontrolled observation. But actually there are no ideal experiments; the experimentalist knows that for all his efforts he has not noted or analysed all the conditions under which he works. Like the mere observer he too must have his eye out for details of potential relevance, hitherto unrecognized. If experiments were ideal, all that empirical science could accomplish would be to exclude predetermined alternatives.

It is not the discovery of facts contradicting accepted theory that is vital to science, but the ability to recognize the irrelevant as potentially relevant. It is the recurrent pioneering and settling in the uncharted wilderness that creates the demand for new means of communication and forces the modification of older systems. Science always has its frontiers, and maintains its own life through constantly extending them. But the scientist is ready to push out into the unknown because he is assured that the unexplored region is also habitable, and that means of communication may always be found to connect it with the known and settled. It is this living sense of a beyond which is yet continuous with the here and now, of an unfamiliar with which we may become intimate, of an unknown which is knowable, that marks off scientific thought from so-called primitive or mythological thought. If primitive thought may also cherish the belief in some ordered scheme of things, it identifies this outright with its traditional and fixed mythology. Dr. Ruth Benedict has pointed out to me that the Hupa Indians of northern California, for example, believe that everything in the world was assigned its own proper place at the beginning, and that there is a specific formula, the possession of which will bring each thing or set of things under control. But such a world-arrangement is not a rationally intelligible order; the formulae are specific and ad hoc, and constitute no system of interrelationships. Anthropologists generally agree that despite the great differences which distinguish the thought of one primitive culture from that of others, modes of primitive thought are alike in making a distinction between the ordinary and commonplace on the one hand, and the extraordinary and wonderful on the other, the things and events which manifest unusual powers, which one may fear or hope in some way to control. Dr. Ernst Cassirer has argued that this distinction between the commonplace and the extraordinary is a fundamental characteristic of mythological thought; it provides the basis for the division of the sacred from the profane, and of the supernatural from the natural. So long as such a cleavage cuts athwart the world, it obviously cannot be brought within a single intelligible order. As Dr. Cassirer points out, the world of mythological thought does not lie within the single infinite homogeneous space of Kantian theory and Newtonian science. Its regions are qualitatively diverse and

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discontinuous. The river Styx is not crossed by ordinary means or by living men; the Garden of Eden is guarded by angels with flaming swords; and the fairyland of our own myths is reached by climbing a magic beanstalk or falling down a dream rabbit-hole. Similarly there is no single continuous time with even and measurable flow. The familiar and commonplace present in which we live was preceded by an epoch of mythical origins such as is represented in our own "Bible times" when God still performed miracles. The "once upon a time" which introduces our own fairy-tales is no historical period to be dated, but that "long ago and far away" from which our own times are separated by an impassable gulf. Yet the epoch of myth is not clearly an epoch which literally 'preceded' the familiar and commonplace present. For primitive thought it may rather be another and enduring present into which one may still enter in moments of 'vision' or by some magical means. The barriers which separate the commonplace and profane from the extraordinary and sacred may not always be those of spatial or temporal discontinuities. Within the confines of the everyday region there are sacred places which one should pass with fear, or which one may dare to enter only after appropriate rites of purification. And similarly the familiar course of time is interspersed with sacred times and seasons which may bring blessing if properly celebrated, or curse if profaned by improper acts. Thus even within regions which are spatially and temporally continuous, there are dynamic discontinuities and a breach of causal order.

The very enterprise of science can become possible only so far as men's imaginations are freed from the fetters of such mythological thought. The world of the scientist must be a world through which he can range freely, in which there are no impassable gulfs fixed and no unsurmountable barriers. The means by which he moves through the realm of the familiar must be the very means which can carry him beyond into the unexplored. Primitive thought accepts the commonplace without wonder; it marvels only at the extraordinary. Science, on the contrary, ponders the familiar and finds in the commonplace a new and inexhaustible source of wonder, because the scientist conceives it as one with an infinite and glorious order. Like Moses, the scientist has stood upon the mount and heard the voice of God; and if, like Moses, he knows that he may not look upon the face of Divinity and live, what he does behold he knows to be the hinderparts of God himself. If science has repeatedly violated the sacred by laying profane hands upon it, it has itself undergone purification in the process. Science formerly supposed that the world could be made intelligible in terms of classical atomism with its sensuously imaginable mechanism of impact. But the belief in atoms, which Tyndall could describe as "the building stones of the universe which persist throughout the ages unworn and unchanged", fettered the imagination as surely as the superstitious fear of demons. It is true that science abandoned the theory of classical atomism in the face of stubborn and irreducible facts, but it is also true that science could admit such facts because its atomism was only a theory and not a faith in which its security was founded. The primitive thinker cannot abandon his belief in the myths of his people because he has nothing in reserve on which he can fall back. If science, unlike primitive thought, is hard-headed, it is because it is supported by an unassailable faith in the universal order in

which all facts have their place. The science of every age can say with Job: "Though He slay me, yet will I trust in Him."

