critical or precise to be of very high value. For instance, the sense in which the Absolute is "mind," and is a "timeless becoming," needs more definition than I can perceive that it obtains. But I set them out because they illustrate so emphatically the determination of many mystical thinkers to have it both ways—to retain the uncertain issue which the moral attitude appears to demand and to limit the divine nature accordingly, and yet on the other hand to maintain an underlying mystical unity in view of which the *de facto* issue of the moral conflict is either a certainty or a matter of indifference. Now it is right, in my judgment, to treat finite beings as essential in the realisation of the good and yet not to stake our ultimate faith in the universe, on the ups and downs of a series of temporal events. But it is surely an untenable dualism to accept in principle as it were a pessimism as regards phenomena, along with an optimism as regards things in themselves. And the prevailing tendency to this attitude depends on a half-heartedness which refuses to think out how perfection can be revealed through imperfection.

BERNARD BOSANQUET.

The Idealistic Reaction against Science. By Prof. ALIOTTA. Translated by AGNES MCCASKILL. Macmillan. Pp. xxii, 483.

THIS translation of Prof. Aliotta's extremely learned and valuable work will be of great use to philosophers unacquainted with Italian. The original was reviewed at length in vol. xxi. of MIND by Prof. Taylor, to whom the English version is dedicated. But considerable changes have been made by Prof. Aliotta, so we have largely a new book. A good many of the criticisms on Russell's earlier views of geometry and on the Marburg school have disappeared, and there is a new concluding chapter containing a sketch of the author's own philosophical position.

I shall begin with a few words on the translation; shall then notice certain points in the older parts, not discussed by Prof. Taylor; and shall finally say something about Prof. Aliotta's own views as presented in the new last chapter.

The translation is on the whole sound and intelligible, though scarcely inspired or inspiring. But there are a few criticisms to be made. On page 91, 'ethic' as an adjective is hardly English. On page 130 the following sentence is clumsy and liable to give a totally wrong impression : . . . 'time . . . and mathematical space, constructed so as to be able to act upon things'. This suggests that it is time and space that act on things, whilst what is really meant is that they enable *us* to act on them. On page 173 Prof. Aliotta is made to talk of 'the transmission of light through the air'. He of course means (and, in the original, says) 'through the

ether'. On page 179 there is a misprint, 'word' being written for 'world'. On page 198 the phrase "the *convenience* of two representative contents' is not the proper translation of *convenienza*; the meaning is clearly 'agreement' or 'conjunction'. On page 201 'conscient' is rather unusual English; why not say 'conscious'? On page 204 I cannot conceive what is meant by saying that the Ought 'derives its adhesion from a judgment'. On page 224 in the twelfth line from the bottom 'himself' should clearly be 'itself'. On page 291, line 21, a 'not' has slipped out before 'suffice'. On page 341 there is a curious error which has been carried over from the original, whereby an article by Klein is dated 1807. On page 376 we are told that Gibbs conceived atoms as 'independent of an infinite number of variables'. This is a literal translation of the original, but, so far as I can see, it is meaningless in English. I suppose it to mean 'functions of an indefinite number of independent variables'. Finally on page 470 a celebrated sentence of Leibniz is misquoted. Leibniz did not say: DUM *Deus culculat fit mundus* (which would have been scarcely respectful) but CUM *Deus culculat fit mundus*.

To turn to the older contents of the book, is it fair to talk of Dr. McTaggart's philosophy as a 'mystical degeneration of Neo-Hegelianism'? Prof. Aliotta seems to confuse two questions: (1) Do McTaggart's conclusions agree with those reached by certain mystics? and (2) Does he reach them by philosophic argument or by mystic vision? To answer the first question affirmatively does not give one a right to talk of 'mystical degeneration'; and, with regard to the second, it is clear that (however much we may disagree with this opinion) McTaggart does hold that he proves his mystical conclusions by philosophical arguments.

Prof. Aliotta has an ingenious argument to prove that there is no incompatibility between Euclid and the other two types of geometry. The point is that you call certain curves in Euclidean space non-Euclidean straight lines, and that it is not surprising that these have qualities different from Euclidean straight lines. On the other hand Euclidean geometry is the most general, because, whilst you could represent all non-Euclidean curves in Euclidean space, you cannot represent Euclidean parallels in non-Euclidean space. If Prof. Aliotta be right non-Euclidean geometries are simply fragments of Euclidean geometry. I think that Prof. Aliotta is on the track of the truth here, but he has certainly not reached it. There are curves in hyperbolic space that correspond to Euclidean parallels; *e.g.*, it is just as true to say that the geometry of the horosphere in hyperbolic space is Euclidean, as to say that the geometry of the pseudosphere is Euclidean space is hyperbolic. So the relation of the two geometries can hardly be that of part and whole. Again in hyperbolic space there are equidistance curves which are not hyperbolic straight lines but correspond in some ways to Euclidean parallels.

