Novelty and discovery are subjects which elude analysis and discourse, for novelty, in the degree that it is intelligible, is familiar, and processes of discovery, if they could be reduced to rule, would differ little from customary actions guided by precept or habit. The inspiration which led the artist to a new form is reduced to technique or banality when he tries to explain how the idea occurred to him in any way other than by another artistic or poetic creation as mysterious as the first. The discovery of new scientific principles is lost in the accounts of antecedent ideas and attendant circumstances which explain neither the occurrence nor the novelty of the discovery. New insights in religion, even when they do not appeal to the operation of supernatural powers, are not reducible to formulas within the voluntary control of human agencies. Mathematics is the only field in which heuristic principles can be stated in a precise, abstract form and can be given practical application in the solution of problems, and it is possible there only by use of knowledge of an underlying order. In general, the discussion of discovery and of the occurrence of new ideas and insights must take the form either of a psychological examination of what goes on in the mind (and the crucial moment of discovery must then be assigned to the subconscious), or of a sociological study of influences (and the novelty of the discovery must then be found in the peculiarity of one man's response to what is common), or of a formal statement of guiding principles (and the discovery must then be sought in the possibly vacuous region surrounded, and progressively delimited, by those principles). During periods in which logicians have been concerned with problems of discovery and proof rather than with language and modes of expression, controversies in logic have often turned on the paradoxes of discovery, as when Mill criticized Whewell's "logic of discovery" on the grounds that discovery cannot be reduced to rules, and Whewell criticized Mill's inductive logic on the grounds that it only verified what had been
discovered and omitted the problems of greatest importance to the scientist and the logician.

Discovery in philosophy is involved in the same paradoxes as a discovery in art, natural science, mathematics, and religion. Yet the universal scope of philosophy, and the divergent forms which philosophic speculation takes under the influences of analogies borrowed from art, science, mathematics, politics, and religion makes the profession of a new philosophical discovery at once more presumptuous (since the field is so large and the ground so well explored) and more modest (since the discovery of the new is scarcely distinguishable from the rediscovery and restatement of the changeless). Philosophy is a form of personal expression, of social integration, of scientific formulation, and of insight into fundamental values. In each of its forms, the approach of any philosopher is novel and the statement of his philosophy is a discovery; yet it is determined by conditions and circumstances which include the statements of other philosophers, the habits and institutions of men, the knowledge of scientists, and the underlying values that assume different forms in great varieties of expression, institution, and knowledge. Any given discovery is a function at once of the psychological experiences of one man and of the patterns accessible to all men whose experiences evolve in the common setting. Viewed as a personal expression of values, philosophy is an activity in which all men engage: we are all, willy-nilly, philosophers, and our originality is part of our character and individuality. Viewed as a social adjustment to times and circumstances, philosophy expresses shared attitudes, common cultures, and accepted values: we are all philosophers in a sense which transcends personal and esthetic differences in so far as we are sensitive and sympathetic to the values of those with whom we are joined in association and community. Viewed as a form of knowledge, philosophy is a systematization or integration of experience, science, and values: any one who reflects on his situation and his actions, his origin, nature, and destiny, is a philosopher in a sense which transcends personal and social differences in so far as he seeks common principles governing the interrelations in his life and in his understanding of what he perceives and what he knows, what he undergoes and what he seeks. Philosophers who aspire to that name as their particular designation (if only in the catalogues of universities in which they carry on their speculations or in the names of learned societies which they join) differ from these more numerous philosophers primarily in the fact that they relate their philosophic activities in personal expression, in social communication, and in scientific formulation explicitly to the basic values which they seek to realize. The peculiar psychological processes by which the philosopher is led to novelty of form or content takes place, therefore, on a background of historical, cultural, and intellectual constants.

The claim of novelty and discovery is frequent and recurrent in the history of philosophy. In a sense, the same thing has always been discovered, if we are to believe the claims that have been made—and the claims that are being made—and yet the novelty is in each case genuine. This pattern of reiterative novelty was set at the very beginning of the history of philosophy in the West. Socrates, according to Aristotle, was the first to apply the scientific method, which had previously been used only in physics, to the affairs of men—or, as Cicero repeated the novelty of Socrates' achievement, he first brought philosophy down from the heavens and gave her habitation in the cities of men. Both of the persistent elements of philosophic novelty are present in these statements of discovery—the use of science and the concern with values. Aristotle professed to have continued the task where Socrates left off, and Cicero acknowledged his effort to renew the method of Socrates, but without giving undue prominence in his philosophy to the new sciences which Aristotle thought had resulted from a like effort in his own works. The coming of Christianity brought new tidings concerning values, concerning the origin, relations, and destiny of men. The Church was established in the Roman Empire three hundred years after the beginning of the Christian era, and Christianity received philosophic systematization in the works of St. Augustine in the course of another hundred years. Augustine had postponed his conversion until he found the instrument for the interpretation of Scripture in the analogical method of Philo and in the rhetorical method of Cicero. Rhetoric, which had become the science of the practical for the Romans, provided the means by which to set forth Christian values, and the use of rhetorical devices disclosed a structure in the philosophy of Plato on which to organize them. The biographies deposited for the canonization of St. Thomas Aquinas, fifty years after his death, stressed the novelty of his philosophy and of the arguments which he brought to the exposition and defense of Christian truths. During the thirteenth century the philosophic works of Aristotle had become available again in the West, and Aquinas's great achievement was to have reconciled the vast corpus of that scientific doctrine and the subtleties of that scientific method with the body of Christian theology and to have saved Christian theology from the dangers of contradiction and heresy which followed from the similarities of Augustinism to Averroistic Aristotelianism. With the beginnings of modern science in the seventeenth century, philosophers renewed their efforts to apply the scientific method to the problems of man: Hobbes was convinced that the science of politics began with his treatise _De Géé_, Descartes, Spinoza, and Locke conceived ethics to be the central trunk of the tree of philosophy and sought, in varying ways, to formulate a science of human behavior; Hume took new inspiration from Newton in his inquiries concerning human understanding and concerning the principles of morals. Kant thought of Copernicus when he sought an analogy to explain the revolution he had worked by making man the center of his philosophy; and John Dewey devoted a great part of his intellectual energy to bringing the method of science to bear on human affairs and on human actions, thinking that in so doing he had accomplished a second Copernican revolution based on the experimental method, not by reorienting the world to the knower, but by indicating the possibility of "naturalizing" knowledge in the life of society.

