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Truth and Meaning in Different Disciplines

The title of my paper, "Truth and Meaning in Different Disciplines," may suggest that there are different concepts of truth and meaning at work in the different academic disciplines, and perhaps even that truth and meaning themselves are relative, varying from one discipline to the next. The first suggestion seems to me clearly true, and in certain senses the second is also. But while I must account for these differences, they are not what I want to stress. What concerns me is the growing lack of communication across the boundaries of our specializations, and the ways in which one particular concept of truth and a related theory of meaning might exacerbate or alleviate it. The concept of truth involved is the classical concept according to which an idea is true if it agrees with reality; the theory of meaning is one drawn from the semantics of modern logic according to which the meaning of indicative statements are explicated by giving their truth-conditions.

I

The first question I want to consider is the role the concept of truth should play in the organization of the several disciplines in a Liberal Arts College. Our disciplines are all grouped together under one heading of Liberal Arts; on the other hand we are divided into divisions and departments. I am not interested in the historical or political grounds of this organization; I am interested in its philosophical rationale. One

major branch of philosophy is epistemology, or theory of knowledge, and one main question in this branch is the question of how knowledge is, or should be, organized. Presumably, there is some relationship between the administrative organization typically found in liberal arts colleges and some answer to this question. What function then, do we all have in common, and on what basis is that function sub-divided and assigned to different departments?

The traditional answer is that all disciplines have in common the function of seeking truth, adn that they are to be distinguished by the areas or levels of reality they seek truths about. Liberal Arts disciplines are distinguished from professional schools, technical schools and vocational schools in that the latter traffic in practiced applications and particulars, while Liberal Arts disciplines deal with the universal and fundamental truths.

This answer seems to me mistaken in fact, pernicious in effect and out of place in our times. This is not because I take the search for truth lightly; on the contrary I value it highly, as will be seen. The classical concept of truth is a necessary condition of both individual integrity and a good society. But it is not the sole or basic guide to all intellectual inquiry. To make my point clearer, let me first sketch an alternative philosophical basis for the organization of academic disciplines in the liberal arts.

In the Republic, Plato argued that specialization and

division of labor are essential characteristics of a state. Men have many different wants. If every man satisfied all adn only his own wants, we would have no state or social structure at all. It is when labor is divided so that each member of a group takes on the responsibility of providing for a particular need of the rest of the members--the farmer for food, the doctor for health, etc., that we have a social unit or state. Hegel, in his Philosophy of History, pointed out that the evolution of human civilization is characterized by a continual proliferation of dividions into specialities, and that that very process of division, paradoxically, makes possible the continuous march towards a greater and more unified human society. By differentiating new interests and goals of society, including those of reconciling conflicts which emerge, and allocating human energies to deal with them specifically, we forge an organism, or organization, of increasing depth, breadth and unity. Though I am neither a Platonist nor a Hegelian, I believe there are insights here pertinent to our question.

First, we are all educators. In all but the most primitive societies, the division of labor provides for the vocation of educating and training the young so that they can function efficiently in the world and society. But we are not only educators. As society advances further provision is made for specialists to advance the frontiers in various areas of intellectual inquiry. Liberal arts departments in a university like ours sit astride these two functions. In these two ways, as

teachres adn as scholars or researchers, we make our special contributions to the wants and needs of other members of society.

But this is to view ourselves solely in terms of our social function. It tells us that society values intellectual inquiry, and the transmission of its fruits, enough to provide a niche for us in its economic structure. It does not tell us what intellectual inquiry <u>is</u>, or the principles on which it should be sub-divided into the various areas of the liberal arts. Is all intellectual inquiry search for truth? Is our division of intellectual labors based on partitions of objective reality? I think not. Should we then organize ourselves on the basis of what we think society would like to hear from us--should we organize so as to respond to the wants and needs of society as seen by students, or parents or legislators? Clearly not, for this is the quickest way to lose the integrity of our disciplines. At the heart of the concept of academic freedom lies the belief that the most important long-run benefits of intellectual inquiry depend upon the freedom of scholars to determine objectives and methods in their disciplines independently. Admittedly, it has been an effective argument in defense of academic freedom to hold that we are all searchers for truth. For truth is determined by objective reality, and reality is independent of the wishes and hopes and interests of other men. Yet the argument is misleading. WE re not all, or always, searching for truths. But what then? What principle is it that is independent of the particular needs and interests pressed upon us by our society, yet can unite and

subdivide intellectual inquiry?

