movement, Student Pugwash is an attempt to recruit the younger generation to an active involvement in science policy-making. The contributions, from young and old alike, are grouped within three major sections.

Science, Technology and Arms Control is a critique of SALT II and other attempts at arms control. Those with the fortitude to wade through this sea of acronyms will find an unremarkable range of opinions of a less than radical nature.

Biomedical Research and Applications may be of more interest to the readers of this journal. Jonas Salk starts this section with Toward a New Epoch, a rather nebulous discussion of 'the use of wisdom in the game of life'. Whither Bioethics by George Kieffer calls upon scientists to involve themselves in ethical discussions of a high order. Kieffer is critical of the way individual freedom, utilitarianism, and the view that 'failure to pursue good is, in effect, a form of doing harm', have been elevated to the status of moral principles to justify unfettered research in such contentious areas as recombinant DNA (genetic manipulation). Social Priorities in Biomedical Research describes how the 'moon-shot mentality' characteristic of, say, the American National Cancer Program has arisen in the vacuum created by the lack of a coherent health policy. Unfortunately, there is only limited discussion of the political implications of American health policy, and of the vested interests inherent in it.

Allocations of Scarce Medical Resources, which also fails to consider political issues, is followed by both a critique and an unmitigated defence of recombinant DNA research. As one actively engaged in such research I was surprised to find myself more in sympathy with the former in which Stephen Reiss argues that self-regulatory processes have side-stepped the major issues by removing them from the realm of public discussion. The author is worried about the difficulty of regulating industrial research. It is more sinister, in my view, that both the British and the American Government have awarded defence contracts for recombinant DNA research. How will it be possible to open a laboratory, so funded, to public scrutiny? The defender of recombinant DNA research, who believes there to be no ethical principles that can lead to the regulation of basic research, suffers from an unfortunate misunderstanding of the technology. The book clearly demonstrates throughout his contribution. Clifford Grobstein concludes this section with a sober consideration of the realities and potentialities of modern biomedical research. He cites several benefits such as a clearer understanding of the cellular basis of diseases such as cancer, the production of novel pharmaceuticals and the production of diagnostic tools. Some of these benefits are already with us. He ends with a discussion of the ethical implications of human embryo manipulation in which it is argued that scientists must set a dispassionate example to the other interested parties in this debate.

The final, and often interesting, section is Scientists and Political Issues. Several contributors discuss how scientists can play an active role in policy-making, or can act as 'whistle-blowers' to advise the public of potential or actual abuses of technology. The final contributions are given over to a discussion of social problems associated with specific aspects of modern technology.

On the whole this was a disappointing book. A number of important issues were raised, and most are as germane today as they were in 1979. Unfortunately many authors lacked sufficient perspective to do more than scrape the surface of the problems. A more radical approach to science policy-making is needed if real change is to occur.

KIM KAISER
Cancer Research Campaign Group
Department of Biochemistry,
Imperial College, London

Ethics and Animals

Miller H B, Williams W H, eds.
Clifton, New Jersey, Humana Press.
1983. $39.50

There can be few subjects which lend themselves so well to genuine and understandable debate as the human treatment of other animals. The contributors to this collection of essays come from different occupations and disciplines and bring varied interests, priorities and levels of sophistication to the topic. The result is a very mixed bag indeed, but disappointingly, little effort is made to get down to real discussion. The fault, it must be said, lies chiefly with the philosophers whose obsessive preoccupation with the analysis of animal rights makes it impossible for them to pick up the large and important issues raised by some of the writers.

If the philosophers think this comment unfair, let them look at the statements of the repentant Roger Ulrich, quoted in Deborah Mayo's excellent article. Ulrich confesses that much of his animal experimentation was motivated by the desire for money and status; his conversion was not a deliverance of the pure intellect in the shape of a theory of rights but a gradual insight into his own character and motives. This is a fertile area for philosophical as well as psychological investigation. Why is it so studiously ignored?

