BOOK REVIEWS

God and the Machine

Science and Secularity: The Ethics of Technology. By Ian G. Barbour. Pp. 151. (Harper and Row: New York, Evanston and London, 1970.) $4.95.

ON reading through the references given at the back of this book I realize how many texts have been written in the last decade on the complex relationship between man and machine. This no doubt reflects the increasing awareness that science in the form of power is at present unable to serve the best interests of society.

This book is the third that Dr Barbour, who is chairman of the Religion Department and Professor of Physics at Carleton College, has written on this subject; the other two have the titles *Issues in Science and Religion* and *Christianity and the Scientist*. It is based on a series of lectures given by the author at Duke University and the Pacific School of Religion, Berkeley. The principal part of the book is devoted to an examination of how contemporary religion stands up to the challenges of science; the first three chapters deal with the challenges from general characteristics of science, the scientific method, autonomy of nature and the technological mentality, while the following two chapters are concerned with the specific problems arising from molecular biology and cybernetics.

The opening chapter on the scientific method challenges the idea that science is objective and religion subjective and compares the approach of science and religion to the interpretation of experience. The role of models in scientific discovery is already well documented but it is as well to realize that religion, as well as science, uses models to interpret phenomena and experiences. Examples of scientific models are given as well as models of God taken from classical theology and from contemporary religious thought. Too often today we find the laws of physics and chemistry being applied to other fields without concern for the assumptions implicit in their derivation. The limitations of the models as representations of reality are, however, emphasized whether they be models of the nucleus or models of God. The differences between models in religion and science are considered and the author concludes that the challenge of the scientific method can be met by a more adequate understanding of the character of both science and religion.

Secularism is a faith in man's ability to order his own life and control his own destiny. With this belief the world can be understood by man's independent reason without reference to God; this is where science has influenced secularity. The chapter on the autonomy of nature shows how religious thought through the ages has attempted to interpret God's relation to nature. This section of the book is not light reading, but it shows how contemporary religion recognizes the concerns of secularity with its belief in the autonomy of nature and the freedom of man, and puts forward the model of a God of persuasion. "God's power is the power of love which evokes man's response but does not compel."

Barbour is not alone in being concerned with the emergence of the technological mentality with its reliance on the power of technology and its shameless exploitation of the environment. He sees it as a challenge to religion in that it makes a God out of technology, with growth and continued expansion as the objects of worship. As he rightly points out, technology has the power to free man from suffering, disease, famine and poverty; but its misuse can lead to untold misery. The author calls for a change of attitude and pleads for a technology which takes into account human needs.

The so-called "new" challenges of molecular biology and cybernetics are discussed in terms of the philosophical, theological and ethical issues that they present. Genetic control has the power for good in improving mankind, cybernetics can extend man's capacity and augment his intellectual power. Barbour uses these two subjects to illustrate that the new freedom is coupled with the needs for greater responsibility and his model of man includes that of a responsible self as well as the biochemical system that he is.

In the chapters on the technological mentality, biochemical man and cybernetics, the red warning light has been flashing. In the final chapter on the redirection of technology a green arrow is also visible, and he stresses that technological suicide is not inevitable; man has the choice. At this moment in history, the world faces a crisis of values and in his suggestions as to how to approach the problems one concludes that Barbour has a very balanced view of the nature of man. It may well be fashionable to talk about ecological crises and the population explosion, especially to an American audience, but these are not idle words. Concrete proposals for dealing with the population crisis are set out coupled with a plea to the countries of the world to adopt a national policy on the redirection of technology towards the pressing social problems. It is not enough for scientists, however distinguished, to voice their dissatisfaction with the unbridled progress of technology; government interference is needed to restore the concept of man in nature rather than man against nature.

The Christian Church does not escape criticism. Up to now the Church has resisted change but it must "assist in directing technology and also make us aware of the dimensions of life inaccessible to technical reason". "The gospel is not the enemy of human freedom and fulfilment but liberates us to discover our authentic humanity."

This book aids the scientist to see his work in perspective and helps the layman to understand how the rot has set into technological development. It is indeed a positive contribution to the guide book of survival in the seventies.

KEITH N. JONES

Origins of "New Science"

Science and Education in the Seventeenth Century. (The Webster–Ward Debate.) By Allen G. Debus. (History of Science Library: Primary Sources.) Pp. 335. (Macdonald: London; American Elsevier: New York, November 1970.) £6.00.

ALTHOUGH the introduction of "New Science" in place of the Aristotelian-scholastic natural philosophy at English universities had been urged since the publication of Francis Bacon's *The Advancement of Learning* in 1605, such a far-reaching change seemed close to realization only in the heady atmosphere of the English Commonwealth. Historians of education have often commented on the pleas for a new scientific teaching which constituted an important part of the many reformist proposals (some of extraordinary perceptiveness) published at the time.

Only recently has it become clear that the "New Science" of many of