

(2) the results of evolution cannot be adequately summarized as an increase in bloodiness, etc.; (3) the course of evolution does not seem to us now "so morally offensive that we cannot accept it" But (3) seems to me to make a muddle of the argument. If good is defined as that which is effective, that is, that which is in the direction of evolution, what is the point of answer (2)? And if the concept upon which the method of evolution turns is unemotional, then why, again, bring in (2)? In short, it is not compatible with Dr. Waddington's "realist definition" of "good" to speak of the course of evolution as morally offensive or morally admirable. But his answer (2) suggests that he does think it necessary to show that Huxley was mistaken in his estimate of the blood-thirsty character of the struggle for existence. Suppose Huxley's estimate had been correct: would it make sense to say that the evolutionary process was morally offensive?

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I HAVE read with great interest Dr. Waddington's lucid and well-reasoned essay in speculative metaphysics, into which he has ingeniously woven hypotheses derived from Freud and Marx, but I fail to see the alleged connexion between science and ethics. He says that the contribution of science to ethics is "the revelation of the nature of the character and direction of the evolutionary process in the world as a whole, and the elucidation of the consequences, in relation to that direction, of various courses of human action". (This might almost be a quotation from Herbert Spencer.) The direction of the evolutionary process may have been revealed to Spencer or Dr. Waddington, but not by science. It is said that *Amoeba* and *Hydra* represent early stages in animal evolution, yet there are plenty of them alive still. For all we know they may survive long after *Homo* has perished by mutual slaughter. Would that make them better or worse from the scientific point of view?

The process of evolution has thrown up Hitler, Himmler, Goebbels and their like. If they were to win the War, would that show the direction of the evolutionary process? Evolution has produced the nightingale and the kingfisher we admire; also *Sacculina*, the parasite of the common shore crab, and also the matrimonial habits of spiders, which we do not admire. Does science tell us which is better? I select these examples because they are of no evident economic importance and our judgments may be considered disinterested. I am not arguing that these judgments of

approval or disapproval are subjective or irrational, only that they are outside the scope of science. By reason of its method the only values within its scope are truth and error as judged by logical consistency and conformity to fact. If the logical positivists confined themselves to this assertion they would be on safe ground. I am not arguing, either, that Dr. Waddington's theory is wrong, only that, like every ethical theory (including the theory that there are no ethical distinctions or that they are meaningless), it rests on *a priori* presuppositions it is best to be honest about.

On a minor point, I must protest against the notion that it is a recent discovery that different societies have different moral codes. It seems to have been known to the author of the "Odyssey", and certainly to Herodotus a few centuries later. Lastly, may I recommend Dr. Waddington (and others interested in the relations of science and ethics) to read "Five Types of Ethical Theory" by Prof. C. D. Broad, where he will find his own type of theory labelled and docketted; and specially to read p. 284—the last page but one?

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MUCH appreciation is no doubt widely felt for Dr. Waddington's statement that, if various modern theses are correctly interpreted, ethical judgments are allowed by them to be "statements of the same kind as scientific statements". One also agrees with his view that the putting forward of these theses has somehow persuaded many people of a lack of any link between science and ethical systems. This seems a natural temporary reaction belonging to what Samuel Alexander called the deanthropizing phase of thought. For millennia, men have sought authority for social codes in anthropomorphs created by their imagination outside the evolutionary sequence and empowered to insert into it new items—dispensations they have been called—from time to time. The comparative method in the study of man, outstandingly represented by Frazer, has vividly suggested that what were held to be impregnable rock-fortresses of traditional belief are, rather, erratics in the moraines of folk-lore. The old authority has gone. It withered too, at a time when an individualist age was obsessed with the idea of Nature red in tooth and claw, and even a Huxley could suggest that men's ethical systems must stand in antagonism to the cosmic process.