I want to suggest that instead of taking the concept of all of objective reality--the world, or universe--as the target of all our investigations, we begin with the concept of the single individual person. Not a particular person, but an individual person as an abstraction. We do not use this concept of an individual as a target for a truth-investigation; it does not represent a reality we seek to describe. Rather we use it as a device for locating possible questions, possible problems, possible varieties of value-seeking. We think of the whole range of intellectual inquiry as a search for ideas that could be of value to an abstract individual for ideas or concepts or structures of ideas either valuable in themselves, or instrumentally valuable for other ends. But lest we sound too mentalistic, let us express this in terms of media of communication. The outward product and vehicle of intellectual endeavor is in terms of instruments of communication: spoken and written language, by means of which ideas and theories, formulae and laws, poetry and literature, are expressed; the media of music and art; and the instruments of data gathering and measurement in the sciences.
Let us think of the different ways in which these diverse products would be of value to our abstract individual. What different sorts of problems would these different laws and formulae help and individual solve? What sorts of questions could these instruments or theories or propositions help answer? What sorts of values could these art forms help evoke for our abstract

individual? That we are thinking of an individual person as an abstraction is important. For it is this which gives universality to our efforts, making them independent of what this or that particualr person or group wants or needs, and giving us freedom to explore the potentialities of the mind in our several areas without being tied to what already exists. In short, I am proposing that it is possible to find a philosophical basis for the unity and subdivisions in the liberal arts in the concept of an abstract individual seeking to achieve values and solve problems through different sorts of ideas and media of communication, and that this provides a better basis than the narrower traditional conception of intellectual inquiry as a search for truth. The search for truth is not excluded, of course. For one of the perennial questions man asks--at all levels and in all areas--is the question of what is really, objectively, the case. But this is not the only question the intellect attacks, nor, necessarily, the most important.

What I am suggesting is of course not new. In one way it is an extension of Plato's concept of the division of labor so as to deal with different wants, to the realm of intellectual inquiry. But unlike Plato, my focus for intellectual inquiry is on the seeker, not on what is sought. It is the questions men seek to answer which differeentiate the disciplines; the kinds of problems men seek to solve, not the differences in what they find. The concept of an abstract individual puzzling about the nature of reality dominated the philosophy of Descartes and a

whole string of British and German philosophers who followed. The concept that the purpose of intellectual inquiry is not objective truth but ideas which are valuable or useful to individuals was most energetically expressed in the philosophy of William James and the movement of pragmatism. More recently, the centrality of individual decision-making and choice has emerged in the existentialist movement. What none of these movements have provided yet, I think, is a rigorous and convincing logical analysis of the inter-relationships of the different disciplines along the lines suggested. It is a difficult task, and there are many reasons why it has not been done. Not the least of these is the dominance and momentum of the idea that all intellectual inquiry is a search for truth.

Let us consider then the concept of truth and the role it plays in life and in intellectual inquiry. My view of intellectual inquiry, as has just been shown, is basically pragmatic and individualistic. But I have no sympathy whatever with that abberrant claim of James and some other pragmatists that truth is what works, that the truth of an idea is the same as its usefulness for human ends. I object to this pernicious confusion on purely pragmatic grounds. The classical conception of truth, as the agreement of an idea with reality, is a very basic, important and useful idea to every intelligent individual. Let us take some time to examine what this concept is and how it is used.

The philosophical question, "What is the nature of truth?" is not the same as the question "Which ideas, beliefs, or

statements are true and which false?" We are interested in the concept of truth, not in those things that may or may not fall under the concept. In a sense it can be construed as the question "What does the word 'truth' mean?" But here again, it is not a question of empirical linguistics; we are not asking for an account of how English speaking people use the word in fact. That there are a variety of ways the word is used is already clear from the dictionary. Some of these ways are irrelevant to the question we have in mind; for example adjectival uses such as 'true love,' 'true gold.' Among the uses listed in the dictionary we focus on 'conformable to fact' or 'agreement with reality.' But this is only our point of departure; the philosophical inquiry begins with an effort to define or distinguish the sorts of things which could be said to be true or to be false in this sense. Then there is the problem of how to distinguish the reality these things are supposed to agree with. And most difficult of all, there is the question of the nature of this agreement, or correspondence. The question is not basically a question of language at all, but a question of making clear and rigorous a certain structure of conceptual distinctions which are ultimately independent not only of the English language, but probably of any language whatever. Nevertheless, since actual linguistic utterances and inscriptions are publicly observable events or facts, there are certain advantages in considering truth as applying to sentences.

