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# THE JOURNAL OF PHILOSOPHY

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# THE JOURNAL OF PHILOSOPHY

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## THE FINITE UNIVERSE AND SCIENTIFIC EXTRAPOLATION<sup>1</sup>

IN his remarkable book surveying "Scientific Theory and Religion" Bishop Barnes somewhat playfully characterized the recent attempts to determine the size of the universe as perhaps man's crowning impiety, an effort to scale Olympus with the resources of mathematical physics. To the present writer it would seem more pertinent to inquire whether an offense has been committed, not against the gods, but against man—that is to say, against sound philosophy. And by sound philosophy is meant in this case nothing extra-scientific, but merely those general principles of positive scientific knowledge and positive scientific demonstration which for practical reasons of the social division of labor rather than because of any opposition of viewpoint or of subject-matter are most often treated by the philosopher rather than by the specialized scientist.

The recent attempts to calculate the spatial size of the universe (and on the part of some scientists the age as well) are, as we all know, in direct contradiction to Kant's doctrine of the first antinomy, where it is asserted that one can not validly conclude either to the *thesis*, namely, that the universe is limited in space and has a beginning in time, or to the *antithesis*, namely, that the universe has no limits in space and no beginning in time, but is infinite in respect to both space and time. Now, although the Kantian argument on this point was addressed to metaphysicians and was couched in the cumbersome language of traditional logic, we can not pass it by as if it pertained to a mere metaphysicians' quarrel, of no concern to positive science. Both in its direct and indirect implications, the Kantian argument of the antinomies represents an attempt to express the revolutionary importance of the discovery of the experimental method by modern science. Kant's attack on cosmological speculations was thus not an attempt to subject the movement of science to extra-scientific criteria (as may, for example, be charged against Aristotle with his arguments against the

<sup>1</sup> Paper read at the Thirty-fourth Annual Meeting of the Eastern Division of the American Philosophical Association at New York University, Dec. 27-29, 1934.

existence of a void), but to defend the experimental method of science against the surviving habits of pre-scientific thought.

In the recent discussions of relativity and the problem of simultaneity we recall how much was made of the argument that an abstract concept did not mean anything unless it was associated with a rule of empirical measurement. Well, Kant's argument regarding the antinomy of space and time is based precisely on this consideration. A proposition about the space and time of the universe, to be true, must be capable of being confirmed through a synthesis of the successive operations of effective measurement. Now every effective synthesis gives of necessity only a finite magnitude, but every such synthesis fails of being unconditionally complete, since it is always possible to advance further, at least in imagination, while any attempt to set absolute limits on the possible effective synthesis presupposes attributing positive qualities to the void or nothing which limits the effective synthesis in respect to space or time. On the other hand the proposition of infinity of space or time is ruled out since an infinite synthesis can never be effectively completed and thus can not be confirmed in experience.

Now Kant's doctrine was addressed to metaphysicians since they were the only ones in his day who were concerned with attempting to deduce either the finitude or infinity of the universe in space or time. It is true that Newton, on Bentley's suggestion, attempted to infer from the needs of gravitational physics, not the actual dimensions of the universe, as Einstein and his followers have done, but the bare fact whether the material universe was infinite or finite—only to give up the problem as incapable of scientific solution.<sup>2</sup> It is a pity that there is no allusion in Kant's writings to this Newtonian attempt at a scientific cosmology, since it would have given us an indication of how he would have met the contemporary cosmological deductions.

For the sake of logical clarity I am going to postulate a hypothetical attempt on the part of a Newtonian in Kant's day to deduce the size and age of the universe from empirical considerations and see how it would be met from the Kantian viewpoint. Later it will be possible to introduce the special Einsteinian considerations of curved geometrical coördinates and see whether these add anything new to the problem. Suppose, then, a Newtonian undertook to form a judgment on the size of the universe by the same methods by which we form a judgment on the size and shape of the earth—by measuring the properties of physical paths taken under standard physical conditions and assuming not only that these proper-

<sup>2</sup> The correspondence between Bentley and Newton is found in volume 3 of *The Works of Richard Bentley, D.D.*, collected and edited by the Rev. Alexander Dice, 3 vols., London, 1836-38.

ties hold good in the explored regions but that, on the principle of the uniformity of nature, they must hold good in the unexplored regions as well. On such a procedure one might conclude, then, that the physical space of the universe closes up on itself and forms a finite extent of calculable size in the same way that the actual physical surface of the earth closes up on itself and forms a calculable finite sphere. Suppose also that there were a physical process observable in the heavens whereby the distances of the stellar bodies varied with time—in short, the process indicated by the present-day observation of the red shift of the extra-galactic nebulae. Reading this process back in time, in conjunction with the previously-established belief in the finite spatial size of the universe, one could come to the conclusion that at a certain moment in the past the radius of the universe might have been either zero or a relatively small equilibrium radius from which the so-called expansion started, this moment being therefore identified with the date of the beginning of the universe.

What would have been the Kantian answer to such deductions? If Kant emphasized against the metaphysicians the need of confirming their propositions in effective experience, it was not in order to give an unbridled speculative license to those who call themselves scientists. Quite on the contrary for Kant all scientific propositions, all scientific laws, so far from representing properties of things in themselves or laws of ultimate reality, were only formal anticipations of phenomena—they were extrapolations of properties of known experience to unknown and anticipated phenomena. While the practice of extrapolation from the known to the unknown involved an implicit reliance on the uniformity of nature and on the harmony between nature and the schemas of scientific thought, yet this extrapolation was safe because it was subject to the all-important check of continual verification or rejection in experience. Pending verification, all extrapolations, all predictions remained in the domain of the possible, and it was experience alone which transposed the possible into the real. As regards further experience, the present confirmation of a schema of extrapolation added new grounds for approaching the future with that schema, but it did not dispense with still more verification; on the other hand rejection of a schema by experience necessitated the revision of the schema so as to take into account the rebel phenomenon, and it was the revised schema which became the new guide to the future.

Thus the mere fact that one used mathematico-physical reasoning in formulating cosmological propositions would not dispense one with the necessity of verification (either actual or potential) which Kant imposed upon the metaphysician. Whether it was Aristotle, Newton, or Einstein who asserted that the universe was finite,

it was equally incumbent on each to be prepared for the verification of the proposition.

Now under the terms of our assumption verification of spatial finitude would involve the verification of the belief that physical exploration by a standard physical process would give results analogous to that of circumnavigating the earth. But supposing this confirmation to have actually been made on one occasion, the proposition that the radius of the universe is of a definite length,  $X$ , would still lack universal confirmation. Universal confirmation of the size of space presupposes that the "space measuring property" which we have taken as a guide will always remain at the same value; if the value should change the effective space which we should be able to measure would become larger, just as we should find the size of the earth larger should the surface flatten out. But in predicating something about the universe, one logically has in mind the universe as a self-contained whole in all its relations; hence if one asserts that the universe is finite, it makes no sense to say that the universe is finite today, with radius  $X$ , that it is finite tomorrow with radius  $Y$ , and that ultimately its radius may be infinitely great. For in that case the values  $X$ ,  $Y$ ,  $Z$ , etc., apply not to the universe as a self-contained system, but to the phenomenal universe of observation under defined conditions: the universe as a self-contained system would in this case be assigned, not a finite radius, but an indefinite or infinite radius.

As we shall see when we come to discuss Einstein's motives in constructing his finite universe, it was precisely a finite universe in the absolute sense that the eminent physicist sought and needed to satisfy his purposes, not at all a phenomenal finite universe which tomorrow may turn out to be not finite. But to assert that the ultimate universe is finite or that the universe is permanently closed is the same as to say that the "space-measuring property" which defines explorable space is fixed at a definite value for all time. Now such a proposition is not only beyond the powers of empirical science to establish, but if it is asserted on dogmatic grounds, it falls squarely within the maws of Kant's destructive dialectic. For if this space-measuring property is to be fixed, it must be fixed either by a cause intrinsic to the finite universe, or by a cause outside the universe. Since the cause acts in this case to limit the universe, it can not logically come from within the universe, and if it comes from the outside we are back again at the old contradiction of attributing positive power to the absolute void.

