Philosophy of Science and Science of Philosophy

BY

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It is proposed to examine the consequences which ensue if philosophy is deliberately oriented around the methods and results of science. That such reorientation has been more or less unconsciously taking place for centuries is evident; the problem demands particular discussion at this time only because the reorientation has gone so far and with such success as to challenge seriously certain past conceptions of philosophy and to demand of philosophers what, if anything, is left for them to do. For present purposes the revolution indicated will be regarded as a fait accompli, and the sole concern will be with what alternatives remain open. The conclusions differ from those of certain others who accept the same fait accompli only in believing that more alternatives do in fact remain open than they envisage.

We begin then by rejecting any conception of philosophy which regards philosophy as proceeding by methods other than those of science or as obtaining an order of certainty different from that obtained by science. This is essentially the same thing as to
deny the existence of a priori synthetic judgments and any philosophy which rests upon the affirmation of such judgments. If the thesis of physicalism be sound (the thesis that all propositions are intersubjectively verifiable, and translatable into the language of physics) then the accepted standpoint could be simply and literally characterized as the denial of metaphysics, i.e., of any science other than physics. Or putting the case positively, we might say that propositions in philosophy as in science are to be accepted to the degree that they are supported by existing evidence and controllable in terms of further evidence.1

It might seem with the acceptance of such a position that philosophers are left without employment, for each of the three dimensions of meaning already appear to be in other hands: the mathematician and symbolic logician have taken the domain of formal or syntactical meaning for their own; the artist and men of affairs seem to be charged with the value and directive aspect of symbols (pragmatic meaning); the scientist has made himself responsible for stating what meanings do in fact hold of things (the empirical dimension of meaning). The philosopher who does not wish to lapse into silence or to turn historian must either justify his entrance into one of the three dimensions of meaning (formal, pragmatic, empirical), or must function in some integration of these dimensions. Let us examine these possibilities in turn.

I. Philosophy as Logic of Science. The narrowest of the open possibilities would be to identify philosophy with formal logic, so conceived however that this in turn becomes identical with the logic of science. It is this step which Carnap has in essentials taken. For him logic is "the last scientific ingredient of Philosophy; the extraction leaves behind only a confusion of non-scientific, pseudo-problems."2 Logic is in turn conceived formally, that is, as dealing with the syntactical structure of actual

1 The present paper is the third of a series dealing with logical positivism, pragmatism, and scientific empiricism. The two preceding papers appear in the Proceedings of the VIIIth International Congress, and in Erkenntnis, vol. 5, 1935.
2 Unity of Science, 22. A useful survey in English is found in Philosophy and Logical Syntax. In German a survey is given in Wissenschaftslogik, and a detailed presentation in Logische Syntax der Sprache.
or possible languages (designated as descriptive or pure syntax respectively) in abstraction from both the empirical and pragmatic aspects of meaning. The results of logical analysis will themselves be expressed in terms of the two kinds of propositions found in science: thus they will either be analytical propositions and so fall within the formal sciences, or they will be synthetic propositions and so fall within the empirical sciences. Thus philosophy as "the syntactical analysis of scientific language" eventuates to be sure in propositions, but these propositions are themselves scientific propositions, so that there are no propositions over and above the propositions of science. Philosophy is formal logic, which in turn is the pure or descriptive syntax of the language of science; philosophical analysis is logical analysis. The result is that "the method of logical syntax, that is, the analysis of the formal structure of language as a system of rules, is the only method of philosophy."

One aspect of this view deserves to be stressed, namely, the identification of logical analysis with the analysis of "the formal structure of language as a system of rules." This means that abstraction is made from the relation of symbols in a language to empirical objects and from all psychological and social effects of the symbols. This exclusive attention to the formal dimension of meaning is connected with a conviction that the two neglected dimensions of meaning fall within the province of the empirical sciences. The consequence of the abstraction is that philosophical analysis makes no empirical assertions about non-linguistic objects, and indeed makes no assertions about language other than those about the syntactical structure of actual and possible languages. Thus the tendency has been to replace more and more the earlier tests for meaningfulness by purely formal requirements. The meaning of a proposition is regarded as all the propositions which can be derived from the proposition in ques-

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4 Philosophy and Logical Syntax, 99.