In their various ways Alexander, Lloyd Morgan, Smuts and Sherrington are trying to get us beyond the inevitable phase of disorientation. Unlike older systems, the work of science must not claim to give us something complete and unchanging;

it must have ever-recurring readjustment as its key note. Would that those who are busy making blue-prints of a better world would realize this; so many of their schemes are static! Perhaps a main contribution of the humanist at the present juncture is the thought that man is a social being, and that, within society, there is an unceasing and not always successful struggle towards freedom of conscience, towards replacement of external by internal factors. One may add that the survival-value of this freedom is related to the facts of observation and inference, namely that life's history on earth has been a process of ever-recurring readjustments, and that, with few exceptions, the fate of those forms which did not readjust has been extinction. At the same time, it should be remembered that these developmental adjustments are selective; if some features are enhanced, others are atrophied. So it is not very wise to suggest that the later include the earlier; that unduly simplifies the idea of change and suggests acceptance of the rather crude notion of the inevitability of progress.

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OUT of the breakdown of traditional systems of thought, glimmers of new light appear, islands of solid land emerge out of the chaotic flood. Dropping metaphor, the question is whether any new system of thought, sufficiently strong to provide the foundation for living, can be evolved in time to substitute reintegration for disintegration. As science has played a major part in bringing about the disintegration of the old, it should attempt to do at least as much in the new integration.

Dr. Waddington's interesting article is a valuable contribution to this. As he points out, psychology, anthropology and sociology have largely contributed to the breakdown of traditional views on ethics. He might have added many other sciences. Evolutionary biology is one, with all its implications as to human ancestry, the struggle for existence, and the abolition of the idea of purpose in evolution. All the physical sciences have contributed, by providing a mechanistic explanation of natural phenomena previously attributed to supernatural powers and often invested with an ethical aura—witness the legend of the rainbow in the Old Testament, or the frequent view of lightning, floods or earthquakes as expressions of Divine anger. Similarly, physiology and pathology have removed deformity and infectious disease from the ethical sphere; they are no longer considered as Divine retribution for moral lapses.

When it comes to the constructive side, I have little to add to Dr. Waddington's interesting thesis.

He might, I think, have pointed out that in some cases science indicates a new ethic, or at least a new type of ethical approach to old problems. This may be illustrated by my last example. We can no longer believe that pestilence has any connexion with moral lapses in the conventional sense, or with the failure to observe certain rituals or to believe certain dogmas; but we can lay down certain new types of moral duty arising out of the nature of infection—duties both individual and social, concerning cleanliness and the prevention of disease and of its spread.

I have two specific comments. One concerns the basis for the quality of absoluteness and other-worldliness possessed by the super-ego and the systems of ethics for which it is the vehicle. Dr. Waddington makes what I believe to be the quite novel suggestion that this is connected with the breakdown of the solipsistic early phase of the child's existence. While this may be a contributory cause of the other-worldliness, I cannot feel that it accounts for the absoluteness, for the fact that certain aspects of morality are felt as a categorical imperative. The origin of this, as I have elsewhere suggested, must more probably be sought in the all-or-nothing method adopted in higher animals for avoiding conflict. This has been proved to operate to prevent conflict between antagonistic muscles and between competing reflexes. Observation shows that it must also normally apply to competing instincts in sub-human vertebrates. Finally, all we know of human psychology indicates the strong probability that it operates in repression in early life. Man is the only organism in which conflict is normal and habitual, so that some form for minimizing its effects is essential; and this will be of the greatest importance in early childhood, before sufficient experience has been accumulated to enable conflict to be dealt with empirically and rationally.

The antagonistic forces which hold down repressed ideas and impulses are kept away from the main body of consciousness; hence the apparent externality of ethical law. They are held there by the strong but automatic processes of repression; hence the compulsiveness of the super-ego. And repression is, or attempts to be, total, seeking to keep certain impulses wholly out of consciousness; hence the all-or-nothing character of the ethical prohibitions of the super-ego.

Some repressions are more complete than others; and in many cases the degree and method of repression can be modified or the prohibitions of the super-ego transferred in their operations from one field to another. Hence we may say that a great part of our ethical development will consist in diminishing the absoluteness and compulsive-