

better than those which he has attacked, but at least they are different. But there are doctrines which Mr. Strange has incidentally laid down, which, if they were tenable, would render detailed examination of what I hold quite superfluous. As to that I am entirely of one mind with Mr. Strange. But he does himself here, I must think, a most serious injustice when he speaks (p. 479) of his having "tried to elaborate" his doctrine. That is precisely the thing which on the contrary I would invite him to do, for, as he has left it, I feel that I could not in common fairness to himself attempt to criticise his position. I wish to keep in mind that, if a view opposed to my own is untenable, it does not follow that I myself am not equally wrong; just as the pointing out of misconceptions may, I know, do nothing to remove real difficulties. But if Mr. Strange would seriously apply himself to such a statement of his doctrine as would enable the reader to see how it can hold against familiar objections, I venture to think that, far from losing his time, he would produce something which would be read with attention and interest.

F. H. BRADLEY.

"REAL KINDS" AND "GENERAL LAWS".

DR. MELLONE's interesting discussion of "Real Kinds" and "General Laws," in *MIND*, No. 78, raises several points of considerable importance.

With respect to the Aristotelian Doctrine of the *γένος* and *εἶδος* and the Platonic doctrine of the transcendence of the *εἶδη* with their medieval counterparts, *universalia in rebus* and *universalia ante res*, he says the "question is not what these doctrines meant to the consciousness of Aristotle or Plato, or the Scholastic Realists"; it is, "of the implicit philosophical tendency of these epistemological speculations and of its statement in terms of modern thought. It is irrelevant," he continues, "to object that the modern statement involves an idea which was not part of Aristotle's or Plato's conscious thinking and would have greatly disturbed his general system of the world."

Now it is of course stimulating to follow a germinative idea down the ages, see how it is modified by the thought and knowledge and beliefs of each succeeding generation, how it is presented by this writer and by that, how it is applied, how illustrated, how enriched, how impoverished. But it is well to remember that an idea, as it is won, and as it is presented by every successive consciousness is not the same; ideas are not dead things which we can transfer intact from one to another; we have to seize them, mould them, create them by our own activity; every presentation of an idea is something new.

Dr. Mellone would not, I believe, deny this; but what I want to lay stress on is that it is much more in the interests of clear thinking to emphasise the contrasts between the ancient and modern way of regarding the universal than on their similarity, which indeed according to Dr. Mellone's own showing exist only in underlying philosophical truths which were not apparent to the original thinker, and which in their modern statement involve an idea which would have greatly disturbed his general system of the world. If in biology we were always to dwell on the debateable ground where species seems to merge into species, we should never arrive at any clear ideas; from its very nature thought requires to find or to make well-marked distinctions or division lines in its material. In the same way when the material thought about is *thought* itself, when it consists of concepts and theories, it is the distinctions and oppositions which ought to be thrown into relief in order that the

one theory may stand out against the other, and thus both be made plain.

Again Dr. Mellone says, "Every real law of Nature is *ante rem*, and would never come into action at all if the circumstances to which it is applicable never occurred; on their occurrence it is *in re*, and waits to be traced by us in the empirical result."

This is of course a common enough way of expressing the matter; but when we come to examine the language, is it not dangerously figurative? In what sense does the law come into action when the circumstances occur? Does not this mode of expression give countenance to the conception of a law as something over and above the course of events and guiding their outcome? In what sense does the law wait to be traced by us? Dr. Mellone himself would, I know, in this connexion hold no parley with the suggested interpretation of the term law; but his hypothesisation of the term in the sentence criticised seems to me not unlikely to lead to dangerous error.

For can a general law, in Dr. Mellone's sense of the term, *viz.*, a hypothetical or disjunctive judgment, be said to exist at all before it has been discovered? Can it exist except in a mind? Leaving aside the possibility of its existence in the creative mind—if we posit such a mind—then it is *illustrated in re*, but it does not exist there as a universal; nor can it exist as a universal except in a rational mind. The law of gravitation we may say exists *ante rem* with reference to the fall of an apple to-day, but it did not exist *ante rem* with reference to the fall of an apple before Newton's time. Science suggests the universal, and then sees whether things accommodate themselves to it, in which case it becomes a law; in its perfected form it becomes a law of quantitative relation.

In connexion with this discussion it might be pointed out that not only does science create laws, which as such are real only in minds; but she also in a sense *creates things* which have a reality in themselves similar to that which we attribute to the external world. Not enough stress, I venture to think, is laid upon the difference between these two modes of creation. Philosophy gives all her attention to the general laws concerning which many words more or less valuable have been written, but she passes over with slight interest the creation of things. Among these things we have in physical science the atom, the molecule, the ion, the ether, and in modern psychology the idea-complexes of Freud which are helping in the coming revolution of our conception of the self.

In creating these things, science is sometimes accused of deserting the real world for an imaginary universe of her own. Sometimes this is the case. The most famous case of this "desertion" is to be found in Newton's corpuscular theory of light. The corpuscles were solid particles of great minuteness which issued at high speed from the source of light and bombarded space. Reflected from objects of perception they entered our eyes and gave rise to sensations of sight. But on the things thus created by science a very stringent condition is imposed. This is that by their essential nature they consistently explain the phenomena of our sense world. In this explanation the corpuscles finally failed; and the wave theory of light, which has hitherto passed all the tests which we can apply, supplanted Newton's theory. The corpuscles then had no real existence. They had made their claim to reality, so to speak, but had not justified it. But had they been successful, had they sufficed to explain all the actions of light, then we should have accepted them as existing things. They served their purpose, they served as a peg to hold together several of the phenomena of light, such as reflexion and refraction; and any scientific construction which thus unified phenomena

may be regarded as a stage in our progress towards reality. The more phenomena it unifies, the more certain we may be that we have actually reached reality in the physical sphere.

It is true we may not feel certain of the reality of any of the things yet created by science, for we are still but knocking at the gates of knowledge; yet we can hardly doubt that in time the penetrating insight of genius will make the construction which will absolutely coincide with reality. Meantime my point is that if or when this point is attained, and the things guessed at by science are there, then science has not created them in the sense that she creates the general laws; she has divined or discovered them.

To return to the point from which I started, I would suggest for Dr. Mellone's consideration the question whether it is not in these things divined or guessed at by science rather than in the general laws that we have the modern form of the 'real kinds' of Aristotle.

MARGARET DRUMMOND.

NOTE ON ARISTOTLE AND THE MOON'S AXIAL ROTATION.

I AM asked by a correspondent in the last number of *MIND* (July, 1911) to explain what I mean by saying that the moon's axial rotation is a matter of ocular demonstration, and that it ought as such to have been admitted by Aristotle. If my critic will take the trouble to walk round a post or other fixed object with his face turned towards it the whole time, as the moon's face is turned towards the earth, he will find that he cannot do this without describing a complete revolution on his own axis. Or he may reach this conclusion without rising from his chair by drawing a diagram representing the positions successively occupied by a spherical body revolving in a plane orbit about another body to which it always turns the same face. This is how the moon actually behaves; this is the proof of her axial rotation; I call this a proof by ocular demonstration—supplemented as every so-called proof must be by certain abstract reasons; and this proof was just as accessible to Aristotle as to us.

Let me add in justice to the Stagirite that if the moon were carried (as he supposed she was) round the earth by an etherial sphere, she would equally present the same face to us at all times. But in the passage to which I referred he seems to think that such an appearance on the part of a free body would be a proof of its axial immobility. Aristotle was a most acute observer of surfaces; but in my opinion his was not the mental vision to see through a millstone.

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