just as we would expect, we find lots of material on modelling, climate change, ocean chemistry, monitoring techniques, scenario building, and agricultural repercussions. Curiously enough, in this reviewer's opinion, the main body of the book offers scarcely a nod at the arguments about the role of Earth's biota in contributing to CO_2 buildup. The rationale is set out in the opening pages: whereas fossil-fuel burning is reckoned to be releasing at least 5.3 gigatons of carbon into the atmosphere each year, forest burning among other land-use changes has led to a smaller net release, proposed here at about 2 gigatons. The text accepts that the uncertainties are large, and the range may extend from a high of 5 gigatons to a low of minus 1.

From these figures, the Authors of the opening chapter conclude that 'No one any longer suggests [that] land-use changes will produce a significant fraction of Man's total future releases of CO_2.' No one? Various studies are coming on stream to indicate that the estimate of 2 gigatons may be a 'solid' figure, conceivably a little on the low side—and the figure of 2 in itself constitutes 27% of the annual total. Not 'significant'? And whereas the growth-rate of carbon emissions from fossil-fuel burning, which averaged over 4.5% per year from 1950 to 1973, has since dropped (in the wake of OPEC) to less than 2.5% a year, is there any reason to suppose that the probable doubling of the number of small-scale cultivators in tropical forests, to as many as 500 million people by the end of this century, will not cause a rapid acceleration in the rate of carbon release from the biota? Whatever the merits of these arguments, the Editor has plainly decided, from the start, that this aspect of the overall issue does not deserve detailed treatment in the book, and it is relegated to a dozen pages in the section of Notes.

Similarly, this reviewer would like to have seen more attention directed at the social-sciences aspects of the problem. The CO_2 issue is characteristic of a generic set of problems which we shall shortly face, and concerning which we must make policy decisions and economic adjustments while wallowing in a sea of uncertainty. If we wait until we have a sufficient body of scientific evidence to make our responses plain, we shall be too late to make our responses effective. Thus we have to engage in a new type of crisis management, in which we reach for the levers of decision before the crisis is upon us—a gross departure from established practice, wherein we have enjoyed the luxury of waiting until the crisis arrives before getting to grips with it. The political implications of 'risk management' are great and growing. Whatever the lacunas in our understanding of the natural-sciences aspects of the problem, they are far outweighed, in this reviewer's experience, by the social-sciences questions. True, the book has been intended to be a publication by, and for, the former category rather than the latter. But if we are to achieve the interdisciplinary syntheses that are postulated by the inherent nature of the question, should we not take every opportunity to pursue precisely those sorts of inquiry in which we are fundamentally deficient?

These two reservations apart, neither of them trifling, I certainly welcome the appearance of a well-planned and splendidly produced book that deserves the attention of all practicitoners in this field. It would have been good value at twice the price!

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The Medical Effects of Nuclear War: The Report of the British Medical Association's Board of Science and Education. Published on behalf of the British Medical Association by John Wiley & Sons, Chichester–New York–Toronto–Brisbane–Singapore: xx + 188 pp., 10 figs, 20.2 × 12.2 × 1.3 cm, thick paper cover [no price indicated], 1983.

This is the Report of a select 'Working Party' of eminent scientists in various medical disciplines, who made inquiries on the medical effects of nuclear war, and who received written and oral evidence about such effects from various experts in many fields. Although the authors of the Report confess that it is far from being comprehensive, yet the knowledge gathered in this book would provide much valuable information to doctors and others concerned with the medical effects of nuclear war. The Report of the Working Party was debated by the British Medical Association's Board of Science and Education before being presented to the Council of the Association, which finally cleared the text.

The book has an introduction and a glossary (pp. i to xx), as well as seven chapters dealing with the various aspects of the problem. It also has 6 Annexes, a list of 41 numbered 'References', and a 'Bibliography' of 80 publications.

The first chapter deals with 'Physical Principles and Construction of Nuclear Weapons', giving a scientific account of the history of their development from 1945 to the present time. It includes also a survey of the current range of nuclear weapons that is known to be in existence, and a description of their physics. This presentation was considered essential, as it is impossible to appreciate the medical consequences of a nuclear war without an understanding of the processes involved. The importance of the micro-electronic guidance systems that steer these weapons to targets, as well as of the electronic communication systems that are essential for any effective counteraction—including effective health-care—are stressed, as any disruption of their mechanisms could bring about untold disasters. A few high-altitude explosions could shut down the civilian and military communications equipment (including all radio and telecommunication equipment and computers) over a whole continent!

The second chapter deals with an examination of the form that a nuclear attack on the United Kingdom might take, and gives an account of the many variables on which the medical consequences of a nuclear attack would depend—such as the number of explosions, air- or ground-burst, the time of day, the time of year, and the targets selected. A review is also given of the possible patterns of attack on the United Kingdom. Summarizing the hearings and statements on the credibility of limited nuclear war, this chapter concluded by stating 'We cannot escape the conclusion that the use of nuclear weapons at any level would probably escalate into a major strategic conflict in which the United Kingdom would be heavily involved.'

