

Book Reviews

SCIENTISTS AND SOCIETY

Reason Awake

Science for Man. By René Dubos. Pp. xviii+280. (Columbia University: New York and London, July 1970.) 63s (\$6.95); 27s paper.

If the 1950s can be characterized by the growth, at least in the developed countries of the West, of the scientific estate, the 1960s can be viewed as the beginning of widespread social discontent about science. We are, according to the author, living in the age of the "new pessimism" brought on by disillusionment with the wonders of science. The initial expectations of those who in the nineteenth century looked forward to a new society firmly rooted in scientific understanding stand in sharp contrast to the actual state of society that more than one hundred years of commitment to scientific and technical progress has produced. Lack of attention to the social implications of science and technology has transformed our environment beyond all recognition—so deep has been the change that the ecological balance of nature and the future of man are now seriously threatened.

The first four chapters of this book are concerned with drawing out the implications, both for science and society, of the unbridled development of technology. Thus, the central theme of the book, which derives from a set of lectures given by Professor Dubos at the Institute for the Study of Science in Human Affairs at Columbia University, is "not science *per se* but rather the penetration of science into all aspects of human life". Although the author's theme is not a new one, it is amply illustrated by references to the biological sciences rather than to the physical sciences as has usually been the case. But Dubos's chief concern is not simply to face his readers once again with a pessimistic picture of the ills of our technological society. As the central theme suggests, his concern is with the penetration of science into all aspects of human life; and this, for Dubos, means the effect of scientific technology on the intimate relationship between man and his environment. The ecological balance, according to Dubos, has been evolving over centuries. So, too, has man; his evolution, both mental and physical, is deeply involved with the development of his physical surroundings. Now, with the aid of science and technology, man has so profoundly altered the environment that his physical and mental make-up may no longer be able to cope with the rapid rate of change. But one of the principal characteristics of man is his adaptability. Throughout his evolution it has been necessary for man to adapt in order to survive biologically, but "paradoxically the greatest threat to the quality of human life is that the human species is so immensely adaptable that it can survive even the most objectionable conditions. . . . There is much evidence that tolerance of undesirable conditions is achieved at the cost of physical and mental disabilities in later life. To a large extent the so-called diseases of civilization are the delayed consequences of biological and mental stresses to which the organism has made adaptive responses that appear effective at the time but are inadequate in the long run". In chapters five and six, Dubos illustrates this thesis by drawing extensively on recent research in psychology, microbiology and the neurosciences.

Although the case for the ecological relationship between man and his environment is well made, the solution offered is less compelling. The answer to an ecological problem is an ecological solution. Man, the author argues, having grasped that his survival depends on a very delicate balance between myriads of conflicting forces must somehow attempt to "will" or plan the future so that the appropriate ecological balance is maintained or at least constrained to change more slowly.

It is refreshing, nonetheless, to see a distinguished scientist repudiate as inadequate the technological scenarios of the Hudson Institute but, alas, there is much work to be done before the ecological thinking of Dubos permeates the intellectual structures of Western society and becomes an effective alternative to the one dimensional "technological fixes" that society has so far provided to solve its problems. In a society committed to technological and economic growth as ends in themselves the battle of technology versus counter-technology must lead to the destruction both of the environment and man himself. Dubos urges us to abandon as quickly as possible the "philosophy of endless quantitative growth and opt for a social and economic 'steady state'". Many persons may feel that to opt for such an alternative is to condone stagnation and eventually decadence. Dubos counters that "... a steady state is compatible with creative changes. In fact, change within a closed system will probably offer intellectual possibilities much more challenging than those offered by the kind of rampant growth that prevails at present". Accordingly, when man truly enters the age of science he will abandon his crude and destructive attempts to conquer nature by technological force. "He will instead learn to insert himself into the environment in such a manner that his ways of life and technologies make him once more at harmony with nature."

This is a thought-provoking series of essays which will be of interest to both the general reader and to the specialists who seek to understand the paradox of current disillusionment with science in a civilization dedicated to the advancement of knowledge.

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SURVEYS OF OVERCROWDING

Population Control

Edited by Anthony Allison. Pp. 240. (Penguin: Harmondsworth, Middlesex, June 1970.) 7s.

THIS collection of twelve essays is rather like a basic biology textbook; it moves from an initial discussion of protozoa, through plant, bird and animal populations to the second half which is devoted to human populations. As the editor freely admits in his introduction, such a wide ranging survey of populations will "have varying degrees of relevance to the human situation". This relevance could have been increased if there were more explicit discussion in the first half of the book, of the implications of plant and animal population fluctuations on human activity and vice versa. For example, in the paper by Leslie Brown on large mammals, it would have been interesting to know the likely ecological implications of proposals to exploit wild herds of mammals in Africa for human food consumption.

The second half of the book opens with a cogent summary of past and likely future growth of the world's human population by W. Brass, in which he notes how past predictions of population trends have not been incorrect but simply overtaken by changes, chiefly in fertility patterns which the projectors could not have been expected to foresee. There follows a discussion of the linkages between population growth and food supplies and then three papers on population regulation in the context of primitive societies, family planning programmes