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## PHILOSOPHY AND SCIENCE

**MORTIMER ADLER**

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This contrast can be made vivid by substituting Plato for Hegel. Suppose Plato had approached the task which Hegel undertook. The supposition does not demand too much, for recent commentary shows that the dialogues deal for the most part with contemporary opinions which Plato is submitting to criticism, opinions which, it hardly need be said, were not his own. The method of criticism, which he himself called dialectic, was one of taking an opinion as a premise and explicating it. Contrary opinions are suggested, and the dialogue proceeds by the alternative examination of the grounds and implications of several hypotheses. In most cases the dialogue ends inconclusively. Plato makes no attempt at synthesizing the errors of his predecessors into any final truth of his own. He allows oppositions to stand unregenerate, and among them are the doctrines which the tradition now calls Plato's own.

The conversation is left, as it is begun, without anything more being known or believed in, but with the possible meanings of many things made clearer. The talkers meet by accident, find their themes in the statements of each other, and leave to keep appointment or to return to bath or dinner. They are enriched philosophically by what they experience; but they are not in possession of greater knowledge or more truth, nor is it likely that they ever believe the last remarks which Socrates has made. They have been enriched by the philosophical exercise of their own minds. They have been philosophers in that they argued, not in order to believe one thing rather than another, but merely for the experience of dialectic itself.

In the light of the dialogues, therefore, it is not difficult to imagine how Plato would write the history of philosophy were he to attempt it today. It would be a dialectical account without the Hegelian superstructure; in a sense, it would not be history at all, for Plato would have exhibited the dialectic of historically recorded opinion without the irrelevant apparatus of a logical career in time. Such a book might be called a *Summa Dialectica*.

The present volume serves its purpose if it is the prolegomenon to the *Summa Dialectica* that should be written. In that future work what is here but the barest suggestion of the interpretation of historical philosophy in terms of dialectic would be fulfilled in detail. Though historical philosophies might comprise its subject-matter, the treatment would not be historical. It would be concerned with theories rather than thinkers. It would be strictly dialectical in form, probably availing itself of the literary advantages of the dialogue rather than the usual devices of the treatise or of geometrical procedure. The *Summa Dialectica* would be in part the exhibition of the arguments that are involved in the theories, systems, and philosophies that have been reported or recorded. More than that it would necessarily endeavor to carry the dialectical process beyond the point at which one dogmatic attitude or another had limited it historically. In this sense it would be a genuinely creative work, as well as being the critical application of dialectic to a certain field of subject-matter. But it would be a summation only by exemplification; it could not, if it were thoroughly dialectical, pretend to summarize all the polemic that has been, or all the controversy that might be. The method of exemplification to be employed in such an undertaking would consist in drawing the line of any argument as the serial development of oppositions between partial doctrines, and of the partial resolutions of these oppositions. The line, of course, being endlessly composed in the same way, could not be exhaustively revealed in the exposition of the controversy. But two

things would have been accomplished. In the first place, all of the lines of argument tangent to or intersecting” with the given line would have been indicated; and in the second place, the given line would have been sufficiently defined, in the same way in which an infinite series is defined by the description of a proper part, and by the method of exhaustion toward a limit. The same definitive treatment could then be given all of the other lines of dialectic that were generated in the first instance; and they in turn would be productive of other loci of argument, tangential or intersecting. What ultimate geometrical figure the *Summa Dialectica* would conform to is difficult to determine prior to the undertaking; perhaps it would be an infinite sphere whose area was a plenum of limitless lines each of which was tangential to or intersecting with every other line at some point in its extent. It might be imagined as a boundless light sphere each point of which was a centre generating radii of light, each ray a focus for all the others. If such it were, then the *Summa Dialectica* as a whole could be nothing more than the partial and incomplete exposition of the field of dialectic by the method of exhibiting a proper part and approaching the limit of its hierarchical development.

The values of the volume here proposed certainly cannot be either stated or judged in advance of the attempt; its execution may or may not be possible in terms of the preliminary plan. But whatever other hopes the achievement of a *Summa Dialectica* might fulfill, it has this double promise: First, that of stating some of the fundamental intellectual concerns that the history of philosophy comprises, clarifying the oppositions, indicating some of their possible resolutions, and, perhaps most important of all, effecting a greater or less degree of translation between one system or theory and another. This would enhance the intelligibility of philosophical controversy, probably reduce what seems to be a multiplicity of theoretical differences and disagreements to the simplest terms in which the dialectic might be reconstructed; and in this way historical philosophy may be made to contribute to the enlightenment of the philosophical processes of the present and the future, the continued carrying on of philosophy in controversial discussion, whether by professional philosophers or not.