The third chapter deals in Part A with the medical effects of a nuclear explosion up to 14–21 days after an attack. Details are given of the types of injury that might be expected, and their causes whether from the power of blast or from radiation heat or fallout. This part cites various scientific studies, gives descriptions of what happened in Nagasaki and Hiroshima, and has to be read in full to grasp the picture of the holocaust following a nuclear attack. Apart from the effect of radiation on the skin, bone-marrow, gastrointestinal tract, uterus, and foetus, as well as the psychological effects on those who

are sentenced to death through this nuclear explosion, there are statements about the helplessness of the health services in anything like their present state in meeting these emergencies—due to lack of facilities, instruments, drugs, clean non-radioactive water, etc.

Part B of chapter 3 attempts to give an estimate of the numbers of casualties that might be expected to result from different types of attack. Many studies are quoted and the discrepancies of their results are shown. The variations are caused by quite numerous factors involving the type of target, whether it is military or civilian, the density of population, the number, height (whether at ground-level or in the air), and power in megatons, of explosions, the number and distribution of antinuclear shelters, not to mention the state of the health service, its manpower, morale, etc. It is pertinent to cite the following statement towards the end of the chapter: 'All the figures quoted so far refer only to the short-term effects of a nuclear attack: to those who would be killed and injured, or else "sentenced to death" from radiation sickness, in the first few days or weeks following an attack. Many causes of death and injury which would undoubtedly occur have not been taken into account because of the difficulty or impossibility of calculation: fires, food and water shortage, epidemics, lack of health care, lack of shelter and heating, and the possible breakdown of law and order.'

The fourth chapter looks at the long-term medical effects on survivors of an average attack for a period of about two years, paying special attention to the problems of water, food, and power supplies, as these represent the basic needs of the survivors and are of higher significance than the long-term purely medical effects. The long-term prospects for agriculture are described, showing the effects of radiation on the first and subsequent harvests, and the dependence on the availability of fuel to run the different machines used in the agriculture of developed countries.

Chapter 5 deals with the assessment of the group of the civil defence that relate to nuclear explosions. In the words of the spokesman of the Ministry of Defence on the matter of evacuation and shelters: 'Unfortunately one place is as unsafe as another in broad terms, and in all likelihood any attempts at mass evacuation would cause more problems than they would solve... It is our advice to the public that they would do better in such a dreadful emergency to stay put and make shelter arrangements where they are.'

The sixth chapter deals with the current plans of the Government and health authorities for the National Health Service in time of war, and these plans are critically examined alongside predictions for different patterns of nuclear attack and projections for the resulting number of casualities. The inquiry by the Working Group showed serious defects, caused by the fact that there is an apparent confusion over suggested medical requirements in conventional war and nuclear circumstances, as the needs of each are opposed in certain important respects. Conventional warfare demands the concentration of facilities and expertise, whereas these should both be dispersed as widely as possible before a nuclear attack; moreover, the scale of devastation in nuclear war would make current suggested patterns of organization inappropriate.

A dispassionate summary of the medical consequences following a nuclear attack on the United Kingdom, based on the information gathered by and evidence presented to the Working Group, is given in the seventh and last chapter. The concluding paragraph of this summary could well represent the state of mind of the scientists who were responsible for writing this document. They stated: 'We believe that such a weight of nuclear attack would cause the medical services in the country to collapse. The provision of individual medical or nursing attention for victims of nuclear attack would become remote. At some point it would disappear completely and only the most primitive first-aid services might be available from a fellow survivor.'

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Eco-Philosophy, by Henryk Skolimowski. Marion Boyars Publishers Ltd, 99 Main Street, Salem, New Hampshire 03079, USA, and 18 Brewer Street, London W1R 4AS, England, UK: vii + 117 pp., 16.6 × 12.3 × 0.8 cm, stiff paper cover [no price indicated], 1981.

One is continually amazed, when perusing the philosophy journals and periodicals, to find so very little, if any, work done on ecological or environmental philosophies. When finally one does discover philosophies concerned with ecological or environmental topics, they are usually limited to specialized knowledge about a specific issue. The resultant feeling that the world is a tidy place, where environmental problems are not of interest to philosophers, rather disturbs me. In a world that has the capacity to blow itself up several times over, where it is predicted that some 20% of all known plant and animal species will be extinct by the year 2000, and where so much of the air, water, and land, has been profoundly altered by human actions, the subject of philosophy has either been in a deep-sleep in the closet of antiquity or it has been concerned with logical tautologies described in mathematical formulas.

What has happened in the history of philosophy to make it so insensitive to ecological issues? Can previous philosophic schools of thought help us in understanding ecological issues, and in developing an epistemology of ecological ethics? What is the connection between human values and ecological values?

These are among the many questions examined in Professor Skolimowski's paramount work *Eco-Philosophy*, in which he surveys the major schools of thought in the history of philosophy, with particular attention to the relationship of facts and values. For Skolimowski many of our social and environmental problems can be traced back to the distinction between knowledge and values, particularly in the scientific and materialistic world view that has evolved in the most recent century. This distinction, when entertained as sacrosanct, creates a conceptual and perceptual myopia which is at the heart of many of our misconceptions and misperceptions. Skolimowski concludes that the re-integration of knowledge fused with values is not a philosophic luxury but a necessity in assuring the survival of humanity.

On this he writes: 'It should be abundantly clear to us that we shall not be able to cope with the plethora of problems which the present (scientific–technological) mode of our interaction with Nature and other people has originated, until we again arrive at a stage in which our knowledge matters to us as human beings' (p. 17). And