At each step the novelty is the same; it is the use of science and knowledge—
and usually of a specific method which is presented as scientific and practical—
for the achievement, preservation, and understanding of values. Yet what is dis-
covered at each step is different, and the discovery not only affects the whole
of what is viewed as reality and the whole of what is accepted as knowledge,
but also reveals without need of further inquiry the errors of other methods
and the illusions of other discoveries. The history of discoveries in philosophy
is self-rectifying, for the new truth can seldom be expressed without excursions
into a new interpretation of the history of philosophy, of the insights and inade-
quacies of previous philosophers, of their anticipations of the truth, their tan-
gential excursions into unreal problems which can henceforth be disregarded,
and their misguided commitment to false distinctions which delayed the use of
the true scientific method and the discovery of the truth. We have made pro-
gress in the development of sciences of man and of society, but we have found
no means of applying science, even the new “science of values,” to human ac-
tions even in problems which involve the use of the sciences and which reflect
the effect of science on civilization and behavior. We have made progress in the
study of values and of their cultural embodiments and interrelations, but we
have found no means of making explicit and effective the underlying common
values which would save values from the relativism into which they fall when
they are naturalized and localized in cultures. The philosophic dimension of
this practical dilemma is the inability to relate novelties in their multiplicity to
what is constant and common in them—the novelties of the discoveries and
principles of successive and contemporary philosophers, the novelties of the
discoveries and values of successive and coexistent communities, and the novel-
ties of the discoveries and methods of successive and interdependent sciences.

The philosophic problem of discovery is, in the retrospect of history no less
than in the contemporaneous societies of men and the interrelations of knowl-
edge, an old problem which has been discussed under many guises—it is the
problem of the one and the many, or the problem of the impact of external
influence or change on knowledge and values, or the problem of the applica-
tion of science to the study of man, society, and human behavior. All of these
aspects are present in any instance of philosophic discovery, and a place must
be made for them in the execution of the modest task that has been assigned
to me of analyzing the circumstances and content of the flash of insight which
might be called a discovery in the development of my own philosophic attitude.
The statement of the formal aspect of the problem of discovery in its numerous
ramifications serves as a massive background against which to trace, and per-
haps to lose, the peculiarities of one series of psychological occurrences. That
background may be particularized to the stages of my own development by dif-
ferentiating the four senses of philosophy, for the moment of discovery which
I propose to describe is one which I would relate particularly with the emer-
gence in my experience of philosophy in its fourth sense. I had evolved a com-
plete philosophy in the first sense, as a personal expression, at the age of twenty.
Indeed, I have never since been able to construct a scheme of solutions of prob-
lems, old and new, nearly so complete, certain, or systematic. It had several
characteristics which seemed to me important in a philosophy; it made use of
the latest advances in the sciences, and particularly in psychology and sociol-
ogy; it was expressed in a technical language, elaborated at crucial points in a
mathematical symbolism, part of which I had borrowed from respected sources
and part of which I had invented; it was organized in a system in which the
principles were clearly stated and the operations formalized; it had practical
applications; and, what was most important, it could be applied to any field of
philosophy or to any other subject matter without the need of much effort to
become familiar with the intricacies of the subject matter or its problems.

The completeness and attraction of this philosophy as a mode of self-
expression were badly damaged by contact with philosophy in its second sense,
in which it serves as an instrument to treat problems in the specific forms which
they assume in times, and places, and circumstances, and with philosophy in
its third sense, in which it makes use of the methods and the accomplishments
of science to adapt itself as a form of knowledge to its problems. I discovered,
as one step of this transition, that a philosophy is not made practical by the
enunciation or the analysis of values and the concomitant criticism of present
practices and alternative doctrines; solutions of practical problems are
grounded in the situation but are justified by the values they achieve rather
than by the opportunity, and they are dependent on the analysis of values that
realize actual potentialities. I made the second step by discovering that a philos-
ophy is not made scientific by professing admiration for the scientific method
and by aping the technicalities of scientific formulation; achievement and fail-
ure in science both share these accidental qualities, and the application of the
scientific method consists rather in the attainment of new insights, the discovery
of means of validating them, and the inventive exploration of consequences
that follow from them. Accompanying these two steps, but scarcely distinguish-
able from them as a third step, was the discovery that I had read the great
philosophers with something less than intellectual ingenuity or sensitive insight,
as functions of my own limited point of view rather than as presentations of
problems, to be considered in their own right before being dismantled to solve
my problems, or as constructions of proof whose grounds and inferences might
have criteria other than the commonplaces and rules of operation engrained
in my habits and elaborated in my philosophic preferences.