Secondly, the subject-matter of a *Summa Dialectica* would include not only the theoretical and systematic writings that have been traditionally classified as philosophy; but the scientific universe of discourse as well: i.e. the body of scientific propositions, organized as theoretical systems. Science, in other words, would be submitted to dialectic, and in such a treatment, scientific discourse would have the status of merely possible and necessarily partial theoriz-

ing. To understand what is implied in this philosophic programme will require a brief analysis of the subject-matter of the projected *Summa*.

## THE SUBJECT-MATTER OF A *SUMMA DIALECTICA*

The universe of scientific discourse may be described as the body of propositions that purport to be statements of fact, or propositions about actuality. Scientific discourse is part of a more comprehensive universe of discourse which constitutes the subject-matter of dialectic since it is considerate of any possible proposition. But the differentiating trait of a scientific proposition among all other possible items in discourse is its assertion of fact, and its claim to more than possible truth through being related extrinsically to things not in discourse, to reality or actuality, substance or existence. This assertiveness and this claim are clearly incompatible with dialectic procedure. Therefore, it becomes necessary to explain in what manner scientific discourse can be regarded as subject-matter for dialectic; and it is only scientific discourse which requires this explanation. whatever other partial fields of subject-matter are embraced by a *Summa Dialectica* are naturally congenial to such inclusion and treatment, by reason of their being entirely systems of discourse, merely theoretical, merely possible.

The universe of scientific discourse is itself subdivided into many partial fields. There are theoretical sciences, on the one hand, such as theology, ontology, cosmology, epistemology, metaphysics, mathematics, logic, ethics, esthetics. These technical terms designate what have been traditionally considered as branches of philosophy, but if philosophy is dialectic, these branches are more properly classified as theoretical sciences, since in every instance they have the two dogmatic qualities of science, the assertion of truth, and relation to actuality. They are different sciences in so far as they have different fields of subject-matter; they are theoretical in so far as their method is entirely a process in discourse. Their anomalous character would be revealed by calling them dialectical sciences. Mathematics and logic may be thoroughly dialectical if no ontological assertion is attached to their respective doctrines. They would then be merely possible systems, instead of sciences.

On the other hand, there are the empirical sciences, such as the physical, the biological, and the social sciences, different because of the distinction in their subject-matters and their methods, but alike in being sciences because of their dogmatic claims, and alike

in being empirical because of the common trait in their diverse methods of manipulating or dealing with actual events or existent objects. It is this trait which distinguishes them from the group of theoretical sciences. But the empirical sciences are not entirely inductive, whether in the experimental, or the statistical, or the heuristic fashion. The physical sciences, for example, to the extent to which they achieve mathematical formulation, are deductive in method and highly theoretical, and all of the other empirical sciences attempt to approach as an ideal the theoretical structure of mechanics, terrestrial and celestial. To the degree that they are deductive and become theoretical, the empirical sciences are dialectically articulate. The social sciences are still in the stage of baby-talk, but even they have made some attempt at theoretical clarity.

This analysis might be generalized in the statement that in so far as any science achieves theoretical form, its universe of discourse has dialectical structure. In the case of the empirical sciences, their theoretical or dialectical properties are not incompatible with their experimental or otherwise empirical methods. The business of prediction and verification, and the method of multiple working hypotheses, are in part instances of dialectical procedure.

In other words, any science considered merely as a theory, as a system in discourse, is an instance of dialectical elaboration. But the dialectic is incomplete if the system is not submitted to the oppositions which it inevitably provokes. However, in the light of such opposition, any system becomes merely partial. Its status is that of possibility, and any further dialectical consideration of it must disregard whatever claims the system has to be related to actuality, to be extrinsically true. But it is precisely this claim which distinguishes any partial universe of discourse as scientific. This holds equally for the theoretical and the empirical sciences.

In order, then, for the sciences to become in part subject-matter for the proposed *Summa Dialectica*, they may be regarded in one of two ways. The first has been suggested by Mr. Scott Buchanan in his treatise on *Possibility*. Briefly stated, a science may be regarded as an order of parameters. Its structure is systematic, and its function analytic; as a system it is analytic, and that analysis is relevant to some actual whole. A science is the analytic equivalent of some actual whole. But analysis is always an intellectual affair; its status is that of a possibility. Any science is merely one of many possible analyses of a given actual whole. This treatment does not abrogate the truth-claim of a science, but it reinterprets the import of that truth-claim, and renders empirical science comparable to myths and to any purely theoretical system. In their intellectual

forms, they are all equally possible systems, analytic of some actual whole, and equivalent to one another in proportion as they are true; that is, equivalent to the actual whole they analyze. The fuller statement of this interpretation of science will be found in Mr. Buchanan's book.

