

Will the reader think me too severe if I charge this argument with a confusion of ideas, or else with a begging of the question? If the idealist opponent maintained that the conscious relation is but another type of object-object relation, the above argument would be correct and relevant. But the whole point of the idealist contention is that while all objective causal determination is longitudinal, the conscious relation is transversal and ultimate and all-inclusive, determining the cause as well as the effect absolutely and not merely relatively. The objective cause determines one out of many possible effects; it explains to us why this particular effect rather than another has taken place; it explains, in other words, the *essence* of the effect, to use Scholastic terminology. The subjective causality of consciousness determines that there shall be cause as well as effect, it determines the *existence* of the cause as well as of the effect. The reason the mathematician has nothing to say about the cognitive relation of his theorems and formulæ is because as mathematician he deliberately ignores this aspect of things, or if he happens also to be a philosopher, he assumes it to be there, though without affecting his results in any manner.

We see now that our original suspicions, as to the success of an empirical method like the above enabling us to solve the problem of independence, were more than justified by an analysis of an actual attempt in that direction. We are thus as far as ever from a solution of the problem.

An obvious stricture on my criticism is that it throughout is based on the assumption that the consciousness-object relation is unique. I am willing to admit this. But not until I have protested that the realist discussion is similarly based on the contrary assumption that the consciousness-object relation is only another type of object-object relation. Assumption for assumption, the former seems to me to have more in its favor whether realism or idealism be the true doctrine.

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REVIEWS AND ABSTRACTS OF LITERATURE

Modern Science and the Illusions of Professor Bergson. HUGH S. R. ELLIOT. With a preface by Sir E. RAY LANKESTER. New York: Longmans, Green, and Company. 1912. Pp. xix + 257.

A discussion of the same set of problems by Elliot and Bergson presents a study in contrasts. Elliot is interested mainly in what we already know; feels that the way to learn more is to continue the established methods; and is not afflicted with doubts as to whether our knowledge and

methods are adequate to reality. Bergson is impressed mainly with the extent and depth of the unknown; by the fact that our concepts and definitions, our language and thought, by no means fully express reality. He tries his hand at expressing some of this unexpressed material, and can do so only by using words quite out of their usual meanings, by employing them sometimes in one sense, sometimes in another, and by adopting figures of speech. He thus becomes obscure, and apparently, if not actually, self-contradictory. Further, he feels that our established method of getting knowledge not only has not grasped the inner nature of reality, but is inadequate to the task of doing so, and must be supplemented or replaced by another. All this is intensely repugnant to the man of set, positive, dogmatic scientific views. Elliot, with his close-to-the-ground turn of mind, sets out to interpret the soaring Bergson in an absolutely literal fashion, giving to all of his words their dictionary meanings. It is not surprising that he can make nothing of Bergson but foolishness,—for it must be admitted that the task is sometimes a difficult one even for him who takes up Bergson with the best of wills to search for truth under all sorts of deceptive disguises.

The relation of Bergson to science, the criticisms which he makes of scientific method, and his proposal to supplement it by the use of intuition, are matters worthy of serious examination; and an exposition of the actual content of Bergson's metaphors is required before the real value of his work can be judged. These are the useful tasks to which Elliot addresses himself. But his extreme literalness, together with his unshakable conviction that nothing good can come out of metaphysics, are bound to prevent his grasping any original ideas of value in Bergson, if such there be.

The author and his prefacer begin by arousing the antagonism of such readers as are not already partisans of their point of view, by violent and sweeping condemnation of all metaphysics. "The attitude maintained throughout this book is that metaphysics is a maze of sesquipedalian verbiage, beyond the reach of science to defend or refute" (p. 6). There is a good brief presentation of the grounds for this attitude, but the scoffing, triumphing tone maintained throughout the book will repel many readers.

After an exposition of Bergson's doctrines, the real burden of the book is reached in the chapter entitled "Reasons for Dissenting from the Philosophy of Professor Bergson." This contains a useful criticism of Bergson's methods of argumentation. Four diverse fallacious methods of drawing conclusions are set forth as common throughout his works. (1) Bergson passes in review the various theories set forth to explain a given matter, rejects each (often on good grounds), then commits the fallacy of assuming that this rejection establishes his own theory. Every careful reader of Bergson will recall with Elliot innumerable cases in which he has been astonished at finding a doctrine treated as established when not a single positive argument for it has been set forth. (2) The second fallacy to which Bergson is prone is the abuse of the argument from analogy—the author choosing carefully such an analogy as will