It is this faith in a universal order that is the source of the regenerative life of scientific thought. This faith must, however, be embodied in a set of specific concepts. Science is both a mode of thinking, a methodology, and a body of partially organized theories and accepted matters of fact. If we take a cross-section of science at any period we find a distinguishable body of accredited doctrine such as may be contained in a textbook. This has altered from age to age, and we confidently expect that the science of the future will differ from what is contemporary doctrine. The pattern of each cross-section is characteristic of its own age; its style reflects and expresses the style of contemporary culture, although it may equally presage that of the future. In so far as science is such a body of organized doctrine shifting from age to age, the theory of cultural relativism is justified. But science is not revealed by any series of cross-sections; it is a continuous stream of living thought. Its universality and objective validity does not rest upon the 'truth' of the particular scientific doctrines of any age; it rests, on the contrary, in its implicit philosophy, in what we have called the underlying faith that makes the distinctive enterprise of science possible. Yet this very mode of regenerative thinking with its implied philosophic basis is itself a cultural phenomenon. It may have had other abortive or premature births in other cultures, but it is only in the culture of Western civilization that it has been able to maintain itself and to develop.

If one culture has been able to produce a mode of thought with such a capacity for continuous self-transcendence, the question arises whether the concept of culture itself does not need modification. We may ask whether the capacity not merely for growth and change but for continuous regeneration and self-transcendence, does not belong to human culture as such and distinguish it from the common way of life of the other social animals. Historically the culture which has produced science developed from a group of cultures each based upon a diverse but equally 'primitive' mode of thought. We need not invoke the discredited doctrine of a general evolution of culture, or of universal stages in cultural development. Whether culture had a single or a multiple origin, it has taken many directions and assumed diverse and individual forms. Yet culture is as universally characteristic a human trait as erect posture and differentiated hands and feet. We may suppose that the structure of some cultures, like that of some species of organism, has limited the possibility of further development. Some cultures, like some organic species, may be able to persist for ages, perpetuating themselves with a minimum of modification. But the continuance of such forms is dependent on relatively fixed conditions. It is only the capacity for internal modification that can give security in changing conditions. How culture is basically to be conceived is, of course, an anthropological and not a philosophical problem. That different types of culture differ widely in their capacity for the acculturation of borrowed traits is well recognized. What the conditions for such acculturation are is a problem of contemporary interest to anthropologists. If a culture is to maintain itself under changing physical and social conditions, it is evident that it must have the capacity not merely for borrowing traits but for what we may call inventiveness. It is equally evident that inventiveness is conditioned both

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on the existing richness of culture and, more importantly, on an attitude of mind and a pattern of beliefs and standards which permit and invite the admission of the new. On the one hand, it is the structure of social organization which determines the capacity for and the direction of cultural change; on the other hand, it is the pattern of thought and the ideals of living that both support the existing organization and determine its specific capacity for change. As all human culture is characterized by the unique inventiveness of human beings, so all conceptual thought has some inherent potentiality for self-modification, however inhibited this may be by the forms in which it crystallizes. If it is only in the mode of science that thought has found a medium for free and unlimited procedure, then we should expect to find in the culture which has produced science, and to which it belongs, a correlative capacity for internal and continuous self-transformation. If only our own culture has produced science, upon what cultural conditions has this depended, and within what form of human organization can science as a mode of thought continue to enjoy free extension and development?

We can hope to find no answer to our question by a mere description of the traits of our own culture. For, while the civilization of the Western world does constitute a culture, it is rather a congery or cluster of cultures loosely and precariously held together. If it is united by common interests and shares to some degree a common way of life, it is frightfully disrupted by the conflict of interests and unreconciled beliefs and ideals of life. Science, to be sure, has so far been able to maintain itself, but it has done so against strong opposing forces. Even where it is supported by strong community sentiment, the form this support takes too often hampers the spirit of free inquiry. As Professor Dewey has so forcibly argued, the present crisis in our culture reflects the deep cleavage between the scientific mode of thought and the uncritical and discordant beliefs and standards manifested in our way of life. What the specific forms of cultural pattern may be which can adequately support the scientific mode of thought we cannot pretend to tell. We must, however, suppose that it is only within a culture provided with some organized instrumentality for self-direction and internal self-transformation that science can flourish. Legislative procedure and scientific method have a common root and grow in the same soil.