The second way of regarding the sciences is in accordance with the theory of dialectic herein developed. Any science may be taken in its theoretical aspect entirely, and in this aspect it is merely a discursive system, and can be treated entirely as an affair in the universe of discourse. Its truth is determined intrinsically as in the case of any other system or theory. Its significance is determined, not in relation to reality or actuality, but in relation to the systematic oppositions which the definition of its doctrine generates. Regarded in this way, any partial universe of scientific discourse is thoroughly susceptible to dialectic; but it must be admitted that the partial universe of discourse so treated no longer possesses any of the distinctive traits of a science. It is pure theory; it is an intellectual possibility.

There is agreement between Mr. Buchanan's parametric formulation and the theory of dialectic in their major clauses, but not with respect to the relation of the analytic to the actual whole which the former interpretation postulates. This point of disagreement suggests a dialectical issue between the two theories that cannot adequately be undertaken here; in part it has been touched upon in the earlier discussion of the relation between discourse and actuality. The further elaboration of this opposition is a theme for the *Summa Dialectica* itself.

It should now be clear in what manner the history of philosophy becomes subject-matter for dialectic. The history of philosophy is the documentary record of the development of the theoretical sciences. By depriving them of any dogmatic property they may possess, philosophy in its role of dialectic can incorporate them into the matrix of a *Summa Dialectica*. Philosophy can deal similarly with the empirical sciences. The implication is that philosophy is a method for dealing with any partial universe of discourse; it is a method determined by the nature of discourse in general. And that method is dialectic.

The relation between philosophy as a method and scientific discourse as a fragment of its subject-matter may be determined by the foregoing analysis. But there is still a conflict between philosophy as a method and science as a method, a conflict between dialectic and empiricism. This opposition may be stated as an

opposition of intellectual values, and in the clarification of this opposition, the last step will be taken in explaining the significance of dialectic by defining the specific intellectual values it is capable of satisfying.

## THE DIALECTICAL ATTITUDE

**D**ialectic is confined entirely to the universe of discourse: its subject-matter is discourse and its own movement is expressed in propositions. It is a method of understanding and of criticism.

The method of empirical science can be generally described as a method of inquiry and investigation. It is concerned with the discovery and the determination of facts of the first order, events and existences, and their actual relationships. Scientific theory may be resident in discourse, but its method, in so far as it is empirical and inductive, is a movement among things; and it is through the exercise of its method that scientific theory claims truth and relevance to actuality.

In terms of its method and its claim, science represents an intellectual attitude profoundly in contrast with the attitude of dialectic. The empirical attitude is an emphasis upon two values, the dogmatic value of belief and the pragmatic value of action. Scientific thinking satisfies these two values: in its claim to extrinsic and determinate truth, it may result in belief; through its dealing with entities in the realm of action, it may eventuate in conduct. In other words, science is capable of application.

On the other hand, the dialectic attitude is an emphasis upon the values of impartiality and impracticality, of unbelief and inaction. It is a kind of thinking which satisfies these two values: in the essential inconclusiveness of its process, it avoids ever resting in belief, or in the assertion of truth; through its utter restriction to the universe of discourse, and its disregard for whatever reference discourse may have toward actuality, it is barren of any practical issue. It can make no difference in the way of conduct.\*

\* The consideration of casuistry in general or sophistry, suggests a comment upon the tendency of empiricism to place high value on the mere accumulation of facts. Were all the facts collected, assorted, and submitted to an omniscient intelligence, there would still be the task of understanding them; the possibility of multiple interpretation would still remain.

The values of empiricism are not confined to the practical life. They are genuinely intellectual values, in that they are determina-

tive of a certain kind of thinking. According to empiricism the ascertainment of truths, the establishment of beliefs and the regulation of human behavior in accordance therewith, are the important aims of thinking. Dialectic does not deny these values, it simply proposes that there are other intellectual values than these and that there is a kind of thinking other than empirical or scientific thinking which is able to satisfy such values. The values of dialectic, furthermore, are not confined to the theoretical life. They have a certain practical import in so far as they impose upon thinking the awareness of its irrelevance to practical affairs, to life and conduct. Action is utterly, brutally pragmatic; it is never an affair for dialectic except in retrospect, and then in reflection it becomes merely ethical theory. Dialectical thinking may be somewhat related to empirical procedure in the sense that deductive and analytic processes are involved in any instance of complicated empirical discovery or research. But dialectical and empirical thinking are clearly poles apart in the values which they pretend to satisfy. It is the fundamental polarity of intellectual activity in general: justice to the fullness of the concrete, on the one hand, and to abstract, universal considerations on the other. Scientific thinking attempts to fulfill both of these alternative aims, and is thereby in the difficulty of facing an ultimate opposition; Whereas dialectical thinking abolishes the opposition as one which is irrelevant to its nature. Dialectic admits that it is unable to deal with the fullness of the concrete; it might even go further, and assert that no thinking is capable of dealing with the fullness of the concrete. That, in a sense, is the first step in the criticism of science.