As regards the time-measuring process which we have postulated, it should be pointed out that in resorting to it one abandons the attempt to deal with the space of the absolute universe, while still insisting on applying the time-measuring process to the universe in

the absolute sense. In a word one insists that the expansion of the universe can be read back to the bitter end and that no other forces or processes will be found to interfere with it, and that the date of the presumed beginning of expansion marks the absolute time limit of the universe into which all events in the universe must be forced as into a procrustean bed. That this attempt to lay down the absolute duration of the universe must involve us in a fallacy may be seen by analyzing the two alternatives which such a theory may offer. Thus if the theory assumes that the universe had a definite size, a definite extension, at zero hour, there is no reason why the universe could not have existed indefinitely before the beginning of expansion; if according to the theory the size of the universe is zero at this zero hour, then we find ourselves with the contradiction of creation *ex nihilo*.

We see, then, that even if the cosmological propositions are inferred from empirical facts, the moment we try to confirm them in possible experience we run up against the same contradictions which Kant pointed out in the case of the ordinary metaphysicians.

We may now introduce the new geometrical tools which came in with Einsteinian relativity. Although truth is truth and error is error regardless whether it is spoken in French or in English, it is amazing to think that the substitution of curved coördinates for the old system of Euclidean coördinates plus physical forces for determining the physical measurement of space should have generated the illusion of something new under the cosmological sun. In his 1917 paper<sup>3</sup> Einstein began by discussing the cosmological paradoxes found under the Newtonian scheme and also under his own 1915 set-up involving the material universe as an island in infinite, empty space. It should be remembered that neither under Newtonian or the Einsteinian physics can matter be distributed to infinity without destroying the gravitational equations. Since the material universe is thus to be regarded as surrounded by open, infinite space, Einstein proceeded to point out the terrible paradoxes which follow upon that conception. In the first place, he pointed out, light rays, carrying mass and energy, go off into empty space and impoverish the universe; even material bodies may go over the brink and dissipate the material content of the universe; finally under the laws of statistical mechanics, Einstein said, an island universe with finite density at the center can't exist at all. (The reason is, as Einstein explained, that a finite difference of potential from the center to the edge involves a finite ratio between the material densities at the center and at the edge, and inasmuch as the

<sup>3</sup> *Kosmologische Betrachtungen zur allgemeinen Relativitätstheorie*, Sitzungsberichte preuss. Akad. Wiss. 1917. Pp. 142-152.

density at the edge is zero, the density at the center—*i.e.*, the material presence of the earth, sun, and stars—must vanish.)

Taking these paradoxes seriously and believing that while Newton with his Euclidean geometry could only grin and bear them, he, Einstein, through the possession of curved metrics, had the power to abolish these paradoxes once and for all, the eminent physicist decided to modify his 1915 equations and set up equations for a universe with a closed spherical space of finite dimensions, the space ceasing to exist where matter ended. It is to be noted at this point that if this universe is going to be one which will abolish the objectionable paradoxes which Einstein enumerated, it must be a permanently closed universe, not a finite phenomenal universe which tomorrow may give way to a not finite phenomenal universe. In the latter sort of situation all the paradoxes would still operate. Light rays from our part of the universe would still disappear in space whenever paths would open up. Material bodies would still be able to disappear over the brink; and, since the space would be potentially open, the laws of statistical mechanics would still make it a miracle as to how there can be a finite material density at the center when there is infinite empty space all around. It is only if one could definitively close space that the paradoxes could be avoided.

Now the experiential physical properties of an Einsteinian universe—such as that light rays or any other standard process of physical exploration of space would move in closed curves, never getting out of the material universe and circumnavigating it in a finite time—are precisely the same as those of the physical finite universe we have hypothetically constructed in Newtonian-Euclidean terms. But it may be readily seen that if in the former case we were unable to assure the necessary permanence of the properties involved, it does not help us any to resort to curved coördinates to try to accomplish our purpose. For it is a matter of experience and not of any *a priori* logic of geometry whether light rays (or any other standard process) would reveal the same curvature in the unexplored regions as in the explored regions, or would give the same values of curvature tomorrow as today; if tomorrow the curvature at the borders should flatten out and reveal space as flat and therefore possibly infinite, curved coördinates would be compelled to recognize that fact—compelled to recognize that the universe is open, if experience reveals it so. The only way we could keep for all time the specific closed curved metric which Einstein postulated would be by assuming the existence of a metaphysical force standing guard over the curvature and size of the universe—and such a force or cause involves the same metaphysical contradictions which we have previously discussed.



The further development of relativistic cosmology was stimulated by two factors: first, by the empirical discovery of the recession of the extra-galactic nebulae, and secondly, by the minute analysis of the mathematical terms in Einstein's equations.<sup>4</sup> Now although the recession of the nebulae contradicted the assumptions of Einstein's equations (which involved a static universe of fixed radius) and thus ultimately forced the abandonment of the Einstein cosmology, it is nonetheless to Einstein's original construction that we owe the tendency to interpret the recession or observed spreading apart of the nebulae as a cosmological process, that is to say, as a time-measuring process of expansion of the universe; whence the absurd conclusion that the time that has elapsed since the expansion from presumed equilibrium radius represents the absolute duration of the universe, into which the evolution of the stars (some of which demand a time scale many many times as great) must be jammed without compunction.

On the other hand the generalized analysis of Einstein's equations, which began even before the discovery of the recession of the nebulae, has worked indirectly against the metaphysical tendency. The reason is that the mathematical process of generalizing from a more concrete equation to more general cases is calculated to exhibit something of the same contingency of specific factors which the philosopher exhibits when he contrasts a limited universe of empirical measurement against the system of possible empirical universes involved in the concept of an absolute universe. It is for this reason that the mathematicians have affirmed that the known facts do not give sufficient data to choose between a large number of possible models of the universe, except by arbitrary assumptions with regard to the cosmological constant  $\lambda$ , the sign of curvature, etc. But whereas, for the philosopher, the existence of these possible universes, each corresponding to a conceivable empirical situation, is an indication that no one of these universes, even if it were momentarily empirically confirmed, could be identified with the ultimate universe (or in other words that the empirical phenomenal universe could not be assumed always to remain the same), for the mathematical astro-physicist whatever model of the universe could be confirmed would represent the true universe.

Under these circumstances the recognition of the mathematical indeterminacy of the cosmological problem has not completely undone the original mischief of attempting to legislate concerning the time and space of the universe. For not only do individual scien-

<sup>4</sup> For a complete survey of the cosmological theories, see H. P. Robertson, "Relativistic Cosmology," *Reviews of Modern Physics*, Vol. 5, 1933, pp. 62-90, which contains also an exhaustive bibliography on the subject from 1917 through 1932.

tists tend to force the facts by adding assumptions on the basis of subjective preference, but there is a general tendency to take the common denominator of all the theories as representing a valid scientific truth. Thus, according to all the theories, at a relatively short time in the past, the stellar bodies were crowded together either in a relatively small space or in a zero radius. Many a scientist is tempted to take this proposition as that minimum part of truth about the structure of the universe about which all scientists are in accord, and as therefore indicating that a short-time scale has been definitely proved so that theories of stellar evolution must be revised to fit that time scale, whether the facts are agreeable or not. But from a critical point of view the situation is very different. The fact that all these cosmological theories involve in one form or another the short-time scale is a reflection of the fact that all are using a process of metaphysical extrapolation on the same observed process, namely, the rate of recession of the extra-galactic nebulae. Now this observed process would have to be taken cognizance of in scientific theory. But scientific cognizance, scientific extrapolation of that fact, would amount to nothing more than the realization that the large bodies in our neighborhood are undergoing a process of spatial expansion which began nobody knows when in the past and will end nobody knows when in the future. Such extrapolation could never be carried to the point of erecting the process into an unconditioned relationship providing a duration or time scale to which other facts and processes must conform. The delicate distinction between scientific extrapolation and metaphysical extrapolation may be illustrated by pointing to the well-known fact that certain laws of thermodynamics as worked out from gas phenomena break down when applied to solids. Now if these laws, these extrapolations, were regarded as necessary metaphysical truths, it would not be the thermodynamic laws which the scientist would regard as false when applied to solids, but the known empirical properties of solids which would be regarded as false while the laws would be regarded as absolutely true with regard to solids.