permit him to draw the desired conclusion. Unless we are to hold that all Bergson's apparent arguments from analogy are mere illustrations, to make clear, without argument, the author's conception of the relation in question, the unprejudiced reader can here hardly fail to agree with Elliot. (3) Bergson makes, without evidence, many positive statements as to matters of fact, that are extremely doubtful or worse; he then uses these as data for deduction. On this count again it appears to the reviewer that a verdict of guilty must be given; one can not avoid the impression that Bergson, having a conclusion in mind, chooses premises to support it. Indeed, we may go farther; one is continually astounded by Bergson's setting forth, after an elaborate argument, a conclusion that does not in the least follow from the facts adduced under the appearance of premises, the argumentation being purely a form. (4) Elliot cites Bergson's "hopeless and irremediable misuse of language; throughout large sections of his work the words are mere forms or sounds without significance behind them" (p. 59). Here we may well be cautious. Bergson appears in many cases to be attempting to express by existing words ideas for which no words are in use. Often, in order to grasp his meaning, it appears almost necessary to have had independent glimpses of the same thought. The reviewer can not claim to fulfill this condition in many cases, but there are perhaps enough such to set the reader on his guard lest some one else might grasp a meaning where he perceives only a waste of words. I shall attempt to show later that Elliot's method of interpretation has led him to miss points of real interest.

The reviewer can but feel that Elliot's arraignment of Bergson's method of argumentation is on the whole just. Doubtless, as Elliot remarks, every possible form of fallacy can be illustrated from his works. Yet it is commonly admitted also that every literary fault can be illustrated from the works of Shakespeare. So far as the work of Bergson is of any value, this lies in its bringing into prominence certain large ideas, inducing men to consider them, as a poet might do. The presentation and argument in Bergson appear to stand logical and scientific analysis to about the same extent that the poems of Ossian might. A reading of "Creative Evolution" in a seminary of which the reviewer was a member convinced all, I believe, that to read the book for profit one should neglect the reasoning and the details, and attempt to seize only the main conceptions; otherwise the latter are lost sight of in the dust of the fallacies, contradictions, and errors of fact that are beaten up.

But since Bergson presents his ideas in logical forms, such a criticism as Elliot makes is well in place. It is in missing some of the large ideas that Elliot fails.

One of Bergson's general ideas, however, Elliot does not miss; the doctrine that instinct or intuition is the best guide to truth in dealing with living things. Upon this Elliot centers his main attack; to the reviewer this appears a valuable part of the book. The argument against intuition as a revelation of truth may be summarized as follows (following Elliot mainly, but not absolutely):

1. Bergson presents no positive argument to show that intuition gives truth; he merely assumes this from his argument that intellect does not—an example of the first form of fallacy above cited. To this might well be added the point that the argument against the intellect, namely, that it serves practical ends, holds equally against instinct; the latter is as much the slave of practical ends as the former. Bergson's argument from practical use, if it has any validity at all (which is certainly not clear), logically leads only to the conclusion that mankind can not know reality, there being not the least ground for making an exception for instinct.

2. In the field of verifiable fact intuition is wrong in ninety-nine cases out of a hundred; no one would seriously think of making it a *test* of truth; it requires verification.

3. Where no test is possible, there is no reason to suppose intuition more reliable.

4. The only ground which could be urged against the conclusion last stated would be that intuition leads to unanimity in all persons that employ it. But this is notoriously the reverse of the fact.

In a chapter on the "Progress of Philosophy," Elliot attacks this question in another way, attempting to show by tracing the history of knowledge that progress has consisted precisely in getting rid of instinct or intuition as a criterion of truth. And in a final chapter he attempts to show that the positive function of philosophy, so far as distinguishable from science, is just to clear from the human mind the burden of ideas arising from the natural instincts. The exposition here is one well worthy of consideration; one with whose general tenor men of science, at least, are likely to agree; it is therefore unfortunate that the intolerant tone pervading it, along with the rest of the book, is likely to prevent its receiving a fair hearing. Certainly a reversion to instinct as a test of truth would be one of the most serious backward steps conceivable. In defense of Bergson it may be urged that he does not (or at least in some passages he does not) propose to substitute intuition where other methods are applicable,¹ but the limitations, which would exclude intuition from perhaps all cases where most votaries of Bergson would be tempted to employ it, seem so incompatible with the great rôle that Bergson otherwise gives it, that a setting forth of the positive dangers of the intuitive method is quite in place.