5 Philosophy and Logical Syntax, 72.

6 Thus, Erkenntnis, vol. 2, 1932, 236: "Ein Satz besagt nur das, was an ihm verifizierbar ist."
tion by the transformation rules permitted in the language under consideration. In general, philosophical activity is concerned with the formal consideration of concepts and propositions. In the case of verification, "the logical analysis of verification is the syntactical analysis of those transformation rules which determine the deduction of observation sentences." Similarly, the philosopher-logician says nothing about nature, since that is the province of the scientist, but is concerned only with the language which the scientist uses about nature.

A natural first reaction to such an attempt to find "an exact method of philosophy" is the feeling that the price paid for exactness is too high. It turns out, however, that the field is much more extensive than would at first be suspected, and I do not see how anyone can follow the discussions of formal meaning, of the place of rules in determining formal necessity, of the multi-valued logics, of the foundations of mathematics, of physicalism and the unity of science, without being both impressed and thankful. Nor can it be doubted that the identification of philosophy with the logic of science would give to philosophy a place of significance which would keep it in the closest relation to science and yet not obscure its own function. As a minimal definition of philosophy it is ingenious, excellent, and praiseworthy. The important question is not whether philosophy can do less than fulfil this rôle, but whether it can also do more. To make this "more" initially plausible, one comment may be added. If the syntax of a given language is studied, the resulting statements are empirical and in the last analysis fall within the science of linguistics, while if the syntax of a proposed language is studied

7 See especially the statement on pages 56–57 of Philosophy and Logical Syntax. Cf. Philosophy of Science, vol. 1, 1934, 12. The implication of this shift for the problem of truth is obvious: it involves passing from a correspondence view to a form of coherence view, i.e., a true proposition is simply one compatible with or unifiable with the accepted propositions of a science. The evolution in the views of truth is discussed in an article by C. G. Hempel, "On the Logical Positivists' Theory of Truth", in Analysis, vol. 2, 1935. This shift is the price paid for neglecting other aspects of meaning than the formal when certain difficulties in the earlier empirical formulations of meaning were encountered.


9 Philosophy and Logical Syntax, 84.
in a form such that the resulting statements are analytical, the work of the philosopher is hard to distinguish from the mathematician, and in any case does not result in really saying anything about anything. If the philosopher is thus bound to trespass upon either the domain of the natural scientist or mathematician, why be too squeamish at the start in trying to define the function of the philosopher over against the scientist, since in the end philosophy and science will be found to overlap.  

II. Philosophy as Clarification of Meaning. The most natural extension of this minimal definition of philosophy would be to apply the method of logical analysis to all concepts and to all dimensions of meaning. As to the first point (the extension to all concepts), Carnap at times suggests that his conception of logical analysis covers “all assertions of science and of everyday life.” But actually he does very little with the latter assertions and can do very little because the assertions of daily life are shot through and through with judgments of value, and these are for Carnap technically without meaning. The instance is given that the statement “Killing is evil” is a command in misleading form, and that no deductions about future experience are possible from it. Now this is obviously a cavalier handling of complicated questions, because it is not impossible that judgments of value are, as Hume suggested, a species of judgments of fact,—indeed it is precisely such questions that logical analysis should be able to determine. It is not surprising that other persons, such as Lewis, have been able to write that “philosophy has for its task such analytic depiction of the a priori—to define the good, the right, the true, the valid, and the real.” On such a

10 This is particularly true if it be recognized that the formal sciences are merely a part of empirical science. Although analytic and synthetic propositions may be distinguished, the determination of the status of a given proposition or the determination of what propositions really do follow from others according to specified transformation rules are of course empirical in that observation upon symbols is involved. See my article, “The Relation of the Formal and Empirical Sciences within Scientific Empiricism,” Erkenntnis, vol. 5, 1935.