With regard to Prof. Aliotta's view that the logical definition of order is circular, I suggest that the very appearance of circularity vanishes in an inflected language. It sounds plausible to say that there is a circularity in defining order in terms of the difference between such propositions as *James loves Peter* and *Peter loves James*. But it ceases to be plausible when you define it in terms of the difference between such propositions as *Jacobus Petrum amat* and *Jacobum Petrus amat*. And, with regard to the alleged circularity in the definition of numbers (*viz.* that it involves the recognition of a plurality) it must be noted (1) that a plurality *is* not a number; (2) that there is nothing circular in being acquainted with what you are defining: it would not be much use defining anything with which you had no practical acquaintance; and (3) that, if Prof. Aliotta's objections were valid, all definitions of the word 'word' must be circular; for they all involve the use of words. And this seems to be false.

In the argument (p. 336 *et seq.*) about the New Realism it is evident that Prof. Aliotta holds that the doctrine of external relations is incompatible with causal interaction. This is a mistake. The doctrine of external relations only says that the fact that A and B enter into a relation R does not *logically* involve any change in their qualities; it never denies that a change of qualities may follow *causally* in time. Hence it is quite idle to oppose to the view that awareness of an object makes no difference to it the fact that the awareness is produced by the causal action of the object on the mind.

Let us now consider Prof. Aliotta's own views. His concluding chapter consists of an admirable defence of the theoretical value of science as against irrationalists of all kinds, and of an attempt to prove a kind of spiritual realism involving the existence of God. The first part is full of good things. The intuitionist who attacks science is reminded that he first makes an abstraction of scientific concepts from all matter of perception—a thing which the scientist himself never does—and then says that science presents us with a mutilated fragment of reality. To this Prof. Aliotta answers that, whilst all science must practise some abstraction, the world of perception seen as a connected system subject to scientific laws is something much fuller and richer than any momentary intuition unenlightened by thought can give.

Another excellent point is scored against Mach and his school who hold that it is only by chance that mechanics has been taken as the fundamental science. Such thinkers forget that motion as treated in mechanics is not perceived motion but is an intellectual construction suggested by the latter. This concept can be dealt with scientifically, and, by correlation with it, the data of the other senses can be made objects of scientific study; but if, as Mach suggests, we had started from our temperature experiences, they would have indicated no comparable intellectual concept to us.

Prof. Aliotta's positive views do not strike me as being so good as his criticisms. His argument seems to be as follows. We must assume that our own minds exist and that our knowledge of them is perfect as far as it goes (*i.e.* there can here be nothing corresponding to illusions of sense). But our thoughts claim to refer to objects that exist when we are not thinking of them. Hence, even if we wanted to be solipists, we should have at least to admit the existence of unconscious processes in our minds and permanent traces of past events. But, as soon as we do this, all ground for solipism vanishes and we can discuss the *nature* of an external world without further question as to its reality. It cannot consist of a single all-embracing thought of which our minds are parts; for then the impenetrability of one finite mind to another would be inexplicable. But neither is there any reason to think that it consists of nothing but other finite minds of various orders of intelligence. If what we call matter consist of minds they will be so unlike our own that this piece of knowledge will not be worth having. Yet we can be quite certain that external reality is not unknowable; for in order to say anything about it we have to apply *our* categories like being, cause, etc., to it. And we do actually find that the external world can be successfully dealt with by *our* categories. The conclusion is that the external world is striving towards intelligence but has not reached it, and that it only reaches it when it is understood by us. Our knowledge of matter really does make a difference to it; it, so to speak, raises it to our intellectual level. Matter then exists for an end, and is subject to the norms of mind. But an end can only be operative through the actual existence of an idea of it; now matter does not know that it is aiming at intelligence nor are we constantly trying to raise matter to our level. Hence there must be a God who is intelligent and has adapted matter and our minds to the progressive realisation of more and more complete intelligence. It is he who creates a rational mind whenever certain material conditions are fulfilled, and it is he who preserves the validity of the norms of thought when actual thinking disobeys them. Prof. Aliotta refuses to make a sharp separation between pure and practical reason; his proof of theism rests on what Kant would have called pure reason, but it is of the same type as Kant's own arguments from practical reason, and, if these be valid, they will furnish another equally good proof.