Aristotle defined truth and falsity as follows: "To say of

what is that it is not, or of what is not that it is, is false, while to say of what is that it is and of what is not that it is not, is true" [Metaphysics, IV, 7, 27]. Alfred Tarski, a major figure in formal semantics, equates this with the modern philosophical formula, "The truth of a sentence consists in its agreement with (or correspondence to) reality," or, more precisely, in his own words, "A true sentence is one which says that the state of affairs is so and so, and the state of affairs is so and so" [The Concept of Truth in Formalized Languages," in Logic, Semantics and Metaphysics, Oxford, 1956, p. 155]. But clearly, it is not the sentence, as a mere physical fact or event, which is said to correspond to reality.Wittgenstein suggested that an indicative sentence has a sense (Sinn) or meaning; that this sense or meaning can be understood without knowing whether the sentence is true or false; that it is the sense or meaning of the sentence which must agree or not with reality and that a sentence is true if and only if its sense or meaning does agree with a reality. Or again, he suggested that components of a compound sentence represents one or more possible states of affairs; to understand the sense or meaning of a sentence is to understand the ways in which the existence or non-existence of these states of affairs would make the sentence true, or false. To grasp the sense or meaning of a sense, in other words, is to know its truth-conditions, i.e., which states of affairs by existing or not, would make it true.

There are many difficulties in these theories; in particular

the concept of meanings of sentences remains very problematical. But the lack of a fully satisfactory analysis of the correspondence concept of truth is not argument against its utility. The correspondence theory of truth is presupposed and used widely throughout ordinary life as well as in the liberal arts and sciences. As it is used, it has certain clear characteristics.

First, presupposed in this concept of truth is the concept of an objective total reality; a totality of facts which is all-inclusive, free from contradictions, and almost entirely independent of the wishes and hopes of individual persons. Truth is conceived as attaching to ideas or beliefs or propositions or to sentences which fully express those ideas, beliefs or propositions, by virtue of their correspondence with that reality. All actual ideas, daydreams, hopes, wishes and feelings of each individual have their <u>place</u> in that reality as facts about that individual. But the search for truth is quite distinct from the mere fact of having one's imaginations, daydreams, and wishes. Rather, for each individual, it involves the effort to distinguish among all possible ideas, imaginations, etc., one could or does have, those which shall or believed and accepted as corresponding to the vast part of total reality which exists outside of, and independently of ones own thoughts, experiences, and feelings. In terms of language one might conceive of the total truth as that set of possible statements, out of countless infinities of other possible statements, whose meansings would constitute a complete and accurate description of total reality.

Such a set of sentences would have to be mutually consistent--no one of them could contradict another. Their meanings would have to be clear and precise in order for the correspondence to be clear and free from error due to ambiguity. But most of all, it would have to be the one and only set of mutually consistent, clear statements, among infinitely many other clear, mutually consistent sets, which corresponded with reality. The search for truth may be thought of as the effort to find, one by one, members of this one total set of true statements.

Such a concept of objective reality, and the practice of distinguishing among one's ideas and imaginations without regard to one's hopes or feelings which ideas correspond to this objective reality and which do not, i.e., the activity of deciding which ideas to accept as true and which to accept as false, is absolutely essential, or so we all believe, to preserving one's life at all, not to mention achieving those experiences one wishes to achieve. Common sense conceives of objective reality as contained in a structure of space and time; whatever is real exists in some region of space through some period of time. On the common sense view each individual conceives himself as an object which has a location in space relative to objects outside of himself and as existing in moments of time distinct from moments that are gone and moments yet to come. Primitive tribes and animals may lack the highly calibrated and mathematicized concepts of space and time in western culture; but all individuals must make the distinctions involved on peril of

death. The astonishing technological achievements of western civilization are a testimony to the enormous utility of these mathematicized concepts. My point is that the concept of truth, in the correspondence sense, is a regulative concept, a concept which guides some, but not all, of our thinking; and that it is enormously, basically useful. The young child must learn to get a consistent picture of the arrangement of objects, rooms, houses, streets, in space; he must learn to separate out certain pictures of this sort as the true pictures. His planning to achieve his ends involves increasing use of this picture, as well as of a picture of those changes in reality which take place regularly through time. His successes depend on his implicit use of the regulative concept of truth as correspondence wtih reality. And what is the case for the young child is even more strikingly the case as an individual matures and expands the scope of his activities.

