REVIEWS

HISTORY OF CHRISTIAN PHILOSOPHY IN THE MIDDLE AGES. By Etienne Gilson, Random House, New York. 829 pp. Price, $7.50.

Such is the notice of the publication (1955) of an extraordinary scholarly achievement. The little item "829 pages" deserves more detailed analysis. On the back of the title-page are the words *"Nihil Obstat:* Vincent L. Kennedy, Censor Deputatus. Imprimatur, James C. Cardinal McGuigan D.D., Archbishop of Toronto." Pages VII to XVII, the Table of Contents, constitute an impressive outline of the work, from the Greek Apologists to the final chapters: The Journey's End; John Gerson, Nicholas of Cues, Greek Philosophy and Christianity. The text itself begins on page 9 and continues through eleven major sections to page 545. Pages 549 to 551 are devoted to Bibliographical Sources and List of Abbreviations; pages 552 to 804 to notes, which give the literary history, text tradition, works in English, French, German referring to the philosopher being considered, and, of course, listing translations of the philosopher's text into different languages. The Index of Authors (Ancient and Medieval) fills 11 pages, the Index of Historians (Modern) 13 pages. As an example of thorough and meticulous scholarship this work has few parallels.

Gilson was born in Paris, on Friday the 13th of June, 1884. After preliminary studies at Catholic schools, he took his college degree at the Sorbonne. Lectures by Henri Bergson at the College de France turned him to philosophy as a life work. His doctoral thesis on Descartes interested him in Aquinas and he has been a Thomist ever since. He was captured at Verdun in the First World War, and spent three years in a German prison camp learning Russian and English. Before 1950 he taught at Strasbourg, the Sorbonne, and the College de France; but in that year he accepted appointment as Director of Studies, the Pontifical Institute of Medieval Studies, at Toronto, and it was there that the *History of Christian Philosophy in the Middle Ages* was written.

This full scale survey of the rise and decline of medieval thought, in its primary concern with the relationship of faith and reason, of theology and philosophy, unfolds like a classical tragic drama, reaching, in the course of more than a thousand years, its climax in the work of the hero Thomas Aquinas. The dominant Plato-

nism of the early years slowly gives way as Aristotle's works are rediscovered and digested; first, the Logic, which alone was known and cultivated for several centuries, and then gradually, the Physics, Metaphysics, etc.; until, through the work of the Arabs—Avicenna and Averroes—Aristotelianism becomes supreme. In fact, in the year 1210 the provincial council of Paris under the presidency of Peter of Corbiel, Archbishop of Sens, forbade, under penalty of excommunication, the teaching in Paris, either publicly or privately of Aristotle's writings on natural philosophy, or their commentaries (although the teaching of Aristotle's logic had long been authorized); while in 1366 pontifical authority made it compulsory for the candidates for the degree in arts to have studied those very treatises of Aristotle's which had previously been forbidden (page 245).

In the beginning of the period considered, it was the Greeks, especially the Alexandrine Apologists, Clement and Origen, who emphasized the importance of reason. Clement's intention was less to defend Christian faith against its opponents than to teach it to unbelievers (29). Because true Christianity lies in the soul, it is compatible with all forms of external life, provided these be conformable to reason; philosophy is in itself a good, because it has been willed by God. The Old Testament has prepared the New Testament. Yet the latter has not abrogated the former, rather, it has completed it, so that there has been a continuity even in the progress of Divine revelation. Even the Greeks have had a preparation for the Gospels in their philosophers, especially Plato. . . . Philosophy is the handmaid of theology (31–32). Origen also had a place in his theology for reason and philosophy; he takes Scripture as his starting point, but asks, "How is scripture itself to be interpreted?" Many parts of the Jewish Law have been obsolete since the new dispensation. Either they now are meaningless or they have an allegorical and spiritual meaning (36). Origen developed also the Logos doctrine, teaching that the Word or Son has always been with the Father, and, since He is the Son of God, the Word (Logos), is God. The Word is Reason itself: as such He is the seat of the Ideas, and contains in Himself the intelligible world after whose pattern the world has been created, a striking similarity to the doctrine of the *nous* of Plotinus, with a counterpart in the Stoic notion of the Logos conceived as a sort of energy pervading the world of matter.