I attached little importance to these steps at the time they were taken, if
indeed I was aware of them. They coincided with, if they were not part of, my
formal education in philosophy. They may have left traces in my examinations,
theses, and essays, but they were not relevant to any of the questions that tested
my knowledge or to the contribution to knowledge which I was certified to
have made in satisfying the conditions for the doctorate. The problem of the
one and the many took concrete form for me in the teaching of two men during
my work at Columbia University, and the crossing of their influence was a
greater educational force than the teaching of either alone could have been,
even if I had been more attentive to what each had said and more conscious than I was, at the time, of its significance. Frederick J. E. Woodbridge stressed with subtle insight and ingenious dialectic the structure of intelligibility in the world. Ideas, he taught, are not inventions constructed by the mind, but discoveries forced upon us by compelling realities whose natures are basically intelligible. Being has intimate relations with being understood, and the fundamental problem of philosophy is not how something nonrational becomes intelligible but how mind is related to many minds. John Dewey, when he returned from China and Japan in 1920, applied his experience and his reflections to the construction of two courses—one on Types of Philosophic Thought, the other on Types of Logical Theory—which set forth the basis of his philosophy more fully than it has appeared in the many books that he was to write in the succeeding decades. In those courses he dwelled on the term which was to become so important in the development of his logic and his political and social philosophy, and explained his hesitations in choosing it. By "experience," he meant, not a psychological stage nor an epistemological category, but rather the context and diversified circumstances in which problems arise and ideas are developed. If he were to seek a single synonym for what he meant by "experience," he said, he would use the term, "culture." He set himself the task of exploring in nonhistorical but systematic fashion the contacts, shifts, alternations, and equivalences of the problems which had been presented to philosophers by experience in their times and of the means which they had devised to treat them. The solutions, like the problems, found their materials, their forms, and their criteria in the economic, social, and intellectual circumstances in which they were developed. In the teachings of Woodbridge and of Dewey the problem of the one and the many is restated in terms appropriate to the problems of our times—not as a problem of essence and existence, nor as a problem of reality and appearance, but as a problem of truth and modes of formulation. The richness and diversity required by the experience and the problems of our times and suggested by the ramifications and successes of scientific inquiry revealed the tenuousness and poverty of the philosophic principles with which I had been engaged and their inadequacy despite the fact that they required only elaboration and application to yield a fully articulated philosophy.

I have constructed this elaborate background of specifications concerning the nature of discovery in philosophy and concerning the situation in which I found myself in education and experience, not as a dodge by which to avoid the question which I have undertaken to answer—the analysis of the occasion of a sudden flash of insight in philosophy and of the uses to which I have put it—but as an essential preliminary to making any answer to that question intelligible. Graham Wallas, who has devoted a book, The Art of Thought, to examining the problem of discovery and related processes in the richer data available in the testimony of great thinkers, finds himself constrained to follow a pattern of four stages, first, the Preparation of materials; second, Incubation; third, Illumination or occurrence of the idea; and, finally, Verification. The testimony that Wallas is able to provide for that stage which is intermediate between the labor of preparatory analysis and the unexplained occurrence of a solution is singularly unenlightening. New ideas came to Helmholtz “particularly readily during the slow ascent of wooded hills on a sunny day.” Poincaré made two of his great mathematical discoveries after periods of Incubation, due in one case to his military service as a reservist and in the other case to a journey. Old and familiar ideas which I have searched out or encountered at hazard and new ideas, which have led to the reorganization of familiar materials and to hypotheses that I have tried against the requirements of those materials, have both occurred to me under the same two circumstances—from reading books and from conferring, particularly during the period of my work with UNESCO, with people of backgrounds, presuppositions, and cultures different than my own. The occasion which seems to me to have influenced my work in philosophy more than any other was an insight that occurred to me in reading. It was not an experience that led to my conversion to a doctrine expressed or to my elaboration of a belief adumbrated and, indeed, I am embarrassed by the fact that I am not sure, after candid examination of my memories, which of two passages furnished the occasion of the insight. I incline consequently to the hypothesis that it was the conjunction and opposition of the two.

The two passages are in the writings of Cicero and of Plato. I attached little importance to the statement of Cicero when I first read it in the De Finibus, since it was obviously false. “My view then, Cato,” I proceeded, “is this, that those old disciples of Plato, Speusippus, Aristotle, and Xenocrates, and afterwards their pupils Polemo and Theophrastus, had developed a body of doctrine that left nothing to be desired either in fullness or finish, so that Zeno [the Stoic] on becoming the pupil of Polemo had no reason for differing either from his master himself or from his master’s predecessors.” This is obviously false, since Aristotle, Plato’s pupil, devotes so many arguments to the explicit refutation of his master; since the Academy, Plato’s school, runs in its evolution through a whole range of possible doctrines from dogmatic idealism to pragmatic skepticism, and the record of the development of the school shows scarcely a master who agreed with the teachings of his predecessor; since the later Peripatetics were unsuble and unfaithful Aristotelians; and since the Stoics were engaged in controversies, which shifted front with the successive controversialists, against Peripatetics and against Academics, Old and New. Yet as I read Cicero I became more aware of the full import of his thesis—that all philosophies (except the Epicurean, which is, taken simply, false but which, in so far as it is not false, falls under the same thesis) are particular expressions of the same truth and that, in so far as they succeeded in expressing that truth, they differ only verbally. Similarly I attached little importance to the statement in Plato’s Protagoras at first, since it was obviously a comic interlude to a serious, though inclusive, discussion. After Protagoras, wearied and numbed by Socrates’ questions concerning the practicability of his undertaking to teach civic science, was ready to abandon the discussion, he was persuaded to resume by
asking rather than answering questions. He chose to vary the approach to the theme by undertaking the interpretation of a poet, Simonides, who wrote a poem developing the theme that it is hard to be good. When Protagoras had completed his interpretation, Socrates appealed to Prodicus and with his approval employed Prodicus's verbal art of interpreting language to remove the contradictions Protagoras had expounded. Socrates then gave a third interpretation of the poem using the resources of his dialectical method to expose the insufficiencies of both Protagoras's sophistic and Prodicus's semantic interpretations. He reinforced his own conclusion by quoting another, unknown, poet—"the good are sometimes bad and sometimes good." This is a paradox employed humorously to introduce a good Socratic point, that the good have the capacity of becoming bad, but the bad have no capacity whatever for becoming but always remain what they are. Yet, as I read in the Platonic dialogues I found myself modifying the verse of the unknown poet and speculating on the evidence that Plato found in the questions of Socrates and in the doctrines of other philosophers—which he can alternately quote for his purposes or refute—that the true is sometimes false and sometimes true.