Now let us consider the role which the search for truth plays in the several disciplines of the liberal arts. I said earlier that it is mistaken in fact to suppose that all disciplines have in common the function of seeking truth, and that they differ primarily in the areas or levels of reality that they seek truth about. I do not deny that truth-seeking plays some role in every discipline, or even that it is absolutely central in some. What I am denying is that the search for truth and its subdivisions is a proper philosophical basis for the organization of all intellectual inquiry.

Think first of the variety of activities of an ordinary individual. Some of the time he is searching for truth, reading the newspaper perhaps or asking questions in an effort to add to his stock of beliefs about what is really the case. But much of the time he is doing other things: trying to get from one place to another, trying to acquire or get rid of some object, trying to decide what he ought to do, or simply enjoying some activity, daydreaming or fantasizing for the fun of it, or many other things. None of the latter activities are the same as searching for the truth, even though some, though not all, involve the use of beliefs about what is real. In a sense the liberal arts disciplines reflect a similar variety of activities; they are the intellectual reflection of diverse kinds of interests of man.

Some liberal arts disciplines can be characterized as primarily concerned with truths; their textbooks are composed almost entirely of statements that describe events or facts in space and time and are intended to be taken as descriptions of objective reality. This is perhaps most obviously the case in history, and in traditional geography. Geography gives descriptions of the contents of different regions in space, and history seeks to describe facts and actual events as located in time. But of course the typical history department deals only human history in the last ten thousand years on the surface of this earth. Historical questions are also a part, though hardly the central part, of biology (in the historical account of the development of animals, e.g., by evolution) of astronomy, which may go into

speculations on the origins of the solar system or even the universe, and the course of subsequent historical developments. In every discipline, no doubt, there is some reference to historical events related to the discipline, the historical development of literature, or music, or economic history, or history of philosophy. But in the latter cases it is not the historical sequences which define the basic questions of the discipline. Again, geography, in the traditional sense of descriptions of terrain and maps showing natural features and political boundary lines is a limited discipline restricted pretty much to the surface of the earth in ways that are serviceable to men interested in travel. But in the larger sense, the description of spatial relationships among real objects is also characteristic of astronomy, and scattered references to such relationships are also found in other disciplines in which they are not such central questions.

But while investigators in the disciplines of history and descriptive geography are governed by an imperative that their output be in agreement with objective reality, this is not the only rule which governs. Not all spatial or temporal facts are equally appropriate in these disciplines. Both disciplines are highly selective in <u>which</u> spatial or temporal facts they seek to find. And both disciplines select, in fact, facts which can or will serve interests and purposes of men generally. It is not because truth is an end in itself, so that any truth is as good as any other; it is because spatio-temporal truths of certain

sorts are useful in helping men to plan and understand what to expect in certain of their goal-seeking activities. It is not just truth for its own sake; it is truths which could be instrumental or of interest to an abstract thinking individual. To be sure since we are guided by the concept of a possible abstract individual, truth-seeking disciplines like history and geography are permitted a latitude of research which goes far beyond what is actually useful information at any one time.

Turning to the natural sciences, the classic view is that they are all primarily engaged in a search for truth about objective reality; Physics and Chemistry for truths about non-living things. Biological Sciences for truths about living things. But the truths purportedly sought in the sciences are different than the truths sought in history and geography. It is not particular truths, holding only at particular times and places, but <u>universal</u> truths, truths expressed by statements which assert properties and relationships which always hold between objects of specified kinds. There is a long and growing line of highly respectable scientists and philosophers of science who have taken exception to this view. As generalizations of observable events, the most important laws and formulae of science are all false; there are always observed data which do not fit exactly the generalization. As purported descriptions of ultimate, unobservable realities, they are unverifiable and subject to doubt. Many peoples, scientists and non-scientists alike, prefer to think of physics and chemistry as filling in the