To the critical philosopher it seems that to extrapolate the process of expansion backward to the bitter end without independent verification (and strictly speaking without the possibility of verification), and then sacrifice more or less verified facts and processes to the unverified extrapolation, is an indication that the physicist has become infected with the disease of metaphysics. And as one who has suffered from this disease before and has developed an anti-body against it, the critical philosopher humbly offers his intellectual blood for transfusion in order to restore the body of science to full health.

BENJAMIN GINZBURG.

NEW YORK CITY.

THE PREDICAMENT OF HISTORY <sup>1</sup>

IN the golden age of historiography, in the nineteenth century, historians were the political leaders of the community. They were trusted as knowing the past of mankind and of their own country. Knowledge of the past and leadership for present and future did not seem to be in conflict. The historians represented both the memories and the good conscience of the community. Guizot and Thiers, Dahlmann and Gervinus, Mommsen and Schmoller, Macaulay and Bancroft, are well-known cases in point.

These golden days are gone. The historian is no longer the born political leader and he is no longer completely trusted. The predicament of modern history arises from its no longer being in harmony with the memories and traditions of any clearly defined group. A careful study of the relations between scientific history and group-memory is badly needed.

To indicate a program for such a study will further clarify the chief difficulties of history in the post-war world. I am going to try to sketch the outline of such a program in this paper.

What, then, do I call memory or tradition, as opposed to the writing of history? Edmund Burke has masterfully described the memory of a nation, though he seems only to be defining the nation itself. He says:

A nation is not an idea only of local extent, and individual momentary aggregation, but it is an idea of continuity, which extends in time as well as in numbers and in space. And this is a choice not of one day, or of one set of people, not a tumultuary and giddy choice; it is a deliberate *election* of the ages and of generations; it is a constitution made by what is ten thousand times better than choice; it is made by the peculiar circumstances, occasions, tempers, dispositions, and moral, civil and social habitudes of the people which disclose themselves only in a long space of time. It is a vestment which accommodates itself to the body. The individual is foolish, the multitude, for the moment, is foolish; but the species is wise, and when time is given to it, as a species, always acts right. [Ed. of 1856, VI, 146.]

Let us apply this statement of Burke to the situation of history-writing to-day. The scientific historian does not enter virgin territory when he begins to write. He enters, not a world of animal nature, but a world which mankind has previously conquered, by action, discovery, sacrifice, emotion. The historian's facts are not facts in the common sense of this abused word. His facts are man's experiences.

Consciously experienced life, *erlebtes Leben*, as we say in German, is more than life. Let me analyze a simple event like the battle of Waterloo. The soldiers on the battlefield are involved in a manœuvre which they do not understand. Men swear, children cry, horses run, women try to save little things, and the soldiers are

<sup>1</sup> Read before the Annual Meeting of the American Historical Association, Washington, D. C., December 28, 1934.

marching, marching, marching, heaven knows why or where. Stendhal or Tolstoy, describing the complete blindness of the individual sharer in a great event, are perfectly right. Yet the deeper the embarrassment, the more dangerous the confusion, the more violent is the effort of all those involved in it to establish a common experience and a common intelligence. Probably because the confusion which reigned during the battle was so tremendous, the battle of Waterloo became a name, an impression, and a reality long before the historians sat down to write of it. Some features, some actions, some human traits, tower above the mire of incomprehensible sufferings and hardships as the individual tradition of this particular victory and defeat. Fears and hopes, envy and generosity, collaborated to coin the names "Belle-Alliance" or "Waterloo." Man is a name-giving animal. Conscious experience is the presupposition for a new name. History, like any other science, is incapable of producing names. It proceeds by concepts, definitions, and corrections of names.

The work of research is unable to create names. The process of commemorating is under way long before the critic argues about the importance or unimportance of an event. Gettysburg, Saratoga, Yorktown, Marathon, are not facts, but creations of a nation's memory. This creative process precedes historiography by as great an interval as it follows the confusion of the thousands of soldiers or civilians who, among countless facts, did not know what it all meant. The Peloponnesian War was in the hearts and bowels of the Greeks long before Thucydides purified its memory in the first scientific book on history.

The memories of an individual or a group are not built up by science. They are a process of selection by the group which goes through a decisive experience of victory or defeat. Memory works differently from literature or science. Memory uses other means, because it is not an effort of the intellect. The whole being of the nation is at stake in a great event. The new name is only the minimum requirement for the assimilation of an overwhelming experience. And assimilated it must be, lest it become an obsession. Monuments are built, ceremonies are devised, to keep the memory awake. The periods of history are products of this creative process. The Crusades, the Reformation, the Middle Ages, Antiquity, the Glorious Revolution of '88, are—like all important divisions of era—expressions of a group-morale, and not in the least the outcome of scientific research. We see the same thing happening to-day when people begin to date things in relation to the World War. The scholar is not the master of the periods he uses. He only corrects those which exist.

The climax is reached when an event is incorporated into the calendar as a recurrent date. Memory is fixed by the calendar of

a group or a nation. Seven hundred sixty years ago, Thomas à Becket was put into the calendar of the Christian church as a martyr to its liberty. He, the victim of an English king, replaced in the calendar the ideal of true righteousness: he took the day of King David himself as a martyr for the liberty of the Roman Church. The introduction of such a day into the English kingdom two years after the murder under the authority of the pope in Rome tells us more about the medieval relations between Rome and a local kingdom than many discussions of the Anglicans during the nineteenth century. The pilgrimage to Canterbury once more underlines the fact that the day of St. Thomas was the Fourteenth of July of the Middle Ages and the Magna Charta of the common man from 1174 to 1535. The ceremony of re-reading Washington's Farewell Address in the Senate is another example of the formation of memory. In this case, reading is a means to the chief end of tradition—it gives time for reflection. "Those who remember the past are not condemned to repeat it." Burke observed that the species is wise when time is given to it.

Since only a few events can become holidays, names, or monuments, traditions are based on a selective process. Memory is tyrannical. It represses and excludes; it exalts and prefers. Thus it may be unfair; but it is real. Memory is the barrier between the alleged facts and the historiographer's task.

Let us analyze now the historian's duty. Again I turn to Thucydides. He, to our mind, is the first great scientific historian, because he is conscious of his duty of detachment. He has "distance." He opposes the "agalma," the monument which a group dedicates to its gods after a conscious experience. He corrects the Athenian tradition by giving the intentions and purposes of the other side. He writes the history of the war between Greeks in a way acceptable to both sides. His speeches are no mere ornament. They are Thucydides' great discovery. All our modern scientific apparatus is nothing more than the evolution of his speeches. In using the forms of legal pleading, Thucydides transforms the "national monument" into a "possession forever," partial tradition into universal history. History, after Thucydides, can be defined as the restoration of memory. History is corrected and purified tradition, enlarged and analyzed memory.