Discovery is not the simple fusing, or passive addition, of further items of information to a collection of data or to a structure of theory. The effect of a new insight is to modify the interpretation of facts previously known and to necessitate the adjustment or abandonment of theories previously held. It may be welcomed as a contributing cause to total change and revolution in doctrine and attitude; or it may be admitted reluctantly as a sufficient reason for alteration of the customary and accepted. Reading may lead to discovery when what is read is not at first sight, or fully, credible or when it affords grounds for crediting principles or conclusions at variance with those to which assent had been given. Discovery does not result from reading about facts or discourse which follow from or accord with one's basic beliefs; at most such reading leads to the accretion and substantiation of doctrines and the increase and solidification of schools and sects. I had no great admiration for the philosophy of Cicero, although I was convinced in 1921, when the reading of the *De Finibus* came into conjunction with the reading of the *Protagoras*, that his importance as transmitter of Greek culture to the modern world was underrated today and that, under the influence of distaste for his utilitarian verbalism, the similarity of our own philosophic tendencies to his was overlooked. Plato's influence is more frequently acknowledged by modern philosophers, not always for reasons as good or as eloquently expressed as Whitehead's, but the effect of Platonic doctrines and dialectic is usually rendered in a truncated schema which reduces them to a cautious skepticism, like Cicero's Academicism, or to a mystical science, like the organic philosophies of Nicholas of Cusa or Whitehead. I had come to see the merits that could be attributed to pragmatisms and to dialectics, but only by a kind of external and intellectual recognition, for I have never felt attracted to the use of pragmatic principles or dialectical methods, preferring to treat theoretic and practical questions separately rather than to assimilate theory to practice or practice to theory.

The recognition, therefore, that there is a sense in which truth, though one, has no single expression and a sense in which truth, though changeless, is rendered false in the uses to which it is put, was attractive in spite of the fact that it ran counter to my most fundamental convictions at the time. I should have preferred to think of the development of philosophy, as knowledge, as a progressive evolution in which errors were detected and discarded and truths were accumulated and interrelated. I should have preferred to think of the applications of philosophy, in practice, as the use of truths administered as specifics to cure evils and operating in constant fashion in conjunction with constant laws of nature and human nature.

Yet philosophic problems seemed to me to have taken on a new form from the new social, political, and moral problems of our times, and both problems, the philosophic and the practical, required a new philosophic approach. Our philosophic problems have centered, for the decades that have passed since I read Cicero and Plato together, in relativism and anti-intellectualism. In its simple form, relativism is a denial of over-all criteria of values, including truth, apart from the particular circumstances in which particular things are in fact valued; there is, however, a second dimension of relativism, which takes its frame of reference not in the different things men call good because they desire them, but in the different principles of partially developed and partially recognized philosophies which guide men's preferences and actions. The first is a relativism of values, based on the conviction that there is no reason why your good should be my good; the second is a relativism of schools and parties, based on the conviction that no reason is adequate to convince you, whatever its cogency and whatever its pertinence to the good, and errors must be extirpated, therefore, and truth must be advanced, by means other than reason—by propaganda, sophistic, indirectness, deceit, slander, fear, and if necessary, suppression, force, and liquidation. In its simple form, anti-intellectualism is a confidence, accompanied by a distrust of analytic statement and rational proof, that sensitivity and good intentions are enough; there is, however, a second stage of anti-intellectualism, in which the distrust of reason, buttressed by reasons, becomes a roundly expressed and argued distress at other men's reasons in the oppositions and intolerances of schools, parties, and sects. The change in these narrowly philosophic problems, which gives them greater importance beyond philosophy than they have ever had before, results from changes in the world situation which makes the relations of peoples, nations, classes, and in general all associations, profoundly philosophic problems. Men of all cultures, of all nations, and of all philosophies have been brought into contacts that affect every aspect of their lives. The values which motivate them are different. Either their different values are different expressions of the same values, in which case values can be differentiated from pseudo-values and truths from errors; or they
are irreducibly relative, in which case conflicts among value structures result from, and are resolved by, oppositions of power, and men would prefer to remain neutral to any such conflict unless they are involved, not by reason or conviction, but by interest or force. The statement of this conflict employs reasons and ideals; to judge by the arguments that have been employed to make it clear, the whole tradition of Western thought culminates in the oppositions which now tend to divide all men, and any philosopher may be blamed in those oppositions for the errors to be resisted, or, alternatively, may be praised as a source of truth or a guide for action. Philosophy has entered into a new importance in the ideological conflict, but the use of philosophy is so clouded by ambiguities that the practical relevance of principles and arguments is itself thrown into doubt. We are losing hold of truth because of the variety of ways in which it is expressed, and we are losing confidence in truth because of the degradations to which concepts, which were conceived to express ideals, and in which it is expressed, and we are losing confidence in truth because of the degradations to which concepts, which were thought to express truths, are put in their practical uses and manipulations.

I have gone ahead of the story of the flash of insight that came from Cicero and Plato some thirty years ago in order to indicate the significance I was later to attach to it. The steps by which the insight was bodied forth to this broad interpretation from the situation which followed World War I to the situation which developed from World War II were slow and meticulous. If it is true that there is no single statement of the single truth and that any statement of truth, however well articulated and painstakingly verified, is subject to degradation, misinterpretation, and misapplication, it becomes important to distinguish the aspects by which the forms of expression and proof may be differentiated and by which the criteria of continuing validity and value may be applied. Philosophies may be distinguished with respect to four basic differences: philosophers talk about different subject matters; they employ different methods in their treatment of the same or different matters; they base their methods on different assumptions and principles; and they direct their philosophic constructions and speculations to different ends. Once these differences have been elaborated, it is easy to recognize Aristotle's four causes in them; and since Aristotle has been able to find no more than four causes, there was some ground for the presumption that I should encounter no more in the writings of another two thousand years of philosophers. But whereas inquiry into the operation of causes led Aristotle to examine the first principles of being and to develop what was later to be called a metaphysics, inquiry into the operation of causes had apparently started me on an examination of first principles of philosophic discourse and to develop a form of what is now called semantics. If I had unconsciously borrowed the principles of my inquiry from Aristotle, I was committed to using them on a different subject matter.