picture of what ultimate reality is really like. But viewed this way we must consider the history of these sciences as a history of failures. For the pictures and models of matter, of light, and of motion used in physics and chemistry change from generation to generation. What persists is the instrumentality of their operations, their formulae, in predicting and controlling the course of experience. The concept of truth is important indeed in science; it is crucially important in statements regarding the observable input and output of experiment, and in determining whether conditions obtain which would make a given scientific principle applicable. Whether the laws or theories themselves give us true pictures of reality is of great speculative interest; but it is not essential that we agree that they do that to be good scientists. What <u>is</u> essential, is that we know how to <u>use</u> the laws, the formulae, the models, the symbolic systems to infer, predict or control future experiences on the basis of past ones. No matter that the laws do not always work. They are instruments and they are the best instruments we have for making predictions and for controlling experiences, in certain sorts of problem situations. One theory, or law, or formula, is replaced or supplemental by another because the latter is more useful, or instrumental in some specified way. No one questions the striking advances in man's capacity to control and predict his experiences credited to the methods, the formulae, the procedures constantly being developed in physics and chemistry; that is, no one questions the instrumentality of these disciplines. But there is

constant puzzlement and question about the nature of objective reality as suggested by the pictures and models its uses often, most markedly among the great scientists themselves. It is not primarily because it gives us a picture of ultimate reality that these sciences are given a large niche in the intellectual economy. It is because they yield such demonstrably useful procedures, formulae and methods for shaping or adjusting experience to desired ends. Crudely speaking, physics gives us a body of intellectual instruments which predict or plan the motions of physical objects, the appearance or elimination of light and heat and sound at various locations in space, the production and control of vast amounts of energy or power; while chemistry provides us with innumerable instrumental methods and procedures relevant to the problem of how to produce material substances of having certain properties out of other material substances. Imperfect as these characterizations are, they suggest, I think, how the essential characteristics of these disciplines might be described in terms of instrumentalities for answering distinguishable broad types of questions of value to an abstract individual, as opposed to the narrower and less accurate characterization of these disciplines as serving only the curiosity about the ultimate nature of reality.

Broadly speaking, biological sciences seem less abstract, and closer to experienced reality in most of its content, than the laws and concepts of basic physics and chemistry. There is much more extensive classification--by genera and species in

botany and zoology for example; and much more description of observable structures and processes. This is true and will remain true despite burgeoning developments in biochemistry and biophysics. But once again, we can distinguish between viewing the products of this discipline as results solely of a search for truth in the realm of living organisms, and viewing the discipline as something more, including such searches no doubt, but doing so only in the broader context of the search for instrumental ideas and methods for dealing with questions of prediction and control of experiences where living organisms are involved.

Mathematics on the view I am proposing is again characterized as a discipline involved in developing methods and procedures useful in the processes of moving from quantitative descriptions of data to other sorts of quantitative descriptions according to certain types of purposes. That there are questions of truth which arise in mathematics need not be doubted. No one doubts that mathematics is useful in an enormous number of ways both in problems of ordinary life and problems of quantitative science. But it can be and has been viewed as a set of rules for manipulating certain sorts of symbols in certain ways. It has also been viewed, quite differently, as conveying absolute and universal truths about a realm of ultimately real objects, called numbers, or sets, which exist or subsist in some eternal realm apart from the world of men and of space and time. Such a view, which Plato seemed to favor, has enthused many mathematicians and not a few philosophers in the course of history. And in my

opinion, it could conceivably be true. But I would maintain that this interpretation and any other interpretation of mathematics as essentially a set of truths about objective reality is in no way essential to the development or exposition of mathematics itself; it is a metaphysical spinoff or byproduct. What is essential in mathematics is certain types of symbolic procedures which can be used by an abstract purposive individual in connection with certain specifiable types of questions and problems.

Skipping the social sciences, for the moment, let us consider the humanities. And within the humanities let us concentrate, for a moment, on language and on literature. There are a variety of different natural languages, English, French, German, Spanish, Latin, Greek, etc., which we customarily included in the liberal arts curriculum in western universities. With each of these languages goes a literature--presumably the best or most significant prose essays, written novels or drama or poetry or mythic material in that language. The study of language per se is the study of vocabulary, syntax and grammar, and of effective composition within that language. There is a sense in which the different languages are rooted in cultural realities; to learn to speak the language properly is to learn to communicate effectively with already existing people in an already existing society. Viewed in this context, important questions of truth can be raised about how words and phrases are used in fact in a given linguistic community, and what the accepted or effective rules of syntax and composition are within that