Why must the history of the Great War be tried and tried again? Its history must be written because it has left memory paralyzed by prejudice. Disgust prevents many people and whole nations from thinking of it. "John Brown's Body" deals with all the scars of partial memory left by the Civil War. An eminent pragmatic historian, Professor Samuel Morison, could call the poem the best history of the Civil War. Stephen Benet not only resuscitated the memories of the few leading men, and the traditions of North and

South; he went further and balanced the experience of the soldiers with the emotions of the folk at home. Thus his poem ends the "infandum dolorem," as Virgil called the memory of war and defeat.

The historian is the physician of memory. It is his honor to heal wounds, genuine wounds. As a physician must act, regardless of medical theories, because his patient is ill, so the historian must act under the moral pressure of being asked to restore a nation's memory or that of mankind. Buried instincts, repressed fears, painful scars come for treatment to the historian. This idea of history is appreciated to-day by the masses, who in their own primitivism are eager to read of primitive civilizations.

The historian regenerates the great moments of history and disentangles them from the mist of particularity.

But the economic interpretation of history or the Hegelian abstract logic of history or Henry Adams' law of acceleration are little more than tools; they are the scaffold which the historian builds around the old house of mankind's memories for his work of repair.

It is here that the nineteenth century particularly sinned. It took the scaffold for an end in itself. Hegel and Marx, Carlyle and Spengler, cultivated the pride of the historian. They remind me of the famous Viennese medical school which took less interest in the patient than in the theory of the disease. But people dislike this type of physician. The loyalty to the great events was instinctively preserved by all the great historians. Ranke is a good example. He never failed to choose the main and most important traditions of the Teuton-Latin nations for his scientific treatment. He repeatedly told his disciples: "Gentlemen, develop within yourselves the sense for what is important." Unfortunately, only one single member of his seminar, Jakob Burckhardt, took notice of this decisive remark. Thus, Ranke impresses us to-day as an exception. Idealists and materialists, scepticists and empiricists treated the past as a mere past, not as a wealth of conquered worlds. Oswald Spengler is the clearest type of a writer of "history without memory." In his *Decline of the West* he gives a world-history without mentioning on a single page one word or expression used by the contemporaries of his events. No "Dieu le volt," no "Rights of Man," no "to thy tents, Israel," no "these are the times to try men's souls." He looks at the world of Man as if Man had no memory.

It gives me great pleasure as a German to have the opportunity to challenge the fatal doctrines of the followers of the German historical school and of Hegel or Marx. From Hegel to Benedetto Croce, philosophy has biased history. The thinker seems to persuade the historians to depend on a philosophy. The *Weltgeist*, the economic interpretation, the true, the good, and the beautiful, class-

war or progress are offered to us as working hypotheses lest we lose ourselves in the ocean of facts. And it is true, the historian who is convinced that he has to deal with the past in the same way as the geologist with the earth is inevitably lost in the maze of billions of possible facts. He must turn to some abstract scheme of creed or prejudice. And this is still the lesser evil. Philosophy is at least a guide. The empiricists depend instead on slogans from the newspapers. Such an empiricist will use "progress," "liberty," "nation," "despotism," in a completely irresponsible way. The empiricist is not at all an historian without a philosophy; he is just an historian with a bad and unconscious philosophy, mostly that of his daily paper or his club.

The great historian has never overestimated his own philosophy or his empirical research. Compared with the greatness of events like the War of Independence or the Thirty Years' War or the World War, the selection by philosophical bias is supplementary. It seems to me a necessary supplement. The historian detaches himself from the group-tradition. He goes against the customary prejudices of one side. He will see the relative right of the Carthaginians or the Loyalists, and he will therefore not be at home in the primitive temple of tribal worship. Philosophy is, then, the most general prop, the Archimedean place from which to criticize tradition. The timeless home of a philosophy or of the church enables man to live beyond or outside the tradition of his time-bounded group. To find a sound equilibrium between our loyalties to our spiritual and to our earthly home must be our goal. The dualism involved in such an equilibrium is quite inescapable.

But alas, to-day we see the historian at home only in history. On the one side, he has neither a church nor a philosophy to detach him from his group. On the other side, he is even less inclined than of old to bow to the memories and traditions of real experienced life. Many scholars think that the titles and subjects of their investigations are their private invention and property.

A revolt of the masses will be the answer to us if we prove to be disloyal servants of mankind's memory. They will read, instead, the novelist's world-history and the mythologist's fairy tales. And they are already doing it. These results of the historian's autonomy are dangerous. Yet it is evident that the mistake of the Romantic school or of Hegelianism or Marxism could not easily be avoided.

Two things seem to be responsible for the emancipation of history from its service to real memory. Traditions were entering into dissolution and anarchy during the nineteenth century. History and written literature became the substitutes for tradition. This monopoly in matters of the past was an emergency measure. With an industrial revolution, a weakening of the church, an ending of immemorial traditions, the historian seemed the only available pro-

tector of tradition. The Romantic historian acted in an emergency. And since all great historiography of our days owes its very existence to the historical faith and passion of the Romantic school, it is only fair to say that history has partially rescued memory in a period of forgetfulness and destruction of tradition.

Among the many other reasons for the drifting away of history-writing from life and for the epistemological errors about the periods and dates of history which man had created without the historians, one is of fundamental importance.

Rationalism, Benthamism itself and the overestimation of natural science which followed in its wake, undermined the common meaning of tradition. The only tradition which was kept sacred was that of rational discourse itself. The traditions of abstract thought, of all the *isms*—Epicureanism, materialism, idealism, Platonism, Aristotelianism—were not attacked or dissolved by the rationalists. This was strikingly exemplified by the greatest of all rationalists, Immanuel Kant himself. For he concluded his *Critique of Pure Reason* with a history of rational inquiry. This history of Pure Reason is nothing but memory and tradition applied to Reason itself. The traditions of philosophy are nowhere to be found except in books. In philosophy, and in philosophy only, is written history identical with tradition. Philosophical ideas are indeed commemorated by books, because the emotional life of a thinker expands quite normally into book-writing. The book is the philosopher's way of commemorating the "eureka" of a new thought forever. Kant's *Critique* is mostly consulted for its first two hundred pages. But it is the concluding chapter, on the history of thought, over which the historian should ponder. Kant has no interest whatever in pragmatic history. Yet he cares for traditions; he could have said, like Santayana: "Those who can not remember the past are condemned to repeat it." Kant appreciates history as a list of former mistakes and fallacies, eureka's and axioms discovered. Thus he means by history precisely what, for the whole field of history, we have called the memories of defeat and victory.

When philosophy began to rule the world, after 1789, history was divorced from all the non-literary forms of tradition. Philosophical traditions, the *isms* of the schools of thought, vanquished all other forms of tradition. But traditions they were. One form of glorious tradition, the memories of heroic victories and defeats of scientific thought, displaced all the others. Thus history lost its honorable place as a helper of memory in general. It was limited now to rendering services to science alone.

This serfdom of history in the narrow field of science's memories troubled many philosophers during the nineteenth century. York von Wartenburg, in his letters to Dilthey, denounced it by saying that after Descartes history was just barely tolerated as a



modest human accompaniment to the swelling music of natural science.

The neo-Kantians tried to defend history with their well-known theories of *Einmaligkeit* and *Arbeitshypothese*. Rickert erected fences against natural science by calling the data of the *Geisteswissenschaften*, *einmalig*. Heussi and others would degrade the great periods of history into mere working hypotheses for the scientist. Neither doctrine was critical or unprejudiced. They acted purely and simply as apologists against the primitive dogmatism of natural science. But—and this is the queer fate of every mere apology—they accepted just those two principles of positivism which are obvious fallacies. Rickert accepted the misleading notion of “fact,” whereas history deals solely with conscious experiences. What does it profit us to know of *Einmaligkeit*, if the confusion of billions and billions of *einmalige* facts persists? In the decisive question of what periods like “pre-War” or “Middle Ages” mean to the historian, Heussi succumbed to the temptation of giving history the sovereign rights over the past of mankind which the scientist claims over external nature. The neo-Kantians degraded the faith of the nations into the working hypothesis of a Rockefeller stipendiary. The laudable intention of a young man engaged in research to accept a good working hypothesis does not deserve the grandiose name of “faith.” For fear of being defeated by the victorious natural scientist, the neo-Kantians deprived both mankind and history-writing of their natural rights.