Human conversation, it was seen, if it is controversial or argumentative tends either toward dialectic or toward investigation. The intellectual values of both empiricism and dialectic are therefore relevant to the situation in which conversation occurs over a disputed theme or a point of contention. It may be possible to settle the issue by reference to the facts, and this will involve recourse to the processes of empirical thought, experiment, investigation, actual inquiry of one sort or another. But recourse to empiricism is equivalent to the surrender of conversation. Argument is forsaken for investigation. Scientific thinking is not conversational even though it have crucial bearings on issues so developed. The other alternative is recourse to a kind of thinking which is intrinsically conversational, a kind of thinking which deals with the disagreements that arise in human discourse by treating them as intellectual oppositions, capable of some clarification and some resolution in further discourse.




It is not important to decide between these two alternatives in general; that depends upon the temperaments of the individuals engaging in controversy, and upon the character of the particular theme in any occasion of dispute. Some minds are incapable of assuming the intellectual attitudes of impracticality and impartiality required for the dialectical pursuit; and to some the ends of such procedure are valueless. Controversy very often turns out to be argument about the facts, and when that is discovered, argument should be postponed for the sake of inquiry. The meanings of the facts, whatever they are, may be determined by conversation, but conversation can never determine what is a fact and what is not. Only such issues as can be interpreted as oppositions in discourse, rather than as dispute about the facts, are the proper themes of intellectual conversation.

It is important, therefore, to distinguish between these alternatives in conversation. Conversation should either be given up when it becomes inefficacious in any particular instance, or if it turns to dialectic as the method for dealing with its difficulties, then it must observe the conditions which are thereby imposed upon it. It has been the purpose of this book to define those conditions in the description of dialectic as a method. Conversation, furthermore, if it choose the dialectical way of dealing with its controversial issues, must submit itself to the intellectual values which that way of thinking is able to satisfy. These are fundamentally different from the values immanent in scientific or empirical thinking. The implications of that difference have now been summarized. It remains only to state very generally the human value and significance of philosophy if its locus be in conversation, and if its method and attitudes be those of dialectic.

If truth and practical consequences be the ends of scientific thinking, philosophy may be regarded in contrast as the source of intellectual freedom. It may be offered that there are three stages in the liberation of human thought, first the stage of universal belief, secondly, the introduction of rational criteria for the determination of the validity of belief, and, thirdly, the independence of thinking from any belief whatsoever. The second is the stage of scientific and dogmatic criticism; the third is the achievement of the philosophic attitude. The aim of philosophy might almost be described as the attempt to achieve an empty mind, a mind free from any intellectual prepossessions, and unhampered by one belief or another. So conceived, philosophy is the process of entertaining any idea as merely possible, and of examining its significance impartially. It has been said that bad poetry is usually the product of sincere feel-

ings. It might be similarly said of conversation that it is bad philosophically when it is motivated by sincere convictions.

Philosophy, however, is not only the instrument of intellectual freedom. It is an experience of the comic spirit, for those who enjoy it in the dialectical pursuit of conversation. “The essential tragedy of human thought,” it has been written, is “its unavoidable task and its inescapable frustration”. But to the philosopher the inevitable frustration of dialectic is not a tragedy; its inconclusiveness is the symbol of infinite possibility. The limitation which actuality imposes upon thought is tragic; but the undertaking of thought as an adventure in the realm of possibility is the essence of the comic spirit in the intellectual life. To be thoroughly a dialectician in conversation or reflection is to be a philosopher engaging in the partisanships of controversy, but never losing impartiality toward all relevant theoretical considerations.

Philosophy is the emancipation of the intellect and the cultivation of the comic spirit. It may also be a way of becoming sensitive to life, a way of becoming sensitive to the differences and oppositions which pervade the human world because it is wrought not only of brute things but with meanings in discourse. 

*From Dr. Adler's first book, *Dialectic* (1927)*

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