community. And teachers of languages are expected to preserve this relation to cultural realities in what they teach. But the rules of grammar and word usage are not laws or truths, but useful conventions. And it is not mere verisimilitude which governs. Within any given language, not all dialects are taught--generally one preferred dialect is chosen. And among all languages, not all languages are taught; only languages which are alive and rich and of likely usability, or if dead of value either for the literature developed within it or for historical connections and implications for living languages. Natural languages are essentially parochial; in science where instrumentality for abstract practical ends is the governing criterion, the tendency is towards a universal language independent of any particular culture. Yet thre is, rightly, resistance to the elimination of diversity in natural languages in favor of one single rigorously clear, scientific language. And this is because natural languages, developed in different cultures have been the vehicles for expression of widely different literary and aesthetic values.

Quite apart from the purely utilitarian rasons of learning a language so that one can communicate with the natives, there is the fact that different natural languages have different ways of putting ideas together and these result in qualitatively adn aesthetically different results. In a sense it is aesthetics values, values attributed to things or events in and of themselves, quite apart from any instrumentality of those things or events for something else--which are the most important elements

in life. If there were nothing of value in itself, how could there be something of value because it was a means to something else? How can there be means without any ends? It is because there are intrinsic values to be realized that our stock of beliefs about what is real and our stock of scientific conceptions for controlling and anticipating experienced events have instrumental value and are important to us. In literature and art and music we find the intellectual vehicles for the realization of intrinsic values.

IV

I said before that there is a pernicious effect in the traditional view that all intellectual inquiry is essentially a search for truth about objective reality. Let me spell out some of what I had in mind. Consider first poetry and art and literature. If these are intellectual activities and truth is the objective of all intellectual activity, then we must assume that poetry and art and music convey truths. But clearly they don't, and they are not intended to. They are of value in themselves; they need not correspond to or agree with or describe precisely and exactly anything else. Perhaps they are so constructed as to evoke associations and intimations of other ideas and experiences; if they do, this may or may not accentuate their effect. But regardless of the presence or absence of elements which correspond to what we believe to be real in the objective world, it is not this correspondence which determines their success. It is the intrinsic values they communicate. To speak of <u>truth</u> in

poetry, or truth in art is to both confuse and obfuscate the conception of truth which is of such basic importance to us, and to obscure what is significant and important in poetry and art. Again consider drama and literature. Obviously fiction and drama is not intended to give exact, true and correct descriptions of objective reality. They are and should be the work of creative imaginations, freed from the strictures of honest truth-seeking, but governed by other guidelines of a much more elusive, though demanding, nature. There is a sense, no doubt, in which literature may "ring true", or carry a sense of authenticity by virtue of internal consistency or sensitivity. But it is very difficult to translate this into an aspect of the search for truth in the sense in which we have been considering it. And I think it is, again, both a distortion and corruption of what is important in that concept of a truth, and a distortion and corruption of the essential nature and function of literature and drama to try to do so. The production of great literature and drama has its own discipline, and its own aims. In one sense they are more important than truth, though they may be possible only in societies which also recognize and honor the search for truth as such.

Particularly pernicious, it seems to me, is the result that when all intellectual inquiry is construed as aimed towards truth about reality, the disciplines tend to avoid or try to eliminate considerations of the relationships between their results and value judgements. In the social sciences, for example, the fact

that their findings and theories are going to play important roles as instruments in decisions of what sort of society we ought to have, gets played down on the claim that they are only describing the realities of social life, the alws of how men in fact truly interact. Such a view is a favorite refuge of vested interests in every society. Both the rulers of communist societies and the power structures of capitalist economies are very happy to support the view that their laws of economics are simply descriptions of reality and how it inevitably works. In this way the rationale of their interests is rendered immune to adverse value judgements. In my view such sciences should examine more carefully the way their principles and concepts are, or can be used, in solving problems or making decisions, and define their subjects in terms of the types of questions of possible interest to man in the abstract (as opposed to existing interests) may wish to answer about social organization.