It is the birthright of man to build up a memory and to have faith in the future. Memory and faith are properties of a man as a layman, a member of the people. It is the privilege of the historian to correct memory; and for this healing capacity he must be made independent in his research. Kant asked the scholar to revel in the discovery of material “in a tumultuary way.” Both the layman’s birthright and the historian’s privilege were sacrificed by modern philosophy. It was too eager to defend the *Geisteswissenschaften*. It ascribed to the historian the non-scientific faith of the natural man and the unlimited dictatorship over facts of the natural scientist.

This has become something of a disgrace now, when the natural scientists themselves no longer claim such a dictatorship over their facts. Physics or mathematics have no inexplicable advantage over the rest of man’s reasonable attempts to heal the wounds of creation.

Thus the apologetic philosopher, following always at the heels of science, was perpetually duped, and history-writing itself lost its honorable place as a helper of memory. The healing servant of society became the champion of one of the traditional abstract scientific theories.

The divorce of national memory from history-writing is being

answered to-day by an outbreak of national, social, and racial mythologies. Myth, in the sense of the modern literati, is a substitute for the lost memory. Scientific history, in its self-defense against mythology, must base itself frankly on previous group-tradition; for otherwise history can not demonstrate that the roots of its conceptions are in empirical reality. If history were the only human activity for representing the past, it would remain arbitrary and would have no means of distinguishing itself from mythology. The mere assertion of the historian that he is honest is no test for the man in the street, who is buying his book.

As a piece of literature, a book penetrates into the sphere of the emotional life of society. Outside its realm of scholarship, any book on history can not help forming an artificial tradition. As long as other ways of forming memory coëxisted, the historian's book could play its proper rôle. Nowadays, any violent and partial book on history will find millions of readers who have not learned to digest a real historical experience. It is in these cases that the best-intended history plays the rôle of a dangerous soporific. It once more weakens the creative power of the reader to experience history for himself.

History is safe if it remains what practically it always was: the *restoration of Memory*. As tradition restored, memory regenerated, history regains its quality of an empirical science.

All history corrects and restores a corrupt memory. In order to do so it must be able to depend on the existence of primary memories and traditions. Man's ways of building up traditions must be studied as something very different from his ways of writing history. Remembrance is a social and individual capacity which has to be nourished by appropriate conditions. Modern man seems no longer to register experience without special training. Without the capacity for keeping and developing the process of selection which we call tradition, the group can have no history. The power of selection which was applied by Darwin to processes in the world of animals and plants is in reality the power of civilization. And this power can be wasted or lost!

This was overlooked by the period of historical pragmatism. This kind of historical outlook is losing its hold on contemporary thought. Impudent national and social mythologies are challenging both history and tradition. The true function of history must be recovered. The important facts, experienced, remembered, and created into traditions and instincts, must once more become the foundation of historical research. Let us reconcile memory and history. Otherwise there may be neither history nor memory.

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## BOOK REVIEWS

*Hommage à Monsieur le Professeur de Wulf.* Revue Néoscholastique de Philosophie. Tome 36 (Deuxième Série, no. 41). Louvain. 1934. 546 pp.

In July 1933 Professor Maurice de Wulf completed his fortieth year of teaching. His career, devoted to the study of scholastic philosophy and extended through a period of increasing interest in that study, is celebrated by a volume of essays offered to him by colleagues in the numerous institutions in which he has taught and by his pupils. These essays are published appropriately in a special number of the *Revue Néoscholastique de Philosophie*, which by no unrelated coincidence also celebrates its fortieth anniversary.

After an essay concerning the career of M. de Wulf and an assemblage of lists of his works and honors (L. Noël, *L'oeuvre de M. de Wulf*, and P. Harmignie, *La carrière scientifique de M. de Wulf*), the volume apparently follows the chronological sequence of the subjects treated in the essays. Professor E. K. Rand of Harvard returns to the question of the author of the commentary on the *Opuscula Sacra* of Boethius, which he published in 1906 and which has since been the subject of comment by Dom Cappuyns. F. Sassen presents a study of the teaching of the arts and philosophy in the twelfth century, based on an examination of a catalogue of books at the Abbey of Rolduc in that century. Gilbert de la Porrée and his school are the subjects of two of the essays: A. Forest studies the realism of Gilbert's commentary on the *De hebdomadibus* of Boethius, and J. de Ghellinck adds to his numerous illuminating studies of thought in the twelfth century an examination of the meanings of the words "*persona*" and "*hypostasis*" in the unpublished and anonymous work, *Liber de diversitate naturae et personae*, in which Père de Ghellinck finds the influence of Gilbert. After a review of the history of demonstrations of the immortality of the soul during the Christian period, in which the comparative scarcity of such demonstrations is remarked, Raymond-M. Martin examines the five proofs contained in Robert of Melun's *Commentary on the Sentences*; as appendix to his essay, Père Martin publishes a text of the relevant passages based on an examination of three manuscripts. A. Masnovo contributes a chapter of the second volume of his work, *Da Guglielmo d'Auvergne a San Tomaso d'Aquino* (reviewed in this JOURNAL, Vol. XXXI, p. 384), devoted to William's controversy concerning the "pure and true intellect." Gerald S. Phelan reports concerning the manuscripts of the unpublished *Hexameron* of Robert Grosseteste. The nature of contemplation is examined by Gabriel Théry in the statements concerning contemplation made by Thomas Gallus and Egidius of Assisi. O.

Lottin goes into the little-examined work of the Masters at Paris in the first half of the thirteenth century to discover their doctrine of the relation of the soul to its faculties. Martin Grabmann examines an anonymous collection of *Quaestiones* to report the traces in it of Aristotelian translations made in the course of the century and of the philosophic disputes that paralleled the translations. Pierre Mandonnet enters upon the question of the attribution of the *Philosophia pauperum* to Albertus Magnus, marshalls arguments which seem conclusive for its authenticity, its date (1270–1280), and the contention that it is the work which Albertus himself referred to as the *Compendium de naturali negotio*, and finally examines its effect on Roger Bacon. The *Nous pathetikos*, one of the centers of interest and controversy among medieval commentators on Aristotle, is the subject of A. Mager in an adroitly conceived essay which attempts to use the commentary of Aquinas for insight into the Aristotelian text. The Aristotelian definition of time underwent an important change in the course of the Middle Ages: to the definition of time as the number of motion according to prior and posterior was added the specification of the ultimate motion measuring all other motions, that of the celestial sphere; Augustin Mansion shows convincingly that that change was introduced by Averroes and continued from his work by Albertus Magnus and Thomas Aquinas. Alexander Birkenmajer inquires into what possible knowledge Roger Bacon could have had of the Preface to Avicenna's *Liber sufficientiae* and publishes the relevant texts. Etienne Gilson, whose numerous studies have contributed so much to clarifying the nature of the relation of Augustinian and Aristotelian tendencies in the Middle Ages, is represented by a brief but very suggestive essay on some difficulties of the Augustinian doctrine of illumination: in it he points out that the Augustinian doctrine of illumination is peculiarly suited to treat of the certitude of knowledge, whereas the Aristotelian doctrine of abstraction is peculiarly suited to account for the origin of concepts, that consequently the peculiar problem of the Augustinian philosophers of the thirteenth century was to account for the origin of concepts; the ways in which Augustinians met this problem is illustrated from Matthew of Aquasparta, Roger Marston (the recently published *Quaestiones disputatae*) and Saint Bonaventura. Miss D. E. Sharp's study, in a sense a supplement to her studies of English Franciscan philosophers, is an account of the work of the English Dominican, Thomas of Sutton, with particular emphasis on his psychology. E. Hocedez reports and edits a hitherto unedited solution of the problem of individuation from the *Quodlibetal questions* of Peter of Auvergne. Appropriately Belgian philosophers of the Middle Ages have their place in the col-