11 Philosophy and Logical Syntax, 9.

12 Ibid., 24–25.

view philosophy is still logical analysis, but the tone is not so formalistic, the range of concepts and propositions considered is wider, and the interest in meaning is wider than the interest in formal meaning. This conception of philosophy as furnishing and applying a method for the clarification of ideas has been of course continuously represented in American pragmatism from its origin to the present. It is also championed vigorously at the present by one wing of the *Wiener Kreis*, especially by Wittgenstein, Schlick, and Waismann. Wittgenstein, in a passage in the *Tractatus* quoted too often to need repeating, has spoken of philosophy as an activity. Those influenced by Wittgenstein stress the view that this philosophical activity does not issue in propositions: philosophy is not a science nor an attempt at the synthesis of the sciences, but is simply a process of conceptual and propositional clarification. Thus in theory the interest in this group is not so strongly centered around science or around formal logic, though of course the actual relation of the members to these fields is very close. The interest is rather in taking an unclear concept or proposition, considering it in relation to various usages and situations, making the necessary distinctions which are called for,—until finally the unclarity is resolved. The result is neither a proposition which claims truth nor a proposal as to how words are to be used in the future, but simply the clarification of a difficulty and the return to the unproblematic (a phrase reminiscent of Avenarius, Peirce, and James). Each clarification is a job done, and philosophy will have work to do as long as such clarifications are needed. Philosophy has then no special subject matter about which it aims to communicate truth; it is rather the dimension of ideational clarification present in all reflection. Einstein, for example, was philosophical while he was attempting to clarify the concepts of space, time, and simultaneity. The general result, as Schlick says, will be that in time "no more books will be written about philosophy, but *all* books will be written in a philosophical manner."¹⁴

Because of the refusal of members of this group to state proposit-

tions which might be construed as the holding of theses, it is
difficult to be clear as to what it means to clarify a meaning,—
for no general theory of meaning is given. It is perhaps fair to
say that as in Carnap's case there has been a shift in emphasis
from the empirical aspect of meaning to the formal dimension,
but the shift has not been so extreme. Wittgenstein and
Waismann no longer stress language as a reflection of the structure
of the world of existence but stress rather the central importance
of certain relatively arbitrary rules of usage as determinative of
the meaning of the term or proposition in question. Hence one
hears much of the importance of a "general grammar" and at
times a preference for such phrases as "the method of gram-
matical analysis" instead of the label of "logical positivism." The
consequent shift in the center of logic from tautology to rule
(as Waismann phrases it) recalls the central place in logic which
Peirce had given to "leading principles."

Peirce, however, took a step which I believe it is necessary to
take if the alternative now being considered is not to collapse
into the first conception of philosophy: he saw that the corollary
of an interest in the clarification of meaning was the development
of a general theory of meaning, and the conception of logic itself
as general semiotic. To take this step does of course mean to
state theses, and it does mean that philosophy is brought within
the field of the existential sciences, using, like all sciences, logical
analysis in its activity. The reluctance to take this step is
understandable, for it seems to lose the neatness of the demarca-
tion of science as statement of fact from philosophy as analysis of
meaning. One can perhaps admit that a functional division of
labor along these lines is possible, and indeed that it is approached
in such distinctions as those between pure and applied math-
ematics, experimental and theoretical physics (similar distinctions

