

such a pair may be created, acquiring energy from the field. Moreover, these creations and annihilations do not take place only when charged particles are initially present, but also in what has previously been called *vacuum*, so that the conception of vacuum as understood in classical theory is radically modified. The picture is now one of continuous short-term creations and annihilations of particle-pairs, and thus a continual fluctuation of the number of particles present, and even short-term fluctuations in the total quantity of energy present, so long as these energy fluctuations remain below the limits of detectability consistent with the quantum uncertainty principle. The active vacuum field resulting from this conception may perhaps be regarded as the nuclear theory's equivalent of an ether.

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For additional bibliography, see ACTION AT A DISTANCE.

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ETHICAL NATURALISM. It has been widely accepted that there is a *prima facie* distinction between establishing the facts on any matter and evaluating them. It seems evident that in order to perform the latter task properly, one must first perform the former; if one makes one's evaluation without adequate knowledge of the facts, one is likely to do this incorrectly. One should know all the relevant facts before one makes a moral assessment. From this it appears to follow that establishing the facts and making moral assessments of the facts are two totally different things, and that a complete account of the former will make no mention whatsoever of the latter. This is presupposed in the quite commonly accepted view that it is the business of the empirical scientist to give a complete description of what the world is like, but no part of his business to say whether or not this world is good. When it comes to describing the universe, we must take the empirical scientist's expert opinion; when it comes to evaluating it, however, his judgment is no more authoritative than anybody else's. The view that denies this *prima facie* distinction between establishing facts about the world as it is and making a word estimate of those facts is called "ethical naturalism." According to ethical naturalism, moral judgments just state a special subclass of facts about the natural world. To take just examples, according to one naturalistic theory, judgments about the rectitude of actions are factual judgments about the quantity of pleasure they produce, and, according to another naturalistic view, judgments about the morality of human institutions are judgments about whether they conduce to the survival of the community to which the institutions belong. Some Utilitarians, such as Jeremy Bentham and possibly John

Stuart Mill, have held that judgments about the rectitude of actions are factual judgments about the quantity of pleasure these actions produce. Evolutionary theorists like Herbert Spencer have held, roughly, that moral pronouncements upon a practice or an institution are factual judgments about whether these pronouncements are conducive to the survival of the institution that has them. Pragmatists, such as John Dewey, have held, again roughly, that judgments about goodness are factual judgments about what leads to a permanent satisfaction of conflicting wants.

A number of rather facile (although frequently accepted) objections to ethical naturalism may first be disposed of. It is sometimes supposed that because it does not follow from the fact that a man is doing something that he ought to be doing it, and because it does not follow from the fact that a man or an institution exists that he or it is good, it must be concluded that something that is good or ought to be done is not identical with any matter of fact about it. All that may be concluded, however, is that the fact that something ought to be done is not identical with the fact that it is being done and that the fact that something is good is not identical with the fact that it exists. Nothing has yet been said to show that these may not be identical with any facts at all. It has also been supposed that because there is a perfectly good sense in which it is proper to distinguish between questions of fact and questions of right, questions of right cannot be questions of fact. Questions of right are certainly not questions of fact in the sense of "fact" in which it is proper to contrast questions of fact with questions of right; it does not follow, however, that there is not another wider sense of "fact" in which questions of right *are* questions of fact. Analogously, although it is also quite proper to distinguish between questions of fact and questions of law, it does not at all follow that a question of law is not itself a question of fact in some wider sense of "fact"; it is possible that it is just as much a matter of fact that the law says that such-and-such ought to be done in such-and-such a situation, as that such-and-such a situation actually obtains. Lastly, although it is true, in a sense, that one must find out all the facts of the situation before passing a moral judgment upon it, this can simply be interpreted as meaning that one must find out all the nonmoral facts of the situation before asserting any ethical facts about it.

The naturalistic fallacy. G. E. Moore, in *Principia Ethica* (1903), rejected all forms of ethical naturalism on the ground that they committed what he called "the naturalistic fallacy" (his arguments were anticipated by Richard Price in his *Review of the Principal Questions in Morals*). Moore contended that goodness was a unique, unanalyzable, nonnatural property (as opposed to natural properties, such as yellowness or anger, that are perceived through the senses or through introspection). Therefore, any attempt to define goodness in terms of any natural property must be a mistake that is one form of what he called the "naturalistic fallacy." It is not wholly clear from his writings, however, precisely what the naturalistic fallacy is. It has been suggested that he may have meant one or another of the three following. (1) The naturalistic fallacy is the fallacy of defining goodness, which is