Among the early Latin Apologists, especially Tertullian, a very different attitude prevailed; heresies are fostered by philosophy which is the wisdom of the world. "Away, then, with all attempts to produce a mottled Christianity of Stoic, Platonic and dialectic composition." God Himself has said, "Seek and ye shall find," and indeed the philosophers do seek, but the Christians have found, which means that their search should cease. In Chapter V of his *On the Flesh of Christ* Tertullian wrote: "The Son of God died, it is by all means to be believed, because it is absurd. And He was buried and rose again, the fact is certain because it is impossible." It is interesting to see how Gilson deals with this statement. "Perhaps (it means) simply that faith is more certain than human reason, and that since only what is incomprehensible to reason can be an object of faith, a crucified God is absolutely certain (by faith) in virtue of its very incomprehensibility." If, on the contrary, his double "because" must be taken literally, posterity did not betray Tertullian in ascribing to him the celebrated *credo quia absurdum*. However, "Ever since the time of Athenagoras, theologians have been most anxious always to establish at least the rational possibility of the Christian faith. In this sense they have all believed because it was not absurd to believe. As to Tertullian himself, even if we remember that he was a rhetorician, it is hard to admit that he ever intended to place the criterion of truth in its absurdity" (45).

The ironic thing about all this is that after more than a millenium of theological and philosophic development along rational lines, we come, near the end of the medieval period, to John of Jandun who writes concerning the soul; "And even though the soul is matter, it nevertheless remains an act in which corporeal matter does not participate: and all these attributes of the soul belong to it really, simply and absolutely, according to our faith. I also believe that the immaterial soul can suffer from a corporeal fire and be united with the body after death on the order of God the Creator. I am not prepared to demonstrate all this, but I think these things must be believed by simple faith, as well as many others that must be believed without demonstrative reason solely on the authority of the Holy Scripture and miracles. Furthermore, that is why our faith is meritorious, for the doctors teach that there is no merit in believing what reason can demonstrate" (523).

The distrust of certitude in philosophic reasoning was present in

at least some degree during the whole medieval period, as in the speculative mysticism of St. Bernard of Clairvaux. Later Henry of Ghent and Rodington ask whether man can have any certain knowledge of any truth by purely natural means. Still more disillusioned about philosophy was the Augustinian theologian Hugolin Malabranca, who considered philosophy a mere mixture of errors. Too often theologians were using philosophical proofs that were not adapted to their object. Even when Aristotle says, "God is," his formula has not the same meaning as it has in the thought of the theologian, for the theologian understands "God" as signifying the Trinity, and "is" as signifying the infinite. The whole psychology of Aristotle rests in the hypothesis that the soul is primary matter; all that he says about the soul therefore becomes false simply through the falsity of that supposition. Aristotle's ethics is also false for the most part, and where it is not false it is valueless, for Aristotle knew only the semblances of virtues and did not know the true rules of good (453–454).

Gilson begins his section on the "Modern Way" with a chapter on William of Ockham (*floruit* 1300–1350), in which he says: "Like Thomas Aquinas and Duns Scotus, Ockham was first and last a theologian using certain philosophical doctrines in order to elaborate his own understanding of Christian faith. The dissolving influence exercised by his doctrine on the history of medieval scholasticism is due to the fact that, professing as he did a radical empiricism in philosophy, he had to reduce the understanding of faith to a bare minimum. An Ockhamist intellect is as badly equipped as possible for metaphysical cognition; and since where there is no metaphysical knowledge theology can expect little help from philosophy, the consequences of Ockhamism was to substitute for the positive collaboration of faith and reason, which obtained in the golden age of scholasticism, a new and much looser regime in which the absolute and self-sufficient certitude of faith was only backed by mere philosophical probabilities" (489).

Gilson summarizes the spirit of Ockhamism at the end of the chapter, pointing out that Ockham denies that theology is a science, because no science can rest on faith, and continues: "No wonder that he does not worry very much about what natural reason can or cannot prove, in matters of faith. It would be a grave misinterpretation of his thought to imagine that there was in his mind any conflict between faith and reason, or revelation and philosophy.