But while it is not within the province of philosophy to determine what types of political and social organization reflect the basic mode of scientific thought, it is a matter of vital importance to philosophy to inquire whether the enterprise of free inquiry is conditioned upon the acceptance of universally valid moral standards. This is to raise one of the oldest of philosophic problems: what is the relation of the pursuit of knowledge to the attainment of the good? It is not only Platonists who have held the two to be vitally connected. Even those philosophers who, like Bacon, have been most emphatic in the rejection of final causes, have urged, on the one hand, the benefits of science to mankind, and, on the other hand, the need for the establishment of an ideal society in order that science might be successfully carried on. I shall not attempt to discuss with you tonight the relation of wisdom and virtue on abstract philosophical grounds, but shall conclude by bringing to your attention certain reflections on the necessary conditions for empirical anthropological research.

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The doctrine of cultural relativism has found its clearest and most unequivocal expression with respect to moral standards. The Christian missionary who attempts to impose upon the natives of New Guinea or the Plains Indians our own standards of sexual morality or property rights, and who condemns their customs and practises as immoral, is acting from ignorance and provincial intolerance. For, the anthropologist argues, the condemned practises and the standards on which they are based are integral to the ordered existence of the people concerned. To attempt to introduce the customs and standards of our own culture is like introducing a wrong type of blood into the lifestream; such a transfusion of alien ideas and standards can only result in literal demoralization and disease. Anthropology has shown how great is the diversity in types of personality tolerated and admired in different cultures. The hero or saint emulated or venerated by one people may be ignored or despised by another people. Even if the really good man of any culture must be, as Plato held, the man who has attained an inner harmony, the organization of desire in conformity with standard, this internal harmony may be attained in many different ways. Furthermore, virtue is not something which the individual can possess or enjoy independently of his relation to his fellows. A man can become and can be truly a man only in and through his participation in a culture. The inner harmony which constitutes his virtue must belong to the larger harmony of his life with others. The standards of virtue everywhere must accordingly be relative to culture, and this applies as fully to our own distinctions of right and wrong, good and bad, as it does to the standards of any primitive people.

As a scientist the anthropologist is of course committed to the study of alien customs and attitudes with the same objective detachment as the entomologist, for example, enjoys in his study of insect behavior. He must abstain from all praise or blame, and he must not be shocked by native rites and practices, however monstrous these might appear to a member of his own civilized culture imbued with its own moral ideals. Now the fieldworker can obviously attain such objectivity and detachment as is demanded only if he is truly 'emancipated'. He must, that is, recognize that his own traditional attitudes are merely relative to his own culture with no more *prima facie* claim to universal validity than those of the Dyaks of Borneo or the pygmies of Africa. Does his emancipation then mean that he must prosecute his scientific enterprise as a man from Mars, or a pure intellect in literal detachment from all human ties and obligations? It may be argued that as a scientist he makes only judgments of fact, and that such judgments are logically independent of judgments of value. Even if he is psychologically unable to achieve the complete detachment desirable, it still remains a scientific ideal for him. To argue in this fashion is indeed to invoke dualism with a vengeance. It may seem plausible that the physicist or chemist can pursue his research with such ideal detachment, and that his conduct as a husband and father, or a friend and citizen, has no bearing on his efficiency as a man of science. But the field ethnologist cannot approximate such detachment even as an ideal. His science has taught him that no man can attain essential humanity, much less become a scientist, except as a member of a culture, and only so far as the standards and concepts basic to that culture are internalized as integral to his own individual maturity. If he could perform the psychological feat of severing the ties and loosing the obligations which

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bind him to his culture, he would lose his mind and destroy his very soul. This the anthropologist is bound to admit on the theoretical grounds of his own science.

But let us look at the practical conditions under which he must work. The ethnologist goes into his chosen field as a member of his own profession equipped with the technique he has learned and with the current concepts he has acquired in his scientific education. Moreover he must maintain an effective membership in his own professional community and continue to fulfil his obligations to his colleagues and the wider public at home. To abandon his position in his own culture and profession and 'go native' would be to cut off his scientific enterprise at its roots. The visiting scientist is in effect a representative of his profession, and his activity in the field constitutes a special form of intercultural contact.

But this is only one side of the picture. It may be asked: if the fieldworker must act as a member of his own culture and subject to the obligation it imposes, does not this very fact free him from any possible obligations to the people whose alien culture he is studying? Does not his very acceptance of the standards of his own culture render him indifferent to the standards of the alien group and thus provide him with the requisite objectivity and detachment in his dealing with them? Is he not justified in the pursuit of science in treating his human subjects with the same indifference to their interests that the entomologist may show toward the subjects of his experimentation? Now there may have been field ethnologists who adopted this very attitude, and returned home to exhibit the sacred objects they had stolen for their museum and to report their prowess in the violation of native confidence. But such conduct in the field is not approved; it not only shocks the feelings of his fellow scientists, but it meets with the most unhesitating condemnation on strictly professional grounds. For it is no better than killing the goose that lays the golden eggs; it effectively puts a stop to any further research in that field. Ethnological research cannot be conducted as a series of forays or buccaneering raids; it must, like trading for mutual profit, be conducted in such a way as to make its continuance possible.