lection of essays: G. Wallerand treats of the relation of Henry Bate to Thomas Aquinas; J. Hoffman discusses some *Quodlibetal questions*, which, following his argument, should be attributed to Godfrey of Fontaines, and publishes some sections of those questions; A. Pelzer studies some of the logical doctrines of Barthelemy of Bruges, a physician and philosopher of the fourteenth century. E. Longpré presents an important study of a Spanish manuscript of the *Reportata* of Duns Scotus which contains some interesting variations from manuscripts previously studied, involving the verification of several points, philosophical and historical, concerning Duns Scotus, which had hitherto been without manuscript support. F. Van Steenberghen undertakes finally a survey of the progress of medieval studies. It would be difficult to imagine a more appropriate homage to a great medieval scholar than this volume, which itself represents some steps forward in the study to which he has devoted his life and which future scholars will find profit in consulting.

R. McK.

*Condorcet and the Rise of Liberalism in France.* J. SALWYN SCHAPIRO. New York: Harcourt, Brace and Company. 1934. 311 pp. \$3.50.

Philosophers who are fond of praising balance, serenity, and clarity at the expense of personal passion and a pronounced individual style, may well take warning from the fate of Condorcet. Not even the latter's heroic gesture in penning his *Esquisse* beneath the shadow of the guillotine has been enough to rescue his reputation from the charge of blameless dullness. Professor Schapiro has made a notably successful attempt to bring Condorcet to the contemporary general reader in the guise of model *philosophe*, a belated personification of that cool rationality so detected by royalist and Jacobin alike. Acknowledging that Condorcet wrote for the most part in a "literary monotone," the author wisely presents a more lively digest of his chief ideas, with chapters on the many varieties of eighteenth-century liberalism—political, intellectual, economic, and religious, on feminism, popular education, America, and the idea of progress. In connection with the latter notion, it should be noted that Saint-Simon and Comte were greatly influenced by de Bonald and de Maistre, so that they came to look upon Condorcet as deficient in his grasp of the countervalue of order and tradition, a defect laid bare by the destructive Revolutionary excesses to which he fell a victim. A closing chapter of evaluation is not sufficiently definite or conclusive to aid in clearing up the haze which still envelopes liberalism, particularly when one tries to render it realistically in twentieth-century details rather than verbally in eighteenth-century dogmas. Professor

Schapiro's able study, combining the scholarly and the readable to an unusual degree, does everything possible for the man who has well been called the "Lafayette among philosophers,"—Condorcet, who meant well, lived virtuously, and thought clearly, all just a few decades too late.

H. A. L.

*Art and the Life of Action. With Other Essays.* MAX EASTMAN.  
New York: Alfred A. Knopf. 1934. 227 + iv pp. \$2.00.

The major part of this small book is a longish essay on the subject suggested by the title. The author would have been wiser if he had expanded this shrewd piece of esthetic analysis and omitted the engaging but unimportant essays which make up the remainder of the book. Mr. Eastman, who has long mingled philosophy and politics in his life, here undertakes to distinguish between art and propaganda and to indicate the relations between the two. In attempting to do this he begins by attempting to show that the current attempt to identify art with propaganda is but the end term in a long history during which art has been assigned many different positions with reference to the life of action. Art, Mr. Eastman insists, can only be identified and defined by its "impractical" element.<sup>4</sup> It has, however, been "sanctioned" by various practical activities. These various sanctions are discussed with nonchalant lucidity: "The Sanction of Perfected Craftsmanship," "The Magic Sanction of Religion," "The Educative Sanction," "The Artist and the Social Engineer." The essence of Mr. Eastman's critique of non-artistic sanctions of art occurs on page 28 when he says: "so long [as] art was indeed a 'preparation for action . . . '—art was 'moral,' " The justification, the intrinsic value, of art for our author lies in the fact of art's "distinct and ultimate importance, of its identity with conscious life" (p. 81). . . . "The defining function of the artist is to cherish consciousness" (p. 72). Mr. Eastman does a service in distinguishing the "enjoyment" of art from its ancillary or even its interfering uses. He does yeomen's work in rescuing consideration of art from some of the new puritanism of propaganda to which it has recently been subjected, but his conception of art's sole function as "the cherishing of consciousness" is too simple and too uncritical a piece of traditional analysis to be sufficient. Mr. Eastman thinks of art primarily in terms of poetry, and his own analysis of *The Enjoyment of Poetry* is all in terms of a heightened consciousness, of the effects of poetry as "wine and sleep." But the way in which art is itself a kind of action, both in enjoyment and creation, Mr. Eastman does not at all consider. Nor does he come at all to grips with the distinctively

esthetic question involved in any discussion of art and propaganda, the relation of form and meaning, of that fusing of intellectual purport and of distinctive quality which may render an object at once art and propaganda. Mr. Eastman should and does know better, by the way, than to "explain" either as philosophy or history, the Aristotle of the *Poetics* by such nonsense as the following: "He [Aristotle] was, in short, an earnest bourgeois worried by the revolutionary enjoyment of poetry, but ready to accept it once he had found some way to tell himself that it was useful" (p. 43).

I. E.

*A Guide to Reading in Aesthetics and Theory of Poetry.* GEORGE N. BELKNAP. (University of Oregon Publication, Vol. IV, No. 9.) Eugene: University of Oregon. 1934. 91 pp.

Mr. Belknap has performed a very valuable service to all students of art and poetry and the theory of both. "The present bibliography was developed in the study of appreciations conducted at the University of Oregon for use in connection with that phase of the study which deals with the appreciation of poetry. Its scope will be extended at a later time to include sections on the space arts, on music, and on the studies in methods of teaching the appreciation of literature, space arts, and music."

The bibliography under review consists of 155 titles, a hundred in general esthetics, and fifty-five in the theory of poetry. There have been some deliberate classes of omissions: ancient theory, modern works not available in English, monographs on special problems, and historical works are among these. With a few exceptions there is no periodical literature mentioned. But the titles chosen have been chosen with care for their "active, contemporary importance." The summaries and comments on the books are admirable. Necessarily brief, they are also perforce in places dogmatic. But the reader can get from these well-written and alert compressions a very shrewd idea of the contents, point, direction, and net value of the book in each case under consideration. Two or three instances of the way in which Mr. Belknap gets to the heart of the matter may be cited. The works of Irving Babbitt are being considered. After an excellent statement of what is actually in Babbitt's writing, he remarks at the close:

"Babbitt seems to conceive form as something imposed externally for the purpose of subduing and calming the spontaneous exuberance of expression" (p. 9). Sometimes his comments are at once provocative and perplexing. He remarks at the close of his brief examination of Dewey's *Art as Experience*, "On the ideal significance of art Dewey writes in the spirit of Kant" (p. 19). A little

exposition would render that sentence possibly less surprising and less ambiguous. And of I. A. Richards, *The Principles of Literary Criticism*: His theory of esthetics is "very distinctly the product of a speculative venture beyond the limits of the natural science of psychology, in which he professes to found it (p. 47).

The section on the theory of poetry contains a brief guide to all the books, indeed a few more than all the books on the *theory* of poetry that a student of *poetry* should consult. The section is done with taste, care, and understanding.

I. E.

*Grundstile der Kunst.* HEINRICH LÜTZELER. Berlin und Bonn: Ferd. Dümmler. 1934. viii + 424. 8.80 M.