The changes in the subject matter which philosophers treat supply the most immediately apparent differences among philosophies. It is the source of most of the revolutions proclaimed by philosophers—such as Kant's and Dewey's Copernican revolutions—and it gives to the history of philosophy the appearance of periodization which lead philosophers and historians of some philosophic schools to discover that ages have their characteristic "spirits" or "climates" or "philosophies" and that the history of philosophy follows a cyclical or a cumulative or a rising and falling development. During any given period, philosophers treat in their theories and discussions what may be conceived broadly as the same subject matter, and they differ in the methods they employ, in the principles in which the method is grounded, and in the ends to which it is directed. For all the differences of philosophies, there is a homogeneity in the discussion inasmuch as they raise the same or comparable questions and give different answers to them. When the subject matter changes, due to external influences or to the revolutions of philosophers, the fundamental questions are changed and the problems that were basic and difficult in the previous period become derived and relatively easy to treat as simple consequences or as unreal puzzles, and philosophers in the new tradition may either underline their originality and independence of previous philosophic traditions or their fidelity to the old methods, perennial principles, and traditional purposes which are put to new uses in application to the new problems.

The broad philosophic sense in which philosophers for a time concentrate their attention on the same subject matter is apparent in the distinctions which they make in subject matters at each stage of the discussion. For a time they treat the nature of things as their fundamental concern and make problems of knowledge, action, and expression depend on basic principles of being and becoming, essence and existence, matter and motion. Differences concerning the nature of being lead eventually to such subtle differentiations, such complex interrelations, such massive consequences that philosophers turn in the search for prior questions to an examination of the grounds on which such differences can be simplified and the nature of things can be known and verified. For a time philosophers then seek criteria of knowledge which permit them to treat questions of the nature of things as well as questions of action and expression as consequences of these basic distinctions. But again differences concerning the nature and grounds of knowledge become subside, massive, and polar, and philosophers turn in an effort to find prior questions to an examination of the means of simplifying such differences and of testing knowledge by the practical consequences to which it leads or by the form of language—scientific proof, practical communication, esthetic construction, spiritual preachment—in which they are set forth. The criteria of the practical and the techniques of verbal analysis, in turn, become involved in ambiguities, uncertainties, and antithetical formalisms, which return philosophers to the expectation that the ends of actions and the meanings and values of symbols must be grounded in the nature of things, and that the fundamental analysis for philosophy must be sought in being, not in knowledge, or action, or statement.
lead necessarily to a Geistesgeschichte or a dialectic according to which ages follow a necessary order of growth and decline, although it does reveal, as would be proper in the inquiry in which I proposed to engage, the grounds on which dialectical philosophies might allege such an order. The richness and diversity of approaches and methods can be distinguished, nonetheless, within each age and can be related to comparable methods, principles, and purposes across the dividing lines of subject matter and problems which separate ages.

Plato, Democritus, Aristotle, and the Sophists, whose lives overlapped, found their philosophic principles in the nature of things: Plato sought the fundamental reality in Ideas; Democritus explained all processes, including the processes of thought, by the motion of atoms; Aristotle professed to avoid reducing things to thoughts or thoughts to things, and constructed a system of sciences adjusted to differences of problems; and Isocrates reduced all theoretic problems to their practical terms and found the true philosophic method in rhetoric. The deaths of Alexander, Aristotle, and Demosthenes within a period of little more than a year marked the end of an epoch. Philosophers for a time thereafter sought their basic principles in the criteria of knowledge, yet Stoics and Epicureans, Academics and Skeptics derived inspiration for this new task in the earlier philosophies. Epicurus modified the doctrine of Democritus in the construction of his Canon to set forth and employ the criteria of knowledge and to make clear the inadequacies and irrelevancies of formal logic; the Academics professed to follow Plato in the sequences of their skeptical *o aog^ti* schools; the Stoics adapted something of the method and terminology of Aristotle to what they conceived to be the true development of Plato in the elaboration of a propositional logic; and the Peripatetics became scholars and technical scientists. Under the spreading Roman rule, philosophers took their beginnings in the consideration of how men talk and how men act, yet they appropriated to that analysis the doctrines of Stoics, Epicureans, Academics, and Skeptics. Cicero constructed a practical philosophy under the inspiration of Socrates and Isocrates by wedding wisdom and eloquence and by reconciling the differences of schools; Sextus Empiricus attacked dogmatism in all the sciences by analyzing the signs employed in constructing the sciences; rhetoric developed in many forms culminating under the Empire in a New Sophistic; and Platonism emerged under the same circumstances in a New Platonism.

Theory and practice, principles and experience, values and circumstances, all contributed to these successive changes of subject matter and to the modification which the oppositions of philosophers underwent in successive applications. The coming of Christianity affected the subject matter of philosophy in all these respects: it supplied new data and new tidings relevant to the nature, origin, and destiny of man; it suggested new principles for the organization of these and like data and provided new ends to which to orient life and knowledge; it first opposed and resisted and then appropriated and modified the methods of the philosophers. In the East, the development of a Christian philosophy took a theoretic turn in dogmatic disputes concerning the true doctrine; in the West, under the influence of Cyprian, Ambrose, and Augustine, it took a practical turn in the organization of the Church and in its establishment in the context of the Empire. Western Christianity found in the writings of St. Augustine a complete philosophy which was to continue to influence the whole course of Christian thought; Boethius professed to depart in no respect from the doctrine of Augustine, but he found it desirable to restate its arguments to bring forth the grounds and criteria on which it is established, and he furnished the basic texts which set Christians discussing the problem of the universal and the consolations of philosophy; Cassiodorus restated the liberal arts, treating the arts of the trivium as verbal, in relation to Christian doctrine, and Isidore of Seville reduced knowledge to an encyclopedic compendium organized according to the etymologies of the basic terms employed in stating it.

