

# reviews

## Introducing nuclear power

Lord Hinton of Bankside

*Nuclear Power.* (A Pelican Original.) By Walter C. Patterson. Pp. 304. (Penguin: Harmondsworth, Middlesex, March 1976.) 80p.

WALTER PATTERSON'S book is written in two parts. The first, which he calls "The World of Nuclear Fission" is excellent; I have never read a better simple explanation of the theory and practice of nuclear reactors and their ancillary plants. I am less enthusiastic about the second part of the book, most of which deals with the hazards of nuclear power. It seems to me that, in his anxiety to make a case which is real, Patterson may be guilty of lack of balance. The impression which is given by the italic printing of some paragraphs is that they have been abstracted from official reports; my limited inside knowledge contradicts this impression. For instance, I have never heard the filters on the Windscale piles referred to as "Cockcroft's folly". The stacks had not been built (as stated in italic script) when information from America made it clear that filters were a necessary precaution.

These statements are, in themselves, of minor importance but they throw some doubt on italic accounts of other incidents. The italic paragraph about "the dramatic gesture of pouring away milk" after the Windscale incident seems to be romanticised; I had left the UK Atomic Energy Authority at the time of the incident and knew nothing of any discussions that took place but (although the milk could safely have been used in milk chocolate or as dried milk) it seems to me that it would have been a foolish firm which bought the milk and laid itself open to the unfounded accusation of selling a radioactive product. The italic paragraphs about the Enrico Fermi fast reactor and mention of the "China syndrome" are hardly a fair argument against the fast reactors which are being designed today and which use a ceramic and not a metallic fuel.

The book does not emphasise the world's real need for nuclear power. The rate of usage of exhaustable natural resources does not increase exponentially to a sharp peak and suddenly fall away to nothing; it conforms to a wave-shaped curve so that at some point in time growth becomes steadily slower until a peak is reached; and,

thereafter, growth becomes negative (that is, the rate of usage diminishes).

There is good evidence to suggest that global resources of fossil fuels are such that we shall pass over the peak of such a curve at about the end of this century. It is highly improbable that renewable energy resources (wave power, solar energy and wind power) can make up the deficit; without nuclear power it is almost certain that standards of living will fall.

Nuclear power does give rise to some hazards but nothing in this world is absolutely safe. Nuclear power plants can be made as safe or safer than very many other industrial plants provided that engineers are not over-ambitious in extrapolating either the design parameters or the size of the construction programs. With these reservations I

would sooner accept the hazards of nuclear power than the risk of an energy famine.

The first part of Walter Patterson's book is an outstandingly good introduction to nuclear power for the intelligent layman. As a reminder of their responsibilities, Part 2 should be compulsory reading for those men who have responsibilities in the nuclear power industry; but its lack of balance may give a wrong impression to the lay-reader. □

*Lord Hinton of Bankside is Deputy Chairman of the Electricity Supply Research Council and was formerly Managing Director (Industrial Group) of the UKAEA and Chairman of the UK Central Electricity Generating Board.*

## Macrophage house of fashion

*Immunobiology of the Macrophage.* Edited by David S. Nelson. Pp. xviii+633. (Academic: New York and London, April 1976.) \$39; £21.45.

As the hemlines of Western ladies rise and fall and split and waver with each new season's modish rhythm so do the fads and fancies of immunologically orientated biologists. Thus lymphocytes were 'discovered' in the sixties and are probably presently at their apogee of man-hour involvement. The macrophage was discovered at the turn of the century but, as Cohn puts it in the Introduction to this fascinating book, the doldrums soon descended on all but a few dedicated phagists. The book heralds the new golden age of the macrophage (compare: Golden Age of Thymology; Miller, *Lancet*, 2, 1299; 1967).

Some of the 24 chapters, each written by a different expert in the field, deal with macrophage involvement in various *in vitro* cell preparations; others with the heterogeneity of macrophages as determined by their site of origin and the complexities of their cell surfaces. The responses of macrophages to chemotactic factors and their capacities to produce and liberate factors which affect other cellular components of the immunological or-

chestra are described. Many are the schemes of cell interaction. The papers by Volkman on monocytes, by Evans and Alexander on macrophage cytotoxicity, by Holtermann *et al.* on immunotherapy of skin tumours and that by Territo and Cline on macrophage disorders in man are all at the end of the book and all well worth reading.

The changes of tempo and topic make me long for the earlier one-man macrophage book of Nelson but he, although remaining an editor, has abandoned the role of a colossus in the field capable of comprehensive review. In spite of this dereliction of function it is Nelson's summarising chapter 9 and final short chapter which are most useful to the outsider. As he says "In the evolution of our complex mammalian system they (macrophages) seem almost ubiquitous, emerging from obscurity to make some lysozymes contribute to the complement system, help a T cell, present a stimulus to a B cell, or quell an unruly mutant."

Those with time and deep pockets (do all books cost £20 these days?) should buy this book. It is well produced, well edited and most informative. But perhaps more important its mastery will put you in on the ground floor of the current macrophage house of fashion. **A. J. S. Davies**