About the first I must say very little, not because it is not important but because it is subsidiary to Dr. Waddington's main thesis. He says that, if the contents of super-egos are taken to consist of general rules, they must be rules "of an extremely vague character". In more familiar language, the deliverances of men's moral consciousnesses vary so much that no general ethical principles as to what is good and right can be laid down.

I deny it, and claim that we do in fact all know, and always have known, that unselfishness is better than selfishness, kindness than cruelty. What is more, we can all recognize a case of cruelty when we see it and know that we ought to try and stop it—(the fact that we usually do not try is not to the point). I should go further and maintain that we do all of us know the sort of way in which we ought to live; that we know, in fact, that we ought to live very much as Christ enjoined. We may say that Christ's prescription for good living is wholly impracticable or is much too difficult; but that does not alter our conviction that it is the right prescription. The difficulty about ethics is not that we don't know what is right and know with a good deal of particularity, but that we lack the will or the ability to act in accordance with our knowledge.

Secondly, on Dr. Waddington's main point, I cannot understand how anything can be measured without a ruler which is external to and other than what it measures. Now to adjudge a movement as good or as bad—witness in this connexion Dr. Waddington's talk about "the 'good' direction of evolution"—entails that some meaning is understood to be conveyed by the words good and bad which serves as a standard of measurement by reference to which the movement is evaluated. Now this meaning cannot itself be part of the process which it is invoked to evaluate, any more than a ruler can be part of the length which it measures, or a man can lift himself by his own braces. Dr. Waddington points out that later stages of evolutionary development include the earlier. Certainly they do, but what of it? The later stages of a travelling snowball include the earlier, but that does not mean that the snowball's journey is ethically valuable or worthy of praise. It may not even be well advised; if it is heading for a precipice it is ill advised. The point is surely obvious enough. When Dr. Waddington affirms that evolution is moving in the right direction or is progressive—it is "good", he says, "simply because it *is* good"—he is applying ethical standards to it. Now all progress implies movement in a direction and direction implies a goal. If I put myself in the Strand and set my legs in motion, there is movement or process, but until I know whether I want to go to Charing Cross or Temple

Bar I cannot say whether I am progressing or not. But the goal cannot be part of the process which seeks to realize it.

Once this is understood, it will be seen that the kind of question which Dr. Waddington is putting, when he applies the notion of 'right direction' to evolution and then proceeds to inquire whether our present direction is "right", is, *if we are to proceed on his premises*, like the question "Is it better to take the right fork or the left?" when asked by somebody who does not know where he wants to go; while further questions relating to the speed of the advance are like asking whether it is better to travel in a 40- or a 10-h.p. car, when you don't know where you are travelling, or whether it is good to travel at all.

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IN commenting upon Dr. Waddington's article, the need to be brief compels me to concentrate upon a single point and to say too shortly what requires to be argued with the help of detailed examples. The point I select for comment is that the contribution of science to ethics lies in its revelation of "the character and direction of the evolutionary process in the world as a whole", and that the examination of this direction will yield the criterion of human action. Although I am in agreement with much that Dr. Waddington says here and in his little book, "The Scientific Attitude", I find a serious difficulty in understanding his present argument. He maintains that the "real good" is that which has been effective, that is, that which has been exemplified in the course of evolution; accordingly, he argues that "we must accept the direction of evolution as good simply because it *is* good according to any realist definition of that concept". Presumably the word "must" in this sentence means "are logically compelled", so that our acceptance is an admission of what follows logically from the "realist definition" of good.

It is not, however, clear whether this is what Dr. Waddington means since he at once proceeds to drag in the notion of fatalism, in order to ward off a possible charge of being fatalistic. But such a charge would not make sense if I have correctly interpreted the phrase "we must accept". The difficulty is increased when we take note of the context in which the sentence I have quoted occurs. Dr. Waddington is disagreeing with T. H. Huxley's protest against accepting the cosmic process as the standard of ethical progress. The answer he makes consists of three parts, or—as I prefer to put it—he gives three different answers: (1) the method of evolution is to us—as contrasted with Huxley—"as unemotional as a definite integral";

(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 docketed; 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;