Philosophy took new life and a new subject matter from the practical problems of politics treated in terms of the liberal arts in the court of Charlemagne and from the practical problems of canon law treated in like terms in the court of Charles the Bald. These led to problems of criteria and sources of knowledge and action which threatened during the tenth and eleventh centuries to set theology and philosophy in opposition, but the method which was to be called the "Scholastic method" and which moved from canon law to theology and thence to philosophy provided a means for their reconciliation by assembling the opposed answers to common questions and by examining their differences and, in so doing, set men discussing once more the problem of the universal. John of Salisbury, in the twelfth century, sought escape from these problems in a humanistic pragmatic philosophy, modeled on the Ciceroan Academicism and constructed in the light of the difficulties which his master, Pierre Abelard, encountered in the construction of a nominalistic dialectic. The translation of the works of Aristotle during the twelfth and early thirteenth century created a sharp break in the development of Christian philosophy by providing a new subject matter organized in a vast scientific corpus and a new method used in the treatment of that subject matter and expounded in Aristotle's treatises on logic. Roger Bacon, Alexander of Hales, Albertus Magnus, Bonaventura, and Thomas Aquinas, among many other writers, labored to reconcile this material to the doctrines of Christianity and to extricate the doctrines of Augustine from the consequences of its similarities and antitheses to Arabic Aristotelianism. All the varieties of methods found development and application during the thirteenth century, and the earlier fourteenth century turned, under the influence of Duns Scotus, from the complexities of metaphysics and theology to questions of criteria of knowledge by which to mediate those differences. The latter half of the fourteenth century and the Renaissance, in turn, abandoned epistemology to construct terministic logics, such as occupied Ockham, rhetorical and literary philosophies in forms as different as those of Ramus and Nizolius, practical philosophies such as Machiavelli elaborated, and in the interplay of methods and principles new interpretations of man's end and of the means by which to achieve it were sought in the Reformation and Counter-Reformation.
The development of modern science again provided a new subject matter for philosophy. Even before the seventeenth century, writers like Telesio and Campanella found the bases for their philosophies in the new science; and the philosophies of Bacon, Hobbes, Descartes, Spinoza, Leibniz, Locke, Berkeley, and Hume are inseparable from efforts to state and develop the new methods of science and to apply them to philosophic problems and to speculations concerning man. Although many of these philosophers developed their methods by tracing the origin and relations of ideas, by distinguishing simple ideas, complex ideas, and modes, or by seeking clear, distinct, and adequate ideas, Kant was correct in recognizing that their philosophies were oriented to the nature of things—to God, nature, and the self; to thought and extension, to space and the motions of things—and in claiming the distinction for himself of having reoriented philosophy to man and to the forms of thought. The nineteenth century labored with the criteria and limits of thought and with the ramifications of philosophial anthropology and epistemology; and we have rounded the turn, once more in the twentieth century, by reacting against idealisms to seek the subject matter of philosophy in action, experience, and the patterns of cultures and in symbols, communication, and the demonstrations of science.

Even so cursory a view of the history of subject matters of philosophic discussion throws some light on the nature of the discovery that came to me from the pages of Cicero and Plato, for it explains the uneasy similarities of our own philosophic preoccupations to those of the Roman, the Carolingian, and the Renaissance periods. Cicero was engaged on a similar subject matter when he found a single truth differently expressed in the different philosophies, and Socrates's interlude with the Sophists in explanation of the poetic insight, that the good are sometimes bad and sometimes good, is closer to the doctrine of the New Academy, which Cicero professed, than to the loftier reaches of the Platonic doctrine of Ideas. Moreover, it explains why any application that I might seek to make of Aristotle's four causes would lead me, if I was sensitive to the subject matter of my contemporarics in philosophy, to the development of a semantics as a propaedeutic to metaphysical or epistemological inquiries.

The differences of the methods employed by philosophers are apparent in the differentiation of the subject matters which they treat in successive periods. These differences are stated in a vast variety of ways, usually in polemical discussions in which all other methods are contrasted to the one employed in the statement. It early became apparent to me that some schematism must be developed which would permit the comparison of methods without distortion by the peculiarities of any one method, if the sense and the extent to which different philosophies express an identical or similar truth and the sense and the extent to which they slip into error and perversity were to be revealed objectively and neutrally. In the course of searching for such a schematism I became convinced that a formal structure would have to be found which would at one and the same time guarantee that the methods distinguished were mutually exclusive, exhaustive of the possibilities of methodological difference, and the source of all the subdivisions and secondary variations of method, and also that they were subject to statement, in the schematism, indifferently in equivalent though different forms according to all the methods. The basis for such a schematism must have some relation to the large structures which appear as philosophies are developed according to their appropriate methods. I found in a classification of these structures under four heads the beginnings of a schematism which satisfied the criteria I had set up.

There are, in the first place, philosophies which begin with the conviction that the whole, however the “whole” is conceived—the universe, the whole of knowledge or experience, the whole man, the whole of civilization, the whole of values, of modes of expression, of means and potentialities of being, thought, action, and statement—cannot be treated adequately in terms of its parts. No independent entities, ideas, values, or actions are conceivable or possible in these philosophies, but the problem of philosophy is to trace the lines by which everything is related to everything else in being and operation, in knowledge and impulse, in value and implication. Philosophers who develop this conviction in varying ways frequently profess to use the dialectical method, and I decided to examine the method common to all such philosophies under the rubric “dialectic.” These are, in the second place, and at the opposite extreme, philosophies which undertake the enterprise of seeking least parts from which to construct those portions of knowledge or reality that are now accessible to man, while postponing the delineation of the whole, except in so far as its nature is predetermined by the assumption that it can be treated by such construction, until knowledge is available for such reformulation. The least parts are sometimes sought in things (such as atoms whose characteristics, motions, and combinations will then explain all phenomena), sometimes in thought (such as simple ideas, whose characteristics, modifications, and combinations will then provide the criteria of certainty and probability and the method by which to proceed by least steps through the long chains of reasoning that constitute science), and sometimes in symbols or signs (such as the undefined terms and rules of combination which serve to construct languages and which provide the method by which ultimately to deduce all sciences from a single set of principles). In the phase in which these philosophies sought their principles in material atoms, they were criticized by dialecticians as “logistic,” and in the phase in which their used symbols as principles, their proponents tended to describe the method as logistic, and I therefore decided to use that “logistic” as the rubric under which to study all such methods. There are, in the third place, philosophies which are midway between these two extreme assumptions, inasmuch as the philosophers who engage in philosophic speculation of this kind are equally dubious of the possibility and desirability of basing a philosophy on knowledge of the whole or of the least part, and they engage instead in the construction of a variety of sciences adapted to a variety of problems, subject matters, and purposes. These philosophers are inclined to treat philosophic method as “inquiry” and to orient philosophic inquiry to “problems,” and I
therefore studied the methods they employed in order to characterize the “problematic” method. In addition to philosophies oriented to the whole and to internal relations within it, and philosophies oriented to the part and to combinations and constructions which they make possible or explain, and philosophies oriented to problems and their resolution without reference to holistic or atomic principles, there are, in the fourth place, philosophies which oppose to all types of theoretic construction the conviction that philosophy and knowledge should seek criteria in particular and practical consequences in action. The names historically used by the proponents of this method have all taken on pejorative senses as a result of the attacks of more theoretic philosophers—as “sophistic” retains the sense Plato and Aristotle gave it and “academic” (apart from the new layer of meaning derived from association with modern schools) retains the sense Augustine and Duns Scotus gave it—and I therefore used the term, “operationalism,” which is somewhat broader in its common use, to designate this method the “operational method.”