V

Finally, I said that I think the view of all intellectual inquiry as a search for truth is outmoded, and what I meant in this. In the course of the development of human society there has been a long period in which the greatest problems of man were the problems of learning to survive and gain control of nature. Throughout the last two thousand years, and the last five hundred years, or even the last century, particularly, man has made enormous strides in this direction. Such progress has been due in very large part, I believe, to the fact that he has learned to

make sharper and sharper distinctions between what he learns by careful observation--by seeking descriptive truths about what he experiences through the senses and what he imagines, wishes or hopes to be the case, thinks ought to be the case, and so on. In short, the view that intellectual inquiry is essentially the search for truth about objective reality has served an important function in guiding the questions and intellectual inquiries of men. Though there is no doubt more to be learned about the control and prediction of physical and biological events, and these distinctions should never be lost, the problem of over-riding importance today is man's control of himself. In increasing urgent ways--the problem of population control, of environmental pollution, of food production, of energy conservation, and the problem of possible nuclear catastrophe, the central problem is not so much the problem of controlling nature, as the problem of controlling and organizing the activities of man himself so as to avoid the destruction of both man himself and his environment on spaceship Earth. What this requires is an organization of intellectual resources which puts the values of men and the instruments for achieving such values at the center of focus, while putting the concept of truth as agreement with reality in its proper place as one of the most basic and important instruments of man.

VI

I wish to conclude with a few brief remarks on the role and status of philosophy. Questions of metaphysics, that is, of the

nature and structure of reality as a whole surely remain the business of philosophy. But whereas these questions have traditionally been thought to be the central question, since they seem to include the ultimate questions in the search for truth, they have been increasingly viewed as a sub-category of philosophical questions--a sub-category which ministers to the noblest, and deepest curiosity of man--namely, the curiosity about what ultimate, objective reality is really like, how it came to be at all, and what man's place is in it. These are questions which stimulate awe and wonder, and answerable or not, their contemplation has an intrinsic value of the highest order. More instrumental than metaphysics are the questions of methodology, of how best to go about trying to decide on what to accept as true, what to accept as instrumental, how to adjudicate between conflicting values in ethical or moral decision-making. Among these methodological questions, I place questions concerning logic. Logic, like mathematics, has sometimes been construed as yielding a set of universal and undeniable truths; so construed, special realms of real entities have often been posited so as to make sense out of the claim that in some sense the laws of logic agree with facts about ultimate reality. In my view such laws are essentially rules for the conduct of inferences. Such rules are easily translated in any viable language into rules for the transformation of symbols or linguistic expressions in such a way that if the initial expressions happened to be true sentences, then the end results would necessarily be true as well. Present day modern

logic--which is an unbelievably enormous advance over the logic of Aristotle--is standardly construed as a logic of truth-statements. It is justified by a semantical theory which is extremely rigorous, and has been said to show that the sameness of meanings of two statements is equivalent to the sameness of their truth-conditions. It is a theory which is remarkably successful in respect to the proofs of mathematical theorems. Construing both its laws and those theorems as universal truths, it can be used to derive almost all of the theorems of mathematics from a few basic concepts and axioms of logic and set theory. It is so successful that mathematicians tend to treat it as a sub-branch of mathematics, and computer science has been developed upon its foundations.

But I believe that present day mathematical or symbolic logic is still too narrow. An adequate theory of logic would deal more successfully than this can do with inferences in empirical natural sciences, as well as with inferences involving value judgements and questions. Nevertheless, it contains enormous advances. It presupposes a very elementary and economical syntax of language--one quite different and much more precise and powerful than the standard account based on analysis of sentences into subject-predicate form. And in its semantic theory it presents a very rigorous and clear way of dealing with something very close to the meanings of sentences, based upon a method of analyzing compound sentences into sets of necessary or sufficient truth-conditions. Though this theory of semantics is limited to a

method of treating the meanings of statements which claim to be true, it has, I believe, a role to play in the clarification of meanings generally which is little realized outside of the realm of philosophy and perhaps mathematics. I said earlier that we do not wish to forfeit--too quickly at least--the values embedded in the grammar and lexicon and literature of various natural languages. Yet the teachers of natural languages have also the duty, in my opinion, to not only preserve, but to improve the rigor and expressibility of the languages they teach. This is or could be done by reformulations or new views concerning the basic concepts and rules of grammars in natural languages. Even natural languages must change and adopt so that they are able to express and help people understand the new concepts which develop in science and in other disciplines; not only because members of a society require such an understanding in order to respond properly to the new basis upon which technological decisions are made, but also because new concepts and procedures in science are vehicles of new intrinsic values. The treatment of meanings in terms of truth-conditions, while not complete, is very basic. In some sense, it seems to me, this way of handling meanings lies as the base of all other ways.