Dr. Lützel is primarily an art historian rather than a philosopher. His earlier works include *Die christliche Kunst des Abendlandes* (1932) and articles on the baroque, Spanish art, color in painting, etc. He has also published, in 1934, a work entitled *Einführung in die Kunstphilosophie* which I have not seen. The volume here reviewed is inspired by Wölfflin's famous *Grundbegriffe* and is in some ways reminiscent of Scheffler's *Der Geist der Gotik* and Spengler's *Decline of the West*, though, curiously, Scheffler is never mentioned and Spengler is not discussed. It is, however, far more comprehensive and systematic than the *Grundbegriffe*, and, on the other hand, it conscientiously refrains from wild Spenglerian hypothesis and dogma. The author's numerous generalizations are frankly recognized to be abstractions and are defined and interrelated as such; yet they escape a vicious apriority by being invariably derived from, and constantly referred back to, concrete works of art, of which hundreds are cited. The book is therefore, in my opinion, just the sort of book which a philosopher would wish an art historian to write; it is an invaluable supplement to more localized art criticism and provides an excellent inductive basis for philosophical theory.

The book deals only with architecture, sculpture, and painting. It analyzes these arts to discover what is distinctive to each and arrives at a definition of the pictorial, architectural, and sculptural *Grundstile*. It then considers how and to what extent architecture may be pictorial (*malerisch*) or sculptural (*plastisch*) and how, similarly, paintings and statues may conform to one or other of these basic styles. Numerous problems are then discussed in terms of these styles: the sense of reality; the relation of the concrete work of art to the creative artist, to society, and to a specific culture; the evolution of one style out of another; art and religion; art and its material; etc. There follows a discussion of the relative



esthetic merits of the three styles and an admirable formulation of criteria for the appraisal of specific works of art. The book ends with a brief analysis of contemporary art and an admittedly inadequate indication of the contribution which such a doctrine of styles can make to philosophy, particularly the philosophy of history. All these discussions are empirically oriented in the art of China, Japan and India, Egypt, Greece, and Western Europe. There is also a wealth of reference to the literature of art criticism (chiefly German). I can not, of course, attempt to appraise the soundness of the author's analyses of individual works of art and of artistic traditions and epochs, but I can testify to having found these analyses always stimulating and often genuinely enlightening. I should therefore confidently recommend the book to the empirically-minded philosopher of art as a valuable prolegomena to philosophical theory.

T. M. G.

*Logik der Forschung.* KARL POPPER. Wien: Julius Springer. 1935. vii + 246 pp. 13.50 M.

This is a first-rate contribution to the logic of scientific method. It is built around the central idea that it is the *falsifiability* of their theories—not their (direct) verifiability—which distinguishes the empirical sciences from all others. Scientific theories can not be demonstrated as true or false; they are hypotheses which must “maintain” themselves with greater or less degree against the claims of an infinite set of “basic” propositions. These latter are singular propositions of specified form. Unlike certain brands of positivism, Dr. Popper does not believe that any proposition can be verified once for all. Even his basic propositions are only relatively atomic, and are capable theoretically of being subjected to an endless process of validation. That in practice such an endless process does not occur is due to a more or less explicit *resolution* to accept certain propositions as relatively final. Dr. Popper thus quarrels with conventionalism on the ground that it mislocates the incidence of conventions: these are of primary logical importance, according to him, in fixing “basic” propositions rather than theories.

But by far the most significant portion of the book is devoted to the analysis of probability. Dr. Popper accepts the frequency interpretation. His own contribution lies in an admirable attempt to free such a view from the difficulties which arise when probability is defined as the limiting value of an infinite series of relative frequencies. He shows how it is possible to define probability in terms of a weakened form of Von Mises' axiom of randomness, which alone has empirical consequences; and he replaces the limiting values of series by the points of accumulation which they must have by virtue

of the Bolzano-Weierstrass theorem. It turns out that the secondary propositions which assert probabilities are not verifiable or refutable; nevertheless, like theories, they can be in various degrees of agreement with the basic propositions. It also turns out that theories can not have a probability-coefficient attached to them, since Dr. Popper believes it is impossible to interpret statements doing so in terms of relative frequencies.

The book contains a very interesting chapter on quantum mechanics, which performs one of the few sensible analyses of the Indeterminacy Principle which I have seen in print. Dr. Popper argues that the Principle must be interpreted statistically, that it does not preclude "deterministic" analyses of atomic processes, and that it must not be taken to mean that the attribution of simultaneously-determinate positions and momenta to a single electron is meaningless.

There is space for only a few comments. I think Dr. Popper's criticism of both conventionalism and positivism is weakened by the fact that he often takes for censure unfortunate expressions or representatives of each. I think too that his view of a theory "maintaining" itself, especially in its application to the secondary propositions of probability, contains much that is still obscure and unanalysed. And finally, while aware of the series nature of the objections he has raised against the view that theories are probable in a frequency sense, I think nevertheless the matter is not as hopeless as he makes out. But I confess I do not know how the view is to be worked out in detail. The book is thus a challenge to those who believe it can be done. In any case, it is highly stimulating and contains much that is bed-rock foundation for future work.

E. N.

*Indirizzi e Conquiste della Filosofia Neo-Scolastica Italiana.* Special Number of the *Rivista di Filosofia Neo-Scolastica*, supplementary to Volume XXVI. Milan: Società Editrice "Vita e Pensiero." August, 1934. 247 pp. 15 Lire.

Twenty-five years ago the *Rivista di Filosofia Neo-Scolastica* was founded. To celebrate the anniversary of that occasion Father Gemelli and the scholars associated with him in the writing and editing of the *Rivista* have published a special number devoted to essays concerning the progress and nature of Neo-Scholastic philosophy. Besides essays on the vitality of Neo-Scholasticism, its place in the history of modern philosophy, its relation to science, psychology, pedagogy, these essays include historical studies of the character of Christian philosophy, the relation of Thomism to ancient philosophy, the conception of natural law in Thomas Aquinas, and finally a

detailed treatment by Olgiati of the positions of Italian Neo-Scholastics on the problem of knowledge. If testimony is needed of the vitality of Italian Neo-Scholasticism, this volume of the *Rivista* affords such testimony, not merely in the considerations advanced in the essays it contains, but by recalling to mind the diversity and voluminous activities of the men associated with Neo-Scholasticism at the Università Cattolica del Sacro Cuore.

R. McK.

*Modern Man's Worship. A Search for Reality in Religion.* BERNARD EUGENE MELAND. New York and London: Harper & Brothers. 1934. xix + 317 pp. \$2.50.

This volume is both informative and suggestive. After an excellent account of recent tendencies in the art of public worship among Protestants, especially in Germany, the author undertakes a sympathetic review of current philosophical literature of religion, emphasizing those themes that constitute the outlines of what he terms "mystical naturalism." He regards worship as an experimental art whereby man seeks to express those aspects of mother nature that elude man in his daily contacts with her and in his secular attempts to understand her. Though there is obviously a deliberate attempt here to cultivate the mystic attitude (culminating in "the sacrament of silence"), this volume on the whole is realistic, not in the Neoplatonic sense of fashionable mysticism, but in the naturalistic sense of empirical philosophy. Incidentally it reveals how estranged art and worship have become even in the hands of those who are most desirous to bring about a reunion, for the dominant concern with "reality," "objectivity," "the community of activities," and "personal communion with the total wealth of living life" is more apt to produce a theological esthetics than an art of worship.

H. W. S.

*The Farther Shore: An Anthology of World Opinion on the Immortality of the Soul.* Edited by NATHANIEL EDWARD GRIFFIN and LAWRENCE HUNT. Boston: Houghton Mifflin. 1934. xvii + 285 pp.