The broad characteristics of these four methods and their adaptation to the subject matters discussed by philosophers in successive ages are apparent throughout the history of philosophy despite the great variety of forms which each of the methods assumes. The dialectical method is analogical: terms properly assume a variety of meanings in the course of their use even in scientific demonstration, and the development of dialectic has an apparent unity which permits later dialecticians to recognize earlier uses of dialectic, and indeed of any other method, as preparations for, and dialectically explained antecedents to, the forms of dialectic later practiced. Moreover, the differences of subject matter which separate the ages, from the point of view of other methods, are only apparent, not real, from the point of view of dialectic, for the processes of things and the processes of thoughts, and a fortiori the processes of action and statement, all reflect the same dialectical pattern, and history is intimately related to, if not identical with, proof. The logistic method, on the contrary, is literal and univocal: terms should be defined unambiguously and should retain, throughout proof and communication, the same meanings. The changes of subject matter which separate the ages separate the successive uses of the logistic method by sharp differences, for the philosopher must decide, since the method depends on the combination of least parts, whether his least parts are to be atoms, simple ideas, or symbols and, once he has chosen one, he can state and explain phenomena relative to the others in its basic terms, and his method consists in one of the many forms of the “combinatory art.” The problematic method depends, like the logistic method, on the establishment of univocal terms and literal meanings; but, since there are many problems and many sciences, any important term has many meanings which must be distinguished before the proper meaning is used in the proper place, while the interrelations among these meanings is established in basic sciences, like metaphysics, by means of analogies among meanings reminiscent of the dialectic method. The differences of subject matter discussed is reflected in the problematic method by differences of the analyses and the sciences taken to be “architectonic” in determining the spread and interrelation of meanings—sometimes metaphysics or epistemology, sometimes “politics” or semantics, sometimes sociology or the study of humanistic aspects of cultures and arts. The operational method, like dialectic, is not constrained to literal or single meanings in its use of terms, but unlike dialectic its meanings are imposed either by arbitrary decision of the user of the method or by irrational determination of the operation of circumstances: for the agent who has power to control what is done, meanings are what he decides they should be; otherwise, they are determined by chance or fortune to which the practitioner of the operational method learns to adapt his actions and meanings.

Not only may philosophic methods be described in terms of their use of symbols in application to the changes of subject matter in philosophy, which had early forced themselves on my attention as one of the means by which philosophies are differentiated from each other, but methods are also distinct from each other in the relations between science and action, theory and practice, which they entail. The relation of knowledge to action had seemed to me to be one of the outstanding problems of our times, and it was one of the problems which had led me to the inquiry concerning the relations among philosophies. There are four possible relations between theory and practice, and the fact that one of these relations followed from each of the methods I had sketched seemed to me partial confirmation of the soundness and relevance of my schematism. If, with the dialectician, all things are to be explained in their mutual relations in a single whole, there is no difference between theory and practice. Dialecticians have repeatedly urged that identity and have criticized practice separated from theory and theory separated from practice throughout the history of dialectic. This at least is common, among all the important differences that separate them, between Plato’s use of Socrates’ principle that virtue is knowledge and the Marxist use of the science of the history of society as the prototype of all science and the source of all action. The operationalist’s conviction that theory should be tested by practice and that theories without consequences in action are trivial has a similar effect of identifying theory and practice but for opposite reasons, since theory is then reduced to practice whereas practice reaches its fullest possibilities and clearest explanations on the background of an over-all theory in dialectic. The other two methods distinguish knowledge and action, theory and practice, but in two different ways. For the logistic method, theory is established in science while action finds its motive and cause in some impulse, nonrational in foundation and nonexistent in operation. Science and action are therefore mutually exclusive: it is possible to have a science of all varieties of processes, including the operations and actions of men, but the motives which lead a man to action, even the action of engaging in scientific inquiry, are found in passion, habituation, accident, as well as in reason. One modern form of this distinction has become popular among philosophers who practice the logistic method in the distinction between the
language of science, which is cognitive, and the language of ethics or esthetics, which is noncognitive, inasmuch as it is persuasive or emotive. For the problematic method, on the other hand, the distinction between theory and practice does not lead to the conclusion that demonstration is scientific and action non-scientific, but rather to the conclusion that, since methods vary with the variation of problems, the method of the theoretic sciences is distinct from the method of the practical sciences. Both methods, the logistic and the problematic, lead to the conclusion that the scientific method should be employed more than it is in the treatment of the problems of human action; but in the logistic method, that conviction leads to the search for a science—like psychology, sociology, or anthropology—which uses the same scientific method as the natural sciences, to cure the tensions, fears, misapprehensions, and mental illnesses which prevent men from acting as they should, whereas in the problematic method, the same conviction leads to the search, avoiding the dangerous analogy of the natural sciences, for a science which will effect communication among men as the necessary preliminary to agreement concerning the use of the technical processes of engineering and the applied sciences and the application of the conclusions of the pure sciences.

