

The patient's dilemma

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Unnatural Selection? Coming to Terms with the New Genetics. By Edward Yoxen.
William Heinemann: 1986. Pp. 208. £12.95.

GEORGE Bernard Shaw once observed that all professions are conspiracies against the laity, a view that has permeated much of the bad press to which doctors have been subjected in recent years. What has gone wrong? Paradoxically, the successes of the medical sciences in the post-war period, which saw the development of antibiotics and the eradication of many childhood infections by vaccination programmes, may be partly to blame. These remarkable achievements raised the expectation that the control of cancer, heart disease, arthritis and other major killers would soon follow. When it became apparent that this was not to be, and that these conditions could only be managed, often unsatisfactorily, by increasingly sophisticated patch-up procedures involving the use of expensive drugs, a bewildering array of machinery and the replacement of almost every organ except the brain, a sense of disillusionment with scientific medicine set in. Hospitals came to be perceived as terrifying places to visit, let alone in which to be ill, and it was widely believed that the pastoral needs of patients had become lost in a maze of high technology. Alternative forms of therapy were sought, and "holistic" medicine, a term which simply means good doctoring, was rediscovered.

It is hardly surprising, therefore, that when terms such as *in vitro* fertilization and genetic engineering appeared on the scene further public suspicion was generated; the technocrats were at it again, now breeding monsters in test tubes and tinkering with people's genes. The situation was exacerbated by sensational television programmes which featured parents wandering around "gene supermarkets" stocking their baskets with traits that they hoped to see expressed in their children. Memories of Nazi Germany and the eugenics movement were revived, committees of inquiry set up, and hastily constructed and ill-thought-out bills put before the British Parliament in an attempt to prevent any form of research involving human embryos.

Considering the complexities of molecular and cell biology, and the speed with which these fields have advanced over the past few years, it is not surprising that the clinical applications of these new techniques have been greeted with apprehension; the medical profession itself is only just starting to get to grips with their potential. Clearly, a long period of public

debate and reflection is required before we shall be in a position to assess how far we wish to go in interfering with our reproductive activities and manipulating our genomes. This new book by Edward Yoxen should be a valuable catalyst for pointing the discussions in a sensible direction.

Like Jane Austen and J.D. Salinger, Yoxen believes in the analectic effect of a racy opening paragraph: "There is a great deal of sex in this book, quite enough to shock the faint at heart". After an introductory section (which rapidly disillusiones even the not so faint at heart), successive chapters deal with artificial insemination, *in vitro* fertilization, surrogacy, sex pre-determination, antenatal diagnosis, new forms of genetic intervention and gene therapy. In each of these controversial areas the author faces up to the ethical and pastoral problems that are posed and gives a balanced discussion of the benefits and risks involved. By and large he subscribes to the value of these developments, while at the same time showing great sensitivity to the views of those who find many of them distasteful. It is to be hoped that his sane account of such an emotionally-toned topic will be read by teachers, politicians, church leaders and, in particular, members of the many pressure groups that are attempting to prevent further research without evaluating the evidence.

Yoxen makes little attempt to explain the scientific basis of the advances in reproductive physiology and genetics that have given us these powerful new tools, and, in most cases, simply states what is or is likely to be possible and the moral dilemmas that may arise. Presumably he feels that this is as far as he can go at the moment, given the level of biological sophistication in society. Many will agree. In discussing the problem of scientific communication, Francis Crick has described how he had to explain to a lady visitor to the Salk Institute that worms are not spontaneously generated in apples. And, as Yoxen points out, it is not all that long since those of the British aristocracy who wanted male heirs submitted to hemicastration in the belief that sperm from the right testicle produce sons — *noblesse oblige* indeed.

Such tales may not be the best guide to the level of scientific knowledge in the world at large, but there is no doubt that if Yoxen's goal is to be reached — that of an individual who can say "I fully understand the step that I am taking, I have chosen it

freely, having sought advice and considered the options available, and I recognize my responsibilities to myself and to others in what I do here" — we shall have to do some fundamental rethinking about education. To no country does this apply more than Britain, in which children are encouraged to specialize at the age of 14, and in many cases to ignore science completely thereafter, and which, with a few exceptions, is very badly served by its media in scientific matters. Thus far, prejudice and ignorance have characterized many of the views on the topics discussed in this book. Anyone who doubts that there is a problem should read *Hansard's* account of the parliamentary debate on embryo research.

There is another question that is touched on several times in Yoxen's book, but which is never fully developed. What is it that motivates scientists in this field? Why is it, for example, that in the United States there may well be nearly as many research workers trying to replace the defective gene in a rare genetic form of immune deficiency as there are patients with the disorder? And why has at least one worker jumped the gun in a premature attempt at gene therapy? Are patients becoming stepping stones on the way to scientific "firsts" and fame and fortune? As part of the dialogue that is essential if public confidence in modern medicine is to be restored, biologists and medical scientists will have to provide better insights into how science works. They should also ask themselves why it appears that so much talent is being directed into research that gives rise to increasing public concern when, at the same time, there seems to be much less interest in many of the more immediate medical problems of society. □

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Taking the soft tomato

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