

considerations do not seem to determine his rejection of Britain's independent deterrent and his support for cruise missiles and present NATO policy. The book ends with a reprint of talks on preventing war given by Michael Quinlan, late of the Ministry of Defence, which have received critical attention elsewhere. His smooth reasonableness conceals deliberate over-simplifications and

omissions and a complete inability to account for the disastrous direction that the arms race is now taking. There are welcome signs that even bishops—whose gatherings Mr Quinlan has assiduously cultivated over the years—are beginning to perceive the monstrous immorality of what he represents.

ROGER RUSTON O.P.

ABUSING SCIENCE—THE CASE AGAINST CREATIONISM by Philip Kitcher.
Open University Press. 1983. Pb. £6.95. 200pp plus index.

Scientific Creationism is essentially an American phenomenon, although it is based in a more general context of evangelical fundamentalism. It is American largely because the constitution of the U.S.A. does not permit the teaching of religion in schools, in contrast to the U.K. where religion is the only compulsory subject. Were it not for this fact fundamentalists could propagate their literal exegesis of Genesis on an equal footing with the scientific theory of evolution by natural selection as an alternative view of the nature of the origin of mankind. As that equal footing cannot take place in American schools Creationists have modified their stance and become *Scientific* Creationists, presenting their somewhat crude theology and cosmogony as if it were plain science. With their views in that guise they then demand equal time for their alternative scientific theory. Although they have set up an Institute for Creation Research and have the following of a number of scientists the Creationists still present their scientific case with what can only be called scientific naïveté. Nevertheless their voice is loud and their cause is closely allied to that of the Moral Majority and hence presents a not insignificant force in Reagan's America. Despite some setbacks in the courts, which have denied them equal time, many educational policies have been modified by Creationists pressure and many science teachers feel that academic freedom is threatened by the Creationist cause.

It is in this context that Philip Kitcher

has written a "manual for self-defence" for the layperson and professional scientist alike, to counter the Creationist arguments, to show "why they are wrong". Kitcher claims that the Creationists campaigns constitute not just an attack on evolutionary theory but also "an attack on the whole of science", hence the title of his book. He has set out the Creationists' battery of arguments and disposed of them contemptuously, expounding with some skill the principles upon which the orthodox scientific case is based so the reader can compare claim against counter claim. It is already a much praised book written by a philosopher of science, who vigorously defends science from the onslaughts of a pseudo-science and pseudo-religion. And yet...

There are two aspects of this book that make me uneasy about it. The first concerns the tone and at times quality of Kitcher's criticism and counter-arguments and the second concerns his defense of science. The Creationists are not difficult to attack or expose for their writing is naïve and clumsy. Kitcher exploits their weakness and yet admits that they are making serious criticisms of Darwinian evolution theory, but he is too often condescending in tone and frequently shrill. Furthermore he does not always answer the criticisms of the 'Creationists and sometimes adopts their own methods. Take, for example, the objection that Darwinian evolutionary theory is tautologous. It is said by critics that the theory reduces to the claim that the fittest survive and that those that survive must

have been the fittest. Kitcher counter-argues that the conception of fitness is not properly understood in this objection and neither is the notion of natural selection. Fitness, he says, is not concerned with survival but with survival as a means to reproduction. Natural selection is best modelled by mathematical population genetics, which says that the genes that are more fit become more prevalent in a population. So Kitcher says triumphantly “the claim that the fittest survives becomes an array of definite results about the distribution of genes in successive populations”. It seems to me that this is a more technical way of saying exactly the same thing. The genes that get widely distributed are those that are more fit and those that are more fit become more prevalent. Is this not a tautology?

Kitcher frequently contends like with like. For example, in dealing with the accusation that the diversity of living things could not be the outcome of chance, he introduces the distinction between apparent and irreducible randomness into the discussion. Fair enough, but whilst accusing the Creationists of being slippery, Kitcher himself slides from one defence to another in an obfuscatory fashion. Creationists object to the formation of the DNA molecule by *chance*; Kitcher denies it was produced by an *irreducible* random process. He then agrees that biologists do deny there was any goal-direction or purpose to the *random* production of DNA, and whilst accusing the Creationists of trading on a rhetorical device, he does just that by continuing to say that the construction of DNA “underwent chemical combination according to the general laws that govern chemical reactions”. He has generated sufficient confusion about notions of randomness and lawfulness that he demolishes an argument that was not actually put forward and juxtaposed the unrelated ideas of lack of purpose with chemical lawfulness. The same section of the book also illustrates my second worry about “Abusing Science”, which is of more general and serious concern.