Ockham is perfectly safe in what he believes, only he does not *know* what he believes, nor does he need to know it. It is enough for him that probability stands in all cases on the side of faith and revelation. . . . Of the rational understanding of faith attempted by Bonaventure, Albert the Great, Thomas Aquinas and their contemporaries, very little if anything was left after Ockham. . . . Faith was intact, but to follow Ockham was to give up any hope of achieving, in this life, a positive philosophical understanding of its intelligible meaning . . . [i.e., the effort to enter intellectually into the mysteries of faith ceased]. The doctrine of Ockham marked a turning point in the history of philosophy as well as of theology. In theology his doctrine was paving the way to the 'positive theology' of the moderns. In philosophy it was paving the way to modern empiricism" (498–99).

In the period following Ockham there were many "anticipations" of later philosophers. For instance, John of Mirecourt maintains that internal experience is the direct cognition each one has of his own existence; that, since in order to doubt one must be, no one can doubt his existence without affirming it—The *dubito ergo sum* of Descartes (503). Nicholas of Autrecourt claimed that the bond which unites the cause to the effect is neither necessary nor evident, though he admits a real relation of cause to effect, given with evidence in sense experience. Unlike Hume he does not reduce the real relation of causality to our psychological habit, born of sense experience, of associating the notion of a thing with that of another one (507). John Buridan held that, assuming that God conferred on celestial orbs a certain impetus at the moment of their creation, and that he preserves it in them as he universally preserves all things, and that no resistance, either inner or outer neutralizes that initial impetus, there is no reason why the movement of the celestial orbs should not continue of itself; and in this Buridan seems to have come very close to the notion of the *impeto* in Galileo and the *quantity of movement* of Descartes (516). Nicole Oresme played an important part in three great discoveries. "He clearly anticipated the law of falling bodies, the diurnal movement of the earth, and the use of coordinates. . . . Just as he anticipated certain discoveries of Descartes and Galileo in physics, Oresme anticipated Copernicus in astronomy" (518).

During the eleventh, twelfth, and thirteenth centuries especially, the human mind was striving to attain a rational understanding

of the nature of God, of His creation, of the spiritual world, of the human soul and mind, of truth and good, of love and wisdom, of the relation between spiritual and natural; and, as Gilson has pointed out, the effort broke down in the fourteenth century. There seems to have been too rigid an adherence to the letter of revealed truth, perhaps too ready an acceptance of classical philosophy, too great a reliance upon metaphysics, and reason unsupported by science. To the New Church, authoritative answers to these questions have been given, in a rational revelation expressed in the language of philosophy, but we must understand that language in the light of its meaning at the time it was written. This is one reason for the importance of such studies as Dr. Pendleton's paper on "Space, Extense and Immensity." The value to us of such books as Gilson's *History of Christian Philosophy in the Middle Ages* is in the background which it provides. As Gilson was led from his early studies of Descartes back to the very beginnings of Christian philosophy in the primitive Christian Church, so we in our endeavors to understand and explain Swedenborg's philosophy will probably be compelled to begin from the early Greek philosophers; but in the process we cannot skip the extraordinary development of Christian philosophy in the middle ages, during which the language of philosophy used by Swedenborg was being formed, and its terms were being charged with specific content and connotation.

ELDRIC S. KLEIN

THE NATURE OF PHYSICAL THEORY. By P. W. Bridgman. Dover, 1953.

Professor Bridgman is one of the leading mathematical physicists of our time, a Nobel prize winner who has made contributions of fundamental importance to both experimental and theoretical physics. The book under review is an expanded form of the three Vanuxem lectures he gave at Princeton University in 1935. It is both lucid and entertaining, and can be recommended to anyone who wants to get some insight into current philosophies of science.

The importance to the modern scientist of making some critical analysis of fundamental physical concepts can be judged from the

fact that Bridgman did not undertake his philosophical speculations merely in order to present the world with a philosophical system. He makes it explicit that he was driven to it by problems confronting him as a physicist. ". . . for me as a physicist," he says, "criticism is an enterprise entered into solely for practical reasons, because I find myself forced into it by the failures of my preconceptions in many practical situations. As a matter of observation I can already discern the operation of the law of diminishing returns here, and it is my hope that I can eventually have done with criticism and pass on to something else." As we shall see, however, he could not resist the temptation to make some universal pronouncements on matters far removed from physics.