And there are other leads. Ask, as the animal liberationist Henry Spira does, 'Is another shampoo worth blinding rabbits to you?' Tell the Rumboaughs' story of Austin and Sherman, the chimps who became friends and queued at a vending machine to buy each other presents of peanut-butter sandwiches. (How long does it take to teach children such unselfish behaviour?) Examine, as James Rachels begins to do, the language of the animal experimenter. Ask why it is necessary to refer to screams of pain as 'distress vocalisations'. Point out that the use of the passive voice in reports actually hides the fact that the often terrible and pointless experiments were carried out on a living, sentient creature by an intelligent human being.

The philosophers could both do their subject and make a genuine contribution to the creation of a better world by following such leads instead of devoting so much of their talent to the production of yet another dreary answer to the non-question of whether animals have rights.

However, many of the essays here are instructive and enjoyable. Gavin Daw's article on the trials of two men who freed some dolphins from a research centre is particularly amusing and thought-provoking and reveals an interesting gap in our conceptual and linguistic framework. Even if we agree with Judge Doi's exasperated ruling that dolphins are not persons, it seems an inadequate alternative to have to regard them merely as bits of property. The outcome is either too brutal or too sentimental, and leads us to ask what other possibilities there could be. There are also some entertaining chinks in the philosophers' armour. I particularly enjoyed the bluff moral naivete of the sophisticated logician James 'We've-all-got-to-go-sometime' Cargile, who claims that eating pork may be wrong, 'for all I know' but hopes it isn't; and R G Frey uncomfortably trying to persuade us that it would be quite natural for someone to claim that Albert's wife has a duty to fix fried eggs for his breakfast if he likes them. (Well, she married him didn't she?) Doubt, Frey solemnly informs us, would creep in only if we tried to use this obvious truth to infer that Albert has a right to his fried eggs.
Nevertheless, *Ethics and Animals* is likely to take its place in the literature as a brave beginning to the genuine inter-disciplinary debate which must follow if any real progress is to be made in our attitudes to and treatment of other animals. At last, enough people from enough points of view are prepared to treat the questions seriously. It would be a monstrous piece of philosophical negligence to let the opportunity slip away.

**JUDITH HUGHES**

*Department of Philosophy, University of Newcastle Upon Tyne*

---

**Genetic Prophecy: Beyond the Double Helix**


This book is the product of the collaboration of a geneticist and a medical and scientific writer. It is racy written with many anecdotes but it serves to provide an introduction to a serious subject and to point out considerable potentialities for preventive medicine.

The authors divide the work into three parts, respectively on prophecy, health and behaviour. The first, on prophecy, outlines the history of empirical observations resulting in a view of medicine as the practice of identifying predispositions to disease in certain people or classes of people. This has led to the development of genetic analysis and counselling, a practice that may well burgeon in the coming years. The second part, on health, presents the methodology for identifying genetic markers, those recognisable characteristics which enable the medical scientist to detect the existence of a particular gene and which may lead to prediction of susceptibility to a particular disease. A list of those diseases associated with human leukocyte antigen genetic markers is given. There are over eighty, the numbers rising annually as research progresses. To be sure there are great lacunae, as for instance between knowing a person is at risk from a disease and making a firm diagnosis ahead of time, but the prospects for this science are exciting and clearly hopeful for cancer treatment, prevention of occupational diseases and nutrition as well as the prevention of genetic defects being transmitted in human reproduction.

It is when we come to the third part of this book, on behaviour, that we enter the ethical field. This is especially noticeable whenever a discussion takes place on selective mating using artificial insemination by donor with a view to producing particularly intelligent offspring. But ethical considerations arise as soon as one postulates a criminal chromosome, and the entire subject of genetic screening raises a host of problems, ethical as well as medical. As the late C S Lewis said ‘Each new power won by man is a power over man as well’. The authors are aware of this and discuss the abuse of power, the propensity for people to stereotype and stigmatise others and the price of success in genetic prophecy. They raise the questions, it remains for others to provide the answers. An appendix lists the addresses of UK genetic advisory centres.

This is a disturbing book. It is informative and makes good reading, and it introduces the reader to an exciting world of possibilities. Now is the time for the serious appraisal of the social and moral implications to take place.

**DUNCAN MITCHELL**

*Professor of Sociology, Fellow in the Institute of Population Studies, University of Exeter*