However poorly expressed (and at

times it is pretty bad) the Creationists attempt to make the point, shared by many non-creationists, that scientists do make statements that have moral, theological or metaphysical implications. Kitcher half acknowledges this point and counters it by attacking the weak theological links in the Creationists own arguments (which is fine as long as the central point is faced), but he also defends the science of evolutionary biology and science as a whole by claiming moral and scientific neutrality. Scientists are often far too blind to their own metaphysical statements and to argue that evolutionary theory says nothing about purpose, meaning, ethics and such like is to be deaf to valid criticism. Besides which Kitcher himself agrees that biologists deny there are any goal-directed (i.e. purposeful) processes involved. Sir Fred Hoyle has said, in his recent book “The Intelligent Universe”, that Darwin’s theory leads to the notion that there is no morality except survival. Kitcher says that evolutionists do not make that or any such claim and yet in every textbook science fact is intermingled with scientific metaphysics. It is claimed that evolutionists say nothing about morality but they do say quite explicitly that nature shows no purpose, which is more than a scientific statement. It has implications for morality. Biologists do explicitly reject anything that smacks of vitalism and claim that life is nothing but a high level of organization of matter. Such a claim does have theological implications. The science of mankind ignores and frequently denies that man is anything more than his material being. Any Scientist who suggests otherwise, Creationist or not, is howled down and accused of being unscientific; but where are the biologists howling down Jacques Monod for insisting that modern biology denies the existence of God, that there is nothing but chance and necessity. The claim to neutrality seems to be very one-sided. Kitcher implies that the way “we understand more about ourselves” through modern science corrects the “primitive conceptions about the world” the authors of Genesis had. What he fails

to see (as do the Creationists) is that we only understand more about that aspect of ourselves we have chosen to look at. The 'primitives' knew more about man's spiritual being and Genesis is surely concerned with the origin of that; that God created the world, heaven and earth and all that is, seen and unseen. I refuse to defend the Scientific Creationists but they do raise questions of great importance about science that Kitcher has not

answered. His failure to grasp the significance of the fact that science is not neutral, either in its method or practice, but that it actively supports a view of reality that does not admit to a 'spiritual' dimension to humanity is itself a form of abuse to science. The case against Creationism has been disposed of in this book, but the case against scientism remains uncomfortably open.

MICHAEL SHALLIS

THE MIND OF ST. BERNARD OF CLAIRVAUX by Gillian Evans. Clarendon Press, Oxford. 1983. Pp 236. £16.50.

Dr Evans new study of St. Bernard of Clairvaux fills a gap in the study of intellectual thought. Using the letters and treatises of St. Bernard, she places the development of his ideas within the context of his times, tracing the various paradoxes in this 'chimera of his times', and relating them to external currents of thought. The first section deals with St. Bernard's conception of the monastic life and especially with his ideas about that enigma of the twelfth century, the monks of war. The second section considers various aspects of St. Bernard's communication of ideas, in preaching, teaching, talking and writing. The third looks at his theological disputes, and the fourth at his concept of the church, with special reference to *On Consideration*. There is an appendix on Peter the Venerable, and a select bibliography.

There has been a notable dearth of books on such themes in English, and Dr. Evans book is to be welcomed for the introduction it provides to St. Bernard in relation to his age. It is however curiously difficult to find a definite connecting thread running through the book. The title suggests that the connection ought to be the thought of St. Bernard; but in concentrating on the 'intellectual in Bernard' (preface) Dr. Evans's study becomes uneven. The 'intellectual' is not, in fact, central to the 'mind' of St. Bernard, and can only be considered in subordination to his mysticism and life. It is indeed illuminating to see St. Bernard's ideas and opinions in relation to Anselm of Havelberg, Guibert of Nogent, Hugh

of St. Victor, Rupert of Deutz, as well as William of St. Thierry; but the sensitive and perceptive links that Dr. Evans presents between Bernard and others tends to play against a consideration of the interplay of St. Bernard's own ideas within himself. In some ways, the most sustained theme in the book is the comparison which is made between St. Bernard and St. Anselm of Canterbury. As someone for whom, like Dr. Evans, the sun rises and sets with St. Anselm, such a theme is no bad thing. But from the point of view of understanding St. Bernard it may be criticised. To restrain St. Bernard to the Anselmian frame-work is interesting but does not in the end do justice to St. Bernard, a man of different character and scope. For instance, to set St. Bernard's view on the Atonement within the patterns of *Cur Deus Homo* is interesting, but bypasses the interests which are central to St. Bernard and which lie not in analysis but in poetry and praise. The 'mind of St. Bernard' was complex, subtle, exasperating, familiar, alien, above all of many facets; quite different from the clarity, simplicity and colossal directness of the mind of St. Anselm, which Dr. Evans has so excellently presented in three previous books.

Moreover, in another aspect, the Anselmian approach to St. Bernard does not have quite the effect that perhaps the author intended. In discussing St. Bernard's devotion to the Virgin Mary, Dr. Evans first presents a fine analysis of St. Anselm's three prayers to St. Mary