These distinctions in the field of the practical brought to my attention a homogeneity between the dialectical and the operational methods, on the one hand, and the logistic and the problematic methods, on the other, which goes beyond questions of the relation of theory and practice to questions of "scientific method" in the various senses proper to each approach. To signify these similarities I found it desirable to invent two terms: "holoscopic" to indicate the respects in which dialectical and operational methods "view" problems in their relation to some "whole," and "meroscopic" to signify the two ways in which the logistic and problematic methods "view" problems relative to the "parts" from which the whole is constructed or to the circumstances which determine the occurrence and the character of the problem.

Two more differences—differences of principles or assumptions and differences of ends or purposes—enter into the differentiation of the vast number of philosophies which have been developed in the course of the history of thought. What I have said concerning the differences of subject matters and methods is sufficient to indicate the character of the inquiry in which I engaged as a result of the discovery to which I was led by Cicero and Plato, and whereas the additional differences of principles and ends are essential to account for the relations and oppositions among philosophies in their theoretic development and in their practical application, to set forth still more differences at this point would needlessly complicate the exposition of what is involved in a moment of discovery. One question which occurs at almost any stage of the elaboration of that discovery, however, must be answered if what I have said is not to be reduced to an obvious and simplified paradigm. If the basic problem of this semantic investigation of the relation of meanings in different philosophies involves the classification of all possible methods, what method is used in that classification? If the classification is exhaustive of all methods, must not the method of classification be one of the methods classified, and is not the inquiry itself, therefore, involved in the relativities and distortions it seeks to avoid and to resolve?

The criteria which I set forth to govern the construction of the schematism of methods supplies the answer to these questions. The schematism must be neutral, not in the sense of being conceived and stated apart from the methods it treats, but in the sense of being susceptible of statement without distortion in each of the methods. The use of the method in the formulation of the schematism will, therefore, differ from the use of the method in the resolution of practical and philosophic problems. It is possible to examine the problem of the relation of methods dialectically, operationally, logistically, and problematically, taking as data the doctrines of philosophers—professional philosophers and also that much larger group of philosophers who simply relate what they think, say, and do to contexts larger than the immediate consequences they anticipate or encounter. This is a problem in what I came to call "historical" semantics, and there is no reason why the differences of meanings encountered in the course of discussion or history should not be subject to such statement in any of the methods. Once attention is turned from the varieties of philosophies as the subject matter of inquiry and once one of the methods is employed on the subject matter of philosophy adapted to the times and the preferences of the philosopher, the use of the method results in the development of a particular philosophy and in that philosophy particular meanings are determined and assigned to terms, which are to be preferred over other possible meanings. This is a problem in what I came to call "philosophical" semantics. The course of inquiry which I followed and the exposition which I have just given of it, thus, employ the problematic method. There is no reason why one should not be led from this problematic statement of the differences of methods to the choice of the dialectical, the operational, or the logistic method as best adapted to the solution of some problems or as the preferable method for philosophy in general. There is likewise no reason why the schematic differences of method might not be restated dialectically, operationally, or logistically with no more pre-judgment or distortion, than in the statement I have given, in which, for example, prior to commitment to a philosophy which fixes its meaning, each of the four meanings of the "practical" is equally defensible and equally fruitful of consequences. I have made such a translation of the schematism into the other methods elsewhere, but, for our purposes today, indication of its possibility is sufficient to clarify the assumptions on which my analysis proceeded. Once the choice of the method is made, after the propaedeutic analysis of meanings in "historical" semantics, one is constrained by the "philosophic" semantics determined by one's assumptions to one set of meanings for all fundamental terms—for "cause" or "democracy" or "imagination"—and even
the fullest tolerance of intellectual differences is no justification for restraining
the impulse to demonstrate that other meanings are absurd or impractical in
the treatment of problems to which the method is committed.

I have explained the discovery to which I was led from reading in Cicero
and Plato by setting forth, in perhaps excessive detail, distinctions in the subject
matters and methods of philosophers, and insights concerning these distinc-
tions, to which the discovery led. I have explained the mechanisms in which I
later encased the insight, not the insight itself, and since I sought those mechan-
isms in formal distinctions among philosophies and among sciences, I am
afraid that I have given the discovery itself a formalistic and historical turn.
The data on which the insight was employed were the statements, preferably
the well ordered or scientific statements made by different men and in different
circumstances, but form and history tend to conceal the purpose of the inquiry,
which was philosophic, and to leave wholly out of account the novelty which
the method introduces into the problems and applications of philosophy. "His-
torical" semantics derives its distinctions from history and provides means by
which to read intellectual history more intelligently and more profitably; it
leads from history to insight into the nature and the interrelations of the sci-
ences and into the effectiveness and varieties of expressions of values. But the
characteristic result of historical semantics, to which my attention was turned
from my first efforts to treat the problem of varying meanings and varying
proofs, is to be found in application to new problems of philosophy, which are
the mark and product of our times.

Philosophy is not only a form of knowledge; it is also an expression of cul-
tures. In a world in which many distinct and divergent cultures are in unavoid-
able contact as a result of the progress of science, the temptation is natural to
seek solutions to the resulting tensions among peoples by the construction and
use of another science. The application of any form of science chosen for this
purpose conceals one form of philosophy, and the opposition to any such pro-
gram is not an opposition to science, but the mark and indication of a whole
range of philosophic problems which are prior to commitment to action or to
grounds for action. They involve a preliminary study of the relations of cultures
as expressions of values, divergent in form but possibly identical with each
other in fundamental character, which reproduce, when they are stated for-
mafly, differences on which philosophers have been engaged ever since Socra-
tes brought philosophy down from the skies. In those relations—whether they
are stated theoretically or evolved practically in the course of action—real
differences are confounded with differences which are only in expression and
in approach. In the emerging community of the world the first problem of phi-
losophy—the new metaphysics or at least the new prolegomenon to all future
metaphysics—will expound the sense in which truth is one, despite the multi-
plcity of the forms of its expression, and the sense in which what is on some
grounds or in some circumstances true is at other times false and dangerous.