The title of this book is rather misleading, for it is not a collection of descriptions of the next life; but the possible misunderstanding is corrected by the subtitle. The aim of the editors has not been to strengthen the belief in immortality, nor to provide the faithful with pleasant quotations confirmatory of their faith, but to lay before the reader representative opinions on the great question whether death is the end, drawn from all the great religions, from philosophers, poets, essayists, from those who have believed and

those who have not believed in immortality. The chronological range of the sources is not less wide. The first selection is an extraordinarily beautiful poem by an unknown Egyptian, thought to have been written about 2160 B.C.: the last is from Theodore Roosevelt. Homer, Virgil, and Horace make their contributions; the Upanishads and the Gita; Chuang-tse, Plato, St. Augustine; Dante, Shakespeare, and Wordsworth; Kant, Emerson, Ingersoll, Osler—over fifty sources in all have been used. It is evident that with so many “opinions” no lengthy study of any one was possible. The book is not intended for the technical and philosophical study of the questions involved, but as a stimulus to the reflection of the general reader—and it is to be hoped we are all general readers. The appeal of the book is not primarily philosophical, but literary and, in the large sense of the word, religious. A brief introduction, by the editors, is prefixed to each of the citations; and there is a foreword by Professor Whitehead.

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*Political Power. Its Composition and Incidence.* CHARLES EDWARD MERRIAM. New York and London: McGraw-Hill Book Company, Inc. 1934. vii + 331 pp. \$3.00.

This volume discusses some of the moral and philosophical aspects of social power. It deals with political power not as a thing in itself, but as a member of “the family of power,” as the process of government in any group among other groups. Hence the specifically political forms of authority become a minor, technical concern. Though the formal or legal meaning of political sovereignty is retained, the concept of sovereign *power* is abandoned. The power of the state is described in relation to other powers and the changes in its functions and techniques are related to the changes in its environment of kindred powers. The ultimate subject of analysis is, therefore, “the power situation,” which may be defined as a mean state or “illogical moderation” between a physical equilibrium of energies and the violence of passion.

Power is not strongest when it uses violence, but weakest. It is strongest when it employs the instruments of substitution and counter attraction, of allurements, of participation rather than of exclusion, of education rather than of annihilation. Rape is not an evidence of irresistible power in politics or in sex [p. 180].

The “birth of power” involves three factors: group tensions, friction between personality types, and “the power hungry.” The normal power of government is exercised not by coercion, which is a sign of its “morbidity or mortality,” but by a varying assortment

of "credenda and miranda" which serve to control group opinion and emotion by positive techniques. Professor Merriam concludes that, whereas the traditional techniques have been the use of wealth, arms, patronage and honors, the governments of the future must rely more on civic education, propaganda, mass organization, and morale. In order to use these techniques effectively the governments of the future will not be political in the narrow sense, but a fusion of three, still relatively independent, types of control: the legal, the economic, and the technological. He points out that in each of these types of control, the so-called "will to power" is merely one means to gaining power and that frequently the opposite means of service or sacrifice is equally effective.

There can not be sovereignty unless there is a spirit of sacrifice in the community—an abnegation and devotion that transcend the bounds of the formally juristic. Both armies and gold melt away—for they are both built on claims of service—unless they can find support in the impulses of the many to risk life, liberty, and the pursuit of happiness for the political community, and to find a pleasure-pain in the great renunciation [p. 246].

H. W. S.

*La metafisica del bello e dei costumi di Arturo Schopenhauer.*

AURELIO COVOTTI. (Collezione di Studi Filosofici, diretta da Carmelo Ottaviano. Serie Storica. Monografie, N. 2.) Napoli: Rondinella Alfredo. 1934. xiv + 206 pp. 15 L.

This scrupulous regurgitation of Schopenhauer is a careful exposition of the metaphysical grounds of that philosopher's esthetics and his estheticism, his philosophy of art and of morals. It examines the relations of these to Kant, to Plato, and to Eastern thought. But the examination is made almost completely in terms and within the limits of Schopenhauer's own statements which are quoted so extensively that one might much better go to the original works without the interruptive connecting remarks of the author which are without, as they apparently aim to be without, any critical pretensions or critical value. There is no evidence of a point of view or a historical perspective. The book is at best a substitute for the reading of Schopenhauer's own writings under their own titles. The book may be useful to an Italian public unable to read German, but to the author himself it can be only two-hundred closely-printed pages on his readings in Schopenhauer. Certainly a writer who has obviously read his subject so carefully might be expected to have something fresh and interpretative to say about him.

I. E.

## OTHER NEW BOOKS AND JOURNALS

De Geymuller, Henry: Swedenborg et les phénomènes psychiques. Préface de L. B. de Beaumont. Paris: Ernest Leroux. x + 461 pp. 35 fr.

A Letter of Emerson. Being the first publication of a reply of Ralph Waldo Emerson to Solomon Corner of Baltimore in 1842. With Analysis and Notes by Willard Reed. Boston: The Beacon Press. 1934. 33 pp. \$1.00. (A brief correspondence concerning the nature of God and religious experience.)

Mattick, Paul: The Inevitability of Communism. A Critique of Sidney Hook's Interpretation of Marx. (Polemic Pamphlet Number 3.) New York: Polemic Publishers, 122 East 25 Street. 1935. 48 pp. 25c.

Verrier, René: Roberty. Le positivisme russe et la fondation de la sociologie. Paris: Félix Alcan. 1934. 233 pp. (An account of the life and work of Eugène de Roberty.)

THE MONIST. Vol. XLV, No. 1. Language, Public and Private: *Karl Britton*. The Antecedent Identity of Natural Objects: *G. T. Kalif*. The Reality of Cause in the Physical Universe: *W. V. Metcalf*. Non-Aristotelian Logics: *O. L. Reiser*. A Logical Analysis of Mathematical Structure: *Saunders MacLane*. Broad's Sensum Theory and the Problem of the Sensible Substratum: *George Gentry*.

REVUE DE PHILOSOPHIE. 34<sup>e</sup> Année, No. 3. Hallucinations et visions: *Jean Fleury*. Le rôle de la cause finale dans l'explication chez Aristote (suite): *A. Sandoz*. L'idéalisme de M. Brunschvicg (suite): *R. Verneaux*. (No. 4.) L'instinct: *Maurice Thomas*. Le mouvement prolétarien et le socialisme: *Goetz Briefs*. Le rôle de la cause finale dans l'explication chez Aristote (suite): *A. Sandoz*. L'idéalisme de M. Brunschvicg (fin): *R. Verneaux*. Les démonstrations mathématiques de l'existence de Dieu selon Leibniz: *A. d'Alès*. Note sur la métaphysique et la critique de l'acte de connaître: *M. de Corte*.

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NOTES AND NEWS

From Poland comes the news that a new philosophical periodical will shortly make its appearance. It is entitled *Studia Philosophica*, its editors being Professor K. Twardowski and Professor K. Ajdukiewicz. Its chief object is to publish the work of the Polish logicians, but it will contain articles in other languages and from time to time translations (chiefly in German) of important Polish works.

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Book Reviews. Other New Books and Journals. Notes and News.

## **Volume XXXI. No. 25. December 6, 1934.**

The Problematic Situation. Its Symbolization and Meanings. LEWIS E. AKELEY.

Abstracts of Papers to be Read at the Thirty-Fourth Annual Meeting of the Eastern Division of the American Philosophical Association, New York University, December 27, 28, and 29, 1934.

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Logical Positivism and Professor Lewis. JAMES BISSETT PRATT.

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Book Reviews. Other New Books and Journals. Notes and News.

Index for Volume XXXI.

## **Volume XXXII. No. 1. January 3, 1935.**

Power and Causality. ALBERT HOFSTADTER.

Psychology in the U. S. S. R. GREGORY H. S. RAZRAN.

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Basic Concepts in the Plastic Arts. LINCOLN ROTHCHILD.

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