15 This is especially true of Schlick. See Les énoncés scientifiques et la réalité du monde
extérieur, 24 ("Bref, l'indication des conditions dans lesquelles une proposition est vraie
se confond avec l'indication de son sens. Il est tout à fait inutile de chercher plus loin").
His article "Facts and Propositions" (Analysis, vol. 2, 1935) is an explicit defense of em-
piricism against the newer formalistic extremes. In my opinion this resurgence of
formalism—empiricism controversies is an evidence that the Wiener Kreis has no suffi-
ciently general theory of meaning.
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seem to be advisable in all of the sciences). But in general it is
difficult to see why a component of all reflection should be singled
out as the philosophical component, and certain it is that scientists
are not going to turn over the task of determining the meaning
of the terms they use to any other group of persons. Too much
mystery is thrown around the analysis or clarification of meaning:
the meaning of a term is completely specified when it is known
what objects the term designates, what expectations it produces
in the persons for whom it has meaning, and what its connections
are with other terms in the language of which it is a part. The
determination of the first gives the empirical dimension of mean-
ing, the determination of the second gives the pragmatic dimen-
sion of meaning, and the determination of the third gives the
formal dimension of meaning. The point not to be overlooked
is that the determination of all these dimensions is an empirical
process: the fact that the formal dimension of meaning is not the
empirical dimension does not contradict the fact that the deter-
mination of the formal meaning is itself an empirical process.
Logical analysis is itself one kind of empirical analysis, namely,
the determination of what we are committed to within the domain
of symbols if we allow a certain habit in the use of symbols to
proceed, i.e., if we follow a certain syntactical rule. Since this
is so, there seems to be little reason for not expanding philosophy
into a general theory of symbolism. Unless this is done, and the
pragmatic and empirical dimensions of meaning considered on
a par with the formal dimension, no significant alternative is
presented to the conception of philosophy as formal logic. Other-
wise—silence and the unproblematic!

III. Philosophy as Empirical Axiology. Professor Schlick has
said that his conception of philosophy is nearest to the old con-
ception of philosophy as “wisdom of life,”—for the sage is the
person who sees most clearly the wider meaning of his words
and activities. Professor Schlick himself always kept this

16 If indeed the meaning of a proposition is all that can be deduced from it by both
logical principles and scientific laws the fitness of the philosopher to determine meanings is
by no means clear.
17 Les énoncés scientifiques, etc., 13-14; Proceedings of the VIIth International Congress
of Philosophy, 113-114.
implication of his conception of philosophy in mind, but by and large his group has looked at science from the point of view of the scientist, and not with the vision of one intent upon the bearing of the scientific attitude and results upon human culture. And here arises a possible conception of the philosopher's task. The resulting conception of philosophy is one which Dewey has made peculiarly his own. It is clear that it would require two kinds of development: on the one hand it would be necessary to formulate a general theory of science as an institution and science as a habit of mind, and not to be content solely with a formal analysis of the language of science; and secondly, it would be necessary to elaborate the implications for all the domains of value of the acceptance and extension of the methods and results of science to the widest spheres of human life.

Dewey has been peculiarly sensitive to the instrumental relation of symbols to the life of the individual and the community. He has envisaged intelligence as a tool in the service of some value, and science as coördinated and institutionalized intelligence. To him science is rich in potentialities for the control of human life, and for the enrichment and emancipation of the individual mind. He is impressed by the gap between the possibilities of this "most potent social factor in the modern world" and the slowness of its extension into the fields where value judgments hold sway. It is in these terms that he can write that "the great scientific revolution is yet to come," and can conceive the task of philosophy today as the extension of the method of freed intelligence into ethical and social domains. And this extension is of course something advocated, and as advocate the philosopher has himself turned moralist. Yet it is important to emphasize the difference between this conception of philosophy and the ordinary systems of admonitions which pass as philosophies of life. In this positivistically toned equivalent of the older conceptions of philosophy as vision, vision has lost both its dogmatism and its fugitive emotionalism and has been tempered by the attitudes and results of science. But in being

18 Philosophy and Civilization, 329.
tempered it has not lost its imaginative character. Here is science crowned by and ministering to social vision. Dewey has written: "One of the few experiments in the attachment of emotion to ends that mankind has not tried is that of devotion, so intense as to be religious, to intelligence as a force in social action." Dewey's own life has been the devotion to that experiment.