These arguments do not convince me. (1) They rest on the view that the categories are in some sense part of the framework of our minds which we impose on external things. It then becomes necessary to explain how it is that our thoughts fit things. But this view of categories seems to me wholly mistaken. I quite agree with Prof. Aliotta that we do not learn that there is such a thing as causation either (*a*) by direct sensible experience, as we learn that there are colours, or (*b*) by inductions founded upon

sensible experience. But this does not mean that the category itself is in any sense a part, state, quality, form (or what you will) of our minds which we impose on things. Our thinking does not impose *e.g.* causation on things, but finds that things exemplify it. We might put the argument in this way: Either events do have causal relations independently of our thoughts about them or not. If not then things are not adjusted to the mind and Prof. Aliotta's arguments based on this adjustment would break down. But if so (as Prof. Aliotta himself so ably argues) then there is no problem of *adjustment;* our thought *discovers* causation by reflecting on the processes of nature just because these processes are instances of causal series. The only thing left to explain is the fact that our mind can discover the universal in its particular instances. (2) I find Prof. Aliotta's own explanation of the nature of the adjustment difficult to follow. Things are adjusted to our minds because they are tending towards intelligence. This is ambiguous, and the ambiguity appears noticeably in Prof. Aliotta's discussion. It might mean that things are tending to become intelligent or that they are tending to become intelligible. Prof. Aliotta's view seems to be that the former implies the latter. But, as far as we can tell, it is only the matter that forms part of brains that can be said in any sense to become intelligent. On the other hand this is not the only matter that can be understood, nor it is the best understood matter. If we take the other interpretation and say that matter is adjusted to our minds because it is tending to become intelligible we merely commit the folly of saying that matter *is* intelligible because it is tending to become so. And this is not, I think, Prof. Aliotta's view.

And I do not see how the hypothesis of God will help us here. Are we to say that the matter which is intelligible and yet does not form the part of any finite brain is really intelligible because it forms part of God's brain and has thus become intelligent? This does not seem to be Prof. Aliotta's view. His view seems to be the still stranger one that matter is *now intelligible* because God knows and has arranged that it shall *some day be intelligent.* I really cannot see the least connexion between the actual fact and its alleged ground here. Even if we take a much more moderate view, which Prof. Aliotta sometimes mentions and seems (quite wrongly) to identify with his view that to be intelligible a thing must be tending towards intelligence, we shall not reach the required conclusion. Grant that God must be postulated to endow certain aggregations of matter (brains) with consciousness if thought is to be regarded as trustworthy. This only proves that if *any* matter is to be understood *some* matter must be endowed by God with a suitable understanding. But it has not the least tendency to prove that *all* matter that can be understood must be tending to be or capable of being endowed with understanding.

I have insisted more on my disagreements than on my agreements with the author. But I wish to close with a tribute to his learning, fairness, and acuteness; and I heartily welcome this translation of his book on behalf of English philosophic students.

C. D. BROAD.

Il Vecchio e Il Nuovo Problema Della Morale. By E. JUVALTA. Bologna, 1914. Pp. x, 135.

PROF. JUVALTA rightly considers that morality as a science took an entirely new start with Kant. Before that philosopher wrote the principles of human conduct had been regarded more or less as a question of individual interest. Even the austere Butler confessed that as a matter of cool calculation no man could be expected to sacrifice his happiness to that of other men. The good Bishop knew that morally such a sacrifice was sometimes incumbent in this life; but he got over the difficulty by referring us to another life. Kant's attitude is a little ambiguous; but his Categorical Imperative may be accepted without accepting his theology, his personal belief in which is indeed doubtful. But with Prof. Juvalta the moral imperative is really categorical—it is an absolute imperative, not to be confounded with any other motive, dictating without reference or appeal the course of action to be pursued.

The other supposed sources of morality are briefly passed in review and shown on analysis to be either invalid or to involve surreptitiously the very Categorical Imperative that they are designed to supersede. An ethics based on theology must be either unmoral or unmeaning, seeing that religious people only do what God commands because it is right; nor can we know that what He commands *is* right unless we know the meaning of rightness from some other source. Nor is it permissible to deduce morality from the nature of things, whether statically or dynamically regarded; for that can only be done by first reading morality into nature. Thus the theory that distinguishes "degrees of reality" in the external world in fact discriminated between those degrees by their relative approximation to moral perfection. And similarly those philosophers who judge of human conduct by an evolutionary standard are assuming, to begin with, that evolution progresses on lines of advance to moral perfection. Prof. Juvalta must not be understood to deny this tendency as a historical fact; only his contention is that evolution does not give but finds and applies the moral law. This originates from within not from without, and it is primarily concerned neither with the reason nor with the sensibilities—æsthetic or other—but with the Will.

Prof. Juvalta is not a hedonist in any sense, universalistic or egoistic, nor indeed does he seem very careful to distinguish between the two, incidentally referring to altruism as a taste like