Bridgman was perhaps the first to put forth in detail what has come to be known as the "operational" approach to physical concepts, which he expounded in 1927 in his well-known book *The Logic of Modern Physics*. According to this view, a physical concept is synonymous with a set of operations. Take, for example, the concept of length. "We evidently know what we mean by length if we can tell what the length of any and every object is, and for the physicist nothing more is required. To find the length of an object, we have to perform certain physical operations. The concept of length is therefore fixed when the operations by which length is measured are fixed: that is, the concept of length involves as much as and nothing more than the set of operations by which length is determined. In general, we mean by any concept nothing more than a set of operations; *the concept is synonymous with the corresponding set of operations.*" (*The Logic of Modern Physics*) Of course a rather extensive analysis is required to show that the above definition is adequate and useful, and this is ably supplied in the book just quoted. But even without such analysis it is plausible that the operational definition of physical concept is appropriate to physics, particularly when, as in wave mechanics, the physics begins to transcend intuition. It is a form of recognition of the fact that in dealing with physical science we must accept physical experience as it comes, even though it may violate our common sense.

Now if physical concepts are operations, it follows that any meaningful statement in a physical theory must be analyzable into operations, that is, it must be possible to find operations by which the statement can be shown to be true or false. If such opera-

tions for a particular statement cannot exist, the statement has no relevance to physics, and is physically meaningless. An example of such a statement is this: "As time goes on the absolute scale of magnitude of the universe is changing, but in such a way as to affect all things equally, so that a change of scale cannot be detected." This statement is formulated in such a way that no operations can exist by which it can be proved or disproved. As far as physics is concerned it is neither true nor false, but meaningless.

The operational approach has proved to be of considerable value in clarifying many obscure situations in the philosophy of science, and, what is more important, has proved fruitful. It is perhaps not too much to say that an operational analysis of the concept of simultaneity provided the first step in the formulation of the special relativity theory. In the book under discussion Bridgman presents illuminating critical discussions of relativity, statistical mechanics, and wave theory from this standpoint.

In this short note, however, we omit consideration of these chapters (although they are the best part of the book, both in quality and quantity), and discuss instead the remarkable fallacies the operational approach gives rise to when applied indiscriminantly to aspects of experience other than the purely physical. They are evident in the chapters on thought, on logic, and on mathematics. We make this choice because of our belief that most of the modern agnostic and nihilistic philosophies are based on a misapplication of the operational approach to physics.

The ultimate facts of the physical world enter the intellect via the lowest degree of the rational mind, and we must have a constant recognition of this if our physical theories are not to become contaminated by preconceptions. It seems proper, then, that our formulation of the ultimate physical constructs—space, time, mass should be such that this lowest degree of the rational can use them with as little appeal as possible to any higher degrees. The operational formulation meets this requirement admirably, which accounts equally for its success in dealing with physical concepts and its absurdities when applied outside its proper field.

The failure, or refusal, to recognize any degree of the mind higher than the lowest degree of the rational is the root of a great many currently fashionable philosophies, the most spectacular of which is the one which goes under the name Logical Positivism. For convenience, we will use the term Positivism to designate those

philosophies which do not recognize any higher degrees than the lowest of the rational. It is evident from his book that Bridgman is a positivist. Once the positivist premise is accepted, it is natural to conclude that the operational method is applicable to all aspects of life. Specifically, the *meaning* of any statement whatever is to be identified with the set of operations by means of which the statement or its negative can be verified. If no such operations exist, the statement is neither true nor false, but *meaningless*. Thus the positivists reject all absolutes (such as Truth) and universals (such as the Forms of Plato), since these concepts clearly have no operational significance. For another example, let us quote Bridgman (page 12):

"Not only are there meaningless questions, but many of the problems with which the human intellect has tortured itself turn out to be only 'pseudo problems,' because they can be formulated only in terms of questions which are meaningless. Many of the traditional problems of philosophy, of religion, or of ethics, are of this character. Consider, for example, the problem of the freedom of the will. You maintain that you are free to take either the right or the left-hand fork in the road. I defy you to set up a single objective criterion by which you can prove after you have made the turn that you might have made the other. The problem has no meaning in the sphere of objective activity; it only relates to my personal subjective feelings while making the decision."