Dewey feels that such a conception of the rôle of philosophy is supported by an examination of the rôle it has always performed. To him philosophy has always mediated between fact and value, between "a stubborn past and an insistent future": "The work of philosophizing," he writes, "is the old and ever new undertaking of adjusting that body of traditions which constitute the actual mind of man to scientific tendencies and political aspirations which are novel and incompatible with received authorities."

To give content to the general doctrine it was required to turn to detailed analyses in various fields of value and contemporary social problems, and to delineate and generalize the essential features of the scientific habit of mind. The latter task constituted Dewey's contribution to logical theory, while his results in the former fields are spread out in numerous books and papers on ethics, esthetics, law, education, religion, and social philosophy. It is clear that the method includes the use of logical analysis of the preceding conception of philosophy, but applies it especially to the analysis of value concepts. And here the pragmatic dimension of meaning is brought to the forefront. The third conception of philosophy thus turns out to be an empirically oriented axiology culminating in a deep concern for the ethical and social potentialities of that type of intellectual procedure which we have come to call scientific.

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19 Dewey often states this in extreme form: "Meaning is wider in scope as well as more precious in value than is truth, and philosophy is concerned with meaning rather than with truth" (ibid., 4); "the scientific factor, the element of correctness, of verifiable applicability, has a place, but it is a negative one" (ibid., 10).

20 A Common Faith, 79.

21 Philosophy and Civilization, 3-4.

22 It is not uncommon to find "scientific" philosophers looking down upon Dewey's work. For the most part they fail to see that they are merely dealing with different
IV. Philosophy as Empirical Cosmology. The three views of philosophy we have now discussed (philosophy as ancilla scientiae, as scientia sermocinalis, and as ancilla hominis) present between them non-metaphysical equivalents for the traditional domains of logic and axiology. The question now arises as to whether there is any non-metaphysical (or positively put, any empirical) equivalent to what has usually been called metaphysics (now often spoken of as speculative philosophy). The first three alternatives present what in a wide sense of the term could be called a philosophy of science, but nothing that could be called a science of philosophy; and they stress the formal and pragmatic dimensions of meaning rather than the empirical dimension.

The ideal of introducing greater exactness into philosophy is an ideal to which lip-service is widely paid. But there are some who feel that serving this ideal does not mean the denial to philosophy of any synthetic or systematic character. Husserl, for instance, does not think the logical positivists deal with genuinely philosophical questions, but that his own phenomenological method supplies for the first time the basis for a scientific philosophy. Peirce, James, Dewey, and Mead have all defended in one way or another an empirical equivalent to metaphysics in the form of a search for the generic features of all experience. This conception is formulated explicitly in Whitehead’s Process and Reality: “Speculative philosophy is the endeavor to frame a coherent, logical, necessary system of general ideas in terms of which every element of our experience can be interpreted.” He calls this method the “method of descriptive generalization,” and delineates it as “the utilization of specific notions, applying to a restricted group of facts, for the divination of the generic notions which apply to all facts.” The test is empirical: “the test of aspects of science and with different dimensions of meaning. Scientists should not misunderstand those who have accepted science to the hilt, who see its cultural implications, and who are concerned with the existence of a society in which science and scientists may continue to live!

23 The epistemological aspects of the problem are considered in an article, “Pragmatism and Metaphysics,” Philosophical Review, vol. 43, 1934.
24 Process and Reality, 4. The term “necessary” is for our purposes unnecessary.
25 Ibid., 15-16.
26 Ibid., 8.
some success is application beyond the immediate origin.” So seen, “metaphysical categories are not dogmatic statements of the obvious, they are tentative formulations of the ultimate generalities.”