In order to carry on his work the ethnologist must live among and with his subjects. He must acquire some status in their community, and this must in some way be provided for within the structure of the culture. He must find suitable informants and establish both formal and personal relations with them. Moreover, the position which he gains is not one from which he has merely to observe their behavior from without. Nor will it suffice to observe a mere outward conformity to their customs and show an external respect for their standards. If he is to gain a genuine understanding of their culture he must achieve an imaginative sympathy with their ways of thought and feeling. He must enter into actual communication with them, and this is possible only on a basis of some common values and attitudes. He must to some extent become a member of the community while yet remaining a representative of his own culture. The particular terms on which he may accomplish this, and even the degree to which it is possible, will certainly vary with the individual culture he studies. He must adapt himself to the life of the community, but he must also adapt the alien ways and those of his own culture to each other, and effect some sort of reconciliation and *modus vivendi.* Now he can do this only on terms which are already provided within the

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culture and compatible with it. What the nature of the role he plays is, will differ from one culture to another; if he must to a large extent create and improvise the particular role he is to play, he must find some accepted form of status within the group that he can adapt to his specific purpose. For he cannot gain the information he needs unless he makes his purpose in some measure intelligible to his informants and associates. His purpose can be achieved only through a form of genuine intercultural contact. Yet the reciprocity this involves is only partial; as a scientist he has a basis for reaching an understanding of their ways of feeling and thinking that has no counterpart in their own cultural pattern. Science provides a unique means of genuine cultural transcendence.

In the double role the ethnologist must play he is bound to meet many specific problems of conduct. He finds himself under obligations and subject to demands from his new associates which conflict with those he owes his family and friends. He is caught in an unavoidable moral conflict, and this, like all moral conflicts, can only be resolved by an appeal to fundamental principles and universal standards. He inevitably becomes a critic of his own traditional code of conduct; he is led to make a distinction between those standards of human relationship which are valid within the frame of his own particular culture and remain relative to it, and those which, as universal, constitute the basis and norm for all human relationship. The recognition and acknowledgment of such universal standards and objective values is thus a necessary condition of anthropological research and the understanding of the nature of man. These universal standards are not easy to formulate; perhaps they admit of no final or precise formulation. They constitute what we call humanitarianism; they are expressed in the Stoic and Christian ideal of the brotherhood of man; they were at least partially formulated in Kant's principle that man must always be treated as an end and never merely as a means. They imply a respect for man not merely as a rational being, but both respect and tolerance for men as members of all races and all cultures.

Yet these principles as universal are abstract and formal. Of themselves they can provide no particular solution of any specific problem. They are a variable which may be satisfied by more than one constant of cultural organization. If no existing culture completely satisfies them, they, like all universals, provide a form of procedure by which cultural problems may be solved and with reference to which specific solutions may be tested.

Our argument has been that while anthropology is justified in regarding the specific and varying moral standards of different cultures as relative to these cultures, its own scientific procedure involves the acceptance of standards which are universal and objective. The acceptance of universal moral standards is a necessary condition of ethnological research. But what of other sciences, and of scientific enterprise generally? Even if our thesis be admitted as regards the science of man, or as applicable to the *Geisteswissenschaften,* is there any ground for extending it to the natural sciences? Can it be claimed that the pursuit of physics or chemistry is conditioned upon the acceptance of universal moral standards? Do we not actually see these sciences being carried on with terrifying success by a people openly committed on principle to contempt and disregard of human rights as such?

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Our whole argument has gone to show that however widely the sciences may differ in subject-matter and specific techniques, they all, as science, are engaged in empirical research. They all spring from and rest upon a common mode of thought. Scientific method is one, and depends upon the acceptance of a universal order of being. It belongs to the very nature of science both continuously to transform and regenerate itself, and to expand. The historical process by which one field after another has been subjected to scientific inquiry has been no accident. It is essential to the life of the scientific mode of thought that it extend itself to every domain of being. As essentially self-critical, science must inevitably concern itself not only with man as a living organism, but with the distinctive forms of human relationship and with the human achievement of culture. It must come full circle and include itself as a form of being. That it can accomplish this without a correlative development of philosophy as the enterprise which seeks to formulate and thus lay open to criticism the standards and concepts which, as science, it implicitly accepts, is impossible. But if the scientific mode of thought can sustain itself only through continuous growth and self-regeneration, it can survive only in a social order permeated by its own philosophic faith and itself capable of cultural transcendence. Physical science deprived of these conditions must eventually wither like a plant cut at the roots.

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