Observe how easily the positivist solves the problems of philosophy. He does not give a yes or a no, but shows them to be unanalyzable in terms of operations (i.e., unanalyzable by the lowest degree of the rational), and hence meaningless—pseudo problems not worthy of consideration.

The modern mind seems peculiarly receptive to the dogmas of positivism, with its ready solution to any perplexing philosophical problem and its rejection of all absolute standards. As an example, many a man who sincerely believes in absolute standards of good and truth will see nothing foreign in the idea that there is no absolute standard of merit regarding music, and will, if pressed, define a piece of music as *good* music by means of some such operational criterion as counting the number of people who say they enjoy it.

The positivist doctrine, it seems to us, is vulnerable on two rather obvious counts. We have not seen any criticism of posi-

tivism on these points, although it seems unlikely that none has been made, and so will present two here.

The first of these is concerned with the positivist use of the term "meaning." The meaning of a question, or a statement, is identified with the set of operations whereby the question can be answered, or the statement proved or disproved. If no such operations are known the question or statement is disposed of as meaningless. What status, then, is to be assigned to unsolved mathematical questions? Some such questions, of course, do have operational significance. For example the question "How many primes are less than 10^{100}?" is one to which nobody knows the answer, but it is possible to specify a set of operations which will in a finite number of steps provide the answer. In fact, it would be a simple matter to program an electronic computer to give the answer. But this situation no longer holds for less trivial questions. Lest anyone think we are misrepresenting the positivist position here, we again quote Bridgman (page 41):

"I make the statement, 'Somewhere in the decimal expansion of π there occurs the sequence of digits 0123456789.' Then may I say, 'This statement is either true or false'? It would be known to be true if I could exhibit the place in the expansion where the sequence occurs. But this neither I nor anyone else can do. Or it would be false if I could show that the assumption that the sequence does occur at some definite place leads to a contradiction. But this again has not been done. Hence the operational statement of the situation must be that since neither of the procedures by which the truth or falsity of the statement might be proved can be applied, the concept of truth is simply not applicable in this case, and the statement is meaningless.

"But this conclusion will appear to many highly unsatisfactory; they immediately ask, but how do you know that some day it will not be possible either to exhibit the place in the expansion where the sequence occurs, or else to show that the assumption that there is such a place must lead to a contradiction? To which I would reply that of course I do not know that some day such a proof will not be given, and that when the proof is given the statement ceases to be meaningless and becomes either true or false."

Clearly the same argument can be applied to any nontrivial unsolved mathematical question, and so any such question is for the positivist meaningless. Why, then, do responsible mathematicians,

some of them positivists, spend most of their time on meaningless questions? The positivist may reply that the problem will acquire meaning if it is solved, or that when he calls a question meaningless he does not imply that it is unworthy of consideration. But if this is so, then all the knotty philosophical problems the positivist has so neatly disposed of by calling meaningless come back to plague him.

The second, and more serious criticism of positivism, is concerned with discrete degrees of the mind, and is strongly reminiscent of the classical paradoxes of set theory. A cardinal doctrine of the positivist position is embodied in the following statement: "The only way in which we can avoid paradoxes and contradictions in life is by rejecting all statements which have no operational significance." The paradox arises from the fact that the statement itself obviously has no operational significance, and therefore no meaning for the positivist. Also, it would seem that from the positivist viewpoint, almost any statement which asserts that another statement is meaningless, is itself meaningless. Observe that if "physical theory" is substituted for "life" in the statement quoted above, the paradox vanishes—at least for the non-positivist—because the statement is not itself part of a physical theory, and in fact is formulated by a degree of the mind discretely higher than the rational.

In this short space it is impossible to give a fair critique of Professor Bridgman's outlook, and we fear we have made it seem cruder than it really is, and have dwelt more on its bad than its good aspects. We urge anyone who wants a fuller picture to read the book, for it is well worth reading.

JOEL PITCAIRN