It is the fashion of some positivists today to look askance at Whitehead’s later work, and I must admit that Whitehead, as Peirce, seems often to desert his method and to talk metaphysics in the sense here rejected. But it must also be admitted that the method proposed for philosophy is simply the hypothetical-deductive-observational method of science, generalized in the attempt to get a system applicable to all experienced reality whatsoever.

The literal acceptance of this method would mean an acceptance for philosophy of the criteria proposed by Newton for science. It would mean that after a merciless process of logical analysis in which pseudo-questions were eliminated, proposed answers to the remaining questions would be evaluated in terms of the evidence at hand, and answers not supported by evidence would be rejected as vain imaginings.

If we accept this conception of philosophy as a legitimate alternative, we come in an unsuspected manner to the kernel of truth in the ancient conception of philosophy as the queen of the sciences (regina scientiarum). So conceived, the task of philosophy is to erect a conceptual scheme of such generality that it is confirmed by all data. It differs from science in the narrower sense only in generality, and not in method nor in the security of the results. Its data is all data, whether found in the special sciences or in the ordinary world of perception and action. Its problems are all problems relevant to the completion of its

27 Ibid., I2.
28 As given in the Principia: “Rule III. The qualities of bodies, which admit neither intension nor remission of degrees, and which are found to belong to all bodies within the reach of our experiments, are to be esteemed the universal qualities of all bodies whatsoever. Rule IV. In experimental philosophy we are to look upon propositions collected by general induction from phenomena as accurately or very nearly true, notwithstanding any contrary hypothesis that may be imagined, till such time as other phenomena occur, by which they may either be made more accurate, or liable to exceptions.” Needless to say, Newton did not follow these principles in his own philosophy—and the results speak for themselves.
specific task. Its interest in the clarification of meaning is only in the clarification appropriate to the erection of its conceptual system. On the formal side, the undefined terms of such a system are the categories, and the primitive propositions are those hypotheses whose logical consequences are to be investigated; on its empirical side the system is a cosmology subject to control by all available data. Philosophy as empirical cosmology differs from previous metaphysical systems as science differs from early science, that is, from magic.

The most natural objection to this view of philosophy would be to hold that what has been called empirical cosmology falls within science. This reply is not without force, since it could be held with some plausibility that most, if not all, significant unifications of knowledge have come and must come from below and not from above, from scientists and not from philosophers. But actually this reply begs the question, for if by definition we include all knowledge within science, then it is analytically true that philosophy as distinct from science has nothing to do with knowledge. On this usage it becomes even difficult to see why knowledge of the language of science should in any way be equated with philosophy. It is, however, equally possible to maintain that at the level of the widest system of knowledge the distinction between philosophy and science vanishes: a unified completed science and an achieved philosophy would be identical. But until that goal is reached it is possible to distinguish between conceptual systems progressively adequate to specific domains of experienced existence, and the attempts to formulate a system adequate to all domains whatsoever. This does not mean to dictate to science, but to use scientific results and the rich field of common life in the service of the most generalized science, that is, philosophy. At any given time, of course, a philosophy

39 See Carnap, Philosophy and Logical Syntax, 15–16.
39 It would be interesting to consider cases where philosophers have actually broken ground for science—such as Democritus and atomism; Cusanus and relativity of motion; Leibniz and unified mathematics and science; Peirce, James, Reichenbach and objective indeterminism. The final rejection or vindication of such insights is of course important and laborious—but this should not lead to a condemnation of insights as such, especially when they are of such a type as to be empirically controllable.
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is partial and liable to change, as is any particular science, but there can be no opposition of science and philosophy, and in one case as in another the results are not "vain imaginings," but generalizations empirically grounded and empirically controllable. Philosophy could be as continuous and as progressive as the existing sciences. And at any given time, one could hold with Whitehead that "the useful function of philosophy is to promote the most general systematization of civilized thought,"31—a systematization that is to be changed or discarded as the evidence demands.

Conclusions. In conclusion a few remarks upon the relation of these four conceptions of philosophy are needed.