Elliot further takes up a number of Bergson's positive scientific doctrines, controverting them, often successfully. Where he fails is, we may repeat, in grasping certain leading ideas, which must form the justification of Bergson's work, if there is such justification. We may cite as a characteristic example one of the main ideas in the book on "Creative Evolution." One of the scientific dogmas which Elliot defends is the doctrine of mechanism, asserted as the theoretical possibility of prophesying all that may occur in the future from a knowledge of all that has occurred hitherto. In connection with Huxley's statement of this doctrine, Bergson notes that we can not, as a matter of fact, predict what

¹ Compare "Creative Evolution," transl., page 177.

will happen, and believing as he does that this betrays the essential nature of reality, he remarks "we can not sacrifice experience to the requirements of a system." This touches off a characteristic explosion in Elliot. "He [Bergson] suggests that Huxley has done so, being apparently unaware that no man on earth would have been so little likely to make such a mistake. What experience is sacrificed? What system compelled him to sacrifice it? The habit of using words without any significance is almost a disease with Bergson," etc., etc. (p. 70). Now it is evident that Bergson's remark is a clear and excellent way of expressing the patent fact that the statement as to prophesying all future conditions leaves aside our every-day experience, in deference to our belief in a mechanistic system. Elliot's dogmatic intolerance prevents his seeing this; but worse, it prevents his grasping the underlying idea. To the reviewer there appears to be absolutely nothing in science or scientific method that commits one to this theoretical possibility of prophesying the future from the past. It appears possible to remain scientific and yet to defend a view such as is outlined in the following:

What happens in matter and energy depends on the conditions. The only way to determine what will happen under given conditions is by observation and experiment—proceeding on the basis that under the same conditions the same thing will happen. When new conditions arise, only experience can determine what will happen. Among the conditions to be considered are the configurations of the particles of matter. Under new configurations, it can not be predicted what will happen till this has been observed. Now, in the infinite number of particles of which the universe is composed, it is not impossible that configurations may arise that have never before been realized. It is therefore impossible to predict what will happen under those configurations.²

The result would be that future conditions are not even theoretically predictable from the past,³ yet there would be no breach of determinism; all science would have developed just as it has done; and there would be no obstacle to its future progress. The possibility of such a view, thoroughly compatible with all the results of science as well as with our daily experience, has been brought into greater prominence by Bergson than perhaps ever before; and this appears decidedly worth while. It may be urged, of course, that Bergson adds to this conception some things that appear less compatible with science; for example, indeterminism, result-

² Even supposing that we had grounds for predicting what those configurations will be.

³ As sometimes put, the statement of mechanism as this possibility of prediction involves what might be used as a *petitio principii*; for example, that "with a complete knowledge of the laws of mechanics, physics and chemistry" (Elliot, page 69), the future could be prophesied. If this "complete knowledge" be interpreted to include a knowledge of what will happen under configurations never yet realized, so that there has been no opportunity to obtain this knowledge, the *petitio principii* is evident. So understood the statement merely asserts that if we knew what would happen under any configuration whatever, we would indeed possess this knowledge.

ing from his peculiar doctrine of time as an agent. But it is surely more profitable to select from the suggestions of such a writer those things which appear of value, and reject the rest, than to force ourselves, with Elliot, to condemn the whole as trash.

Similar criticism might be made of Elliot's treatment of other points, notably of all matters bearing upon consciousness. His determination to take Bergson with absolute literalness leads him again and again into triumphant misunderstandings. Thus, Bergson's assertion that in the field of conscious states "there is no essential difference between passing from one state to another and persisting in the same state" is another way of setting forth the same point that Elliot expresses when he calls ideas processes rather than things (p. 142). Yet Bergson's manner of stating the point induces in Elliot the reply "that if we are to believe that, there is simply no limit to the absurdities which might be founded upon it" (p. 62). Examples of this sort of thing might easily be multiplied.

No discussion is attempted of Bergson's interesting criticisms regarding the limitations of scientific treatment, the inherent inadequacy of scientific analysis, and the effect of this upon the mental outlook of men of science; possibly Elliot feels that they are unworthy of consideration. It appears to the reviewer that the points Bergson makes as to the necessary inadequacy (the eternal incompleteness) of scientific analyses are correct and valuable, and that failure to realize them does at times lead men of science to such a narrow dogmatism as that shown by Elliot. But there seems no reason why the man of science *must* fall into this condition, as Bergson appears to assume.

If Elliot has been successful in presenting to us Bergson as a terrible example of the evils of irresponsible speculating, he is perhaps no less so in furnishing us an example of that "certain new scholasticism that has grown up" around science, the mention of which, by Bergson, Elliot (p. 90) so strongly resents.

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Experimental Studies of Mental Defectives. A Critique of the Binet-Simon Tests and a Contribution to the Psychology of Epilepsy. J. E. WALLACE WALLIN. Baltimore: Warwick and York. 1912. Pp. vi + 155.

This is number 7 of the Educational Psychology Monographs edited by Whipple and gives the results of mental and physical tests applied to a colony of 333 epileptics. It throws added light upon our knowledge of the epileptic mind, but the chief interest of the book to the general psychologist and educator will undoubtedly be its accurate and critical study of the Binet-Simon tests. The author shows conclusively that a difference in the method of grading, *i. e.*, of computing the mental age, will give rise to a perceptible difference in the distribution of homogeneous groups of subjects, that there are particular ages at which these differences are very