First, with reference to the ideal of cognitive certainty, it may be said that the results become less and less certain as we pass progressively from the first alternative to the fourth. In so far as cognitive certainty is taken as the norm, the activities of philosophers should be concentrated upon the fields of work defined by the earlier conceptions. Although this permits work at all levels, it does imply that in general an emphasis upon the logic of science, logical analysis, and a general theory of meaning is desirable at this time.

Second, with reference to other criteria than cognitive certainty diverse emphases are possible. Thus with reference to an individual's special ability or with reference to the special needs of a particular historical epoch other emphases may be desirable. In the present, for example, it could be plausibly argued that philosophy should take seriously the ethical and social responsibilities which conception three demands.

Third, to some persons the view of philosophy discussed in connection with Dewey may seem at odds with the other theories since it has an element of practicality and concern for social issues absent in the others. If indeed "vision" is something simply added to knowledge, it would be understandable why philosophers devoted to science should question this additional step. If ideas are only descriptions this questioning is defensible,

but if ideas do function as predictions, if they do have irreducibly a pragmatic or action dimension, then philosophic vision is not different from scientific prediction, but is simply the most general expectations appropriate to a system based upon all the data at hand. Philosophic wisdom is merely the wisdom accompanying the widest knowledge. Science reveals no absolute break between theory and practice, and there is no clear reason why the situation should be different in philosophy. Meaning at the level of philosophic generality has its pragmatic dimension just as have the meanings at other levels. It is important to distinguish dreams and fancies from expectations and proposals based on whatever data is available and controllable by new data obtained in use. It would be a signal instance of ethical irresponsibility to relinquish the demands which the need for a philosophically disciplined imagination imposes, and to turn the world over to the exclusive control of dreamers, adventurers, men of action, and technicians. All choices of rules for action can best be made in terms of the purposes to be effected and the data to be considered. The philosopher aware of social responsibilities is simply carrying out on the widest scale the same type of action which the logician exemplifies in the selection of rules of operation, and which the scientist illustrates within a particular domain in his search for the conceptual system most adequate to the facts at hand and to the most exact determination of expectations as to the future. Philosophy is the most general science and the widest vision—and the one because it is the other.

Fourth, it is important to note that the first, third, and fourth views, often wrongly considered as mutually exclusive alternatives, deal with complementary and not opposed aspects of the meaning situation. The implication of this fact is that formalism, empiricism, and pragmatism are complementary phases of the scientific temper. I propose to recognize this fact by designating the implied philosophical attitude as scientific empiricism, the

32 “Whatever is found in ‘practice’ must lie within the scope of the metaphysical description. When the description fails to include the ‘practice,’ the metaphysics is inadequate and requires revision. . . . Metaphysics is nothing but the description of the generalities which apply to all the details of practice.” (Process and Reality, 19).
term "empiricism" indicating the acceptance of concepts and propositions in proportion as they are based upon and controllable by evidence, and the term "scientific" suggesting not merely that science is the recognized focus of orientation but also that whatever formalistic, pragmatic, or cosmological factors are operative in the scientific enterprise are compatible with this version of empiricism. The proposed formulation thus accepts and reconciles all four of the previously considered conceptions of philosophy. It should not be impossible that with the passage of time and with the acceptance of the coöperative responsibility which the program of scientific empiricism entails present philosophical theses (such as the defense of realism) will compare with the future status of such theses much as Greek atomic theory compares with the atomic theory of the present time.

Fifth, each of the three dimensions of meaning has developed its own typical form of expression: mathematics is the language of possibility, science is the language of fact, art is the language of value. Philosophy may in turn be looked upon as the language of languages. This expression itself has a double aspect: it suggests a language about languages, and in this sense philosophy is general semiotic (general theory of symbolism); it also suggests the most comprehensive of languages and in this sense philosophy is general science, and possesses the values which go with such generality. When the phrase is so understood, all four of the conceptions previously considered are incorporated in the conception of philosophy as the language of languages.

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