The impressive breadth of subject covered has meant that depth has been limited; instead of indulging in broad generalisations, however, the author has achieved this by concentrating in depth on a few well-worked examples. In many cases a single association is viewed from different aspects in different chapters, and this gives continuity to a work which could easily have become disjointed. Recent information on surface interactions between parasites and hosts is covered in detail, and though the whole subject of parasite immunology is reduced to thirteen pages, the latest advances are summarised without gross oversimplification. The section on population studies is notable for the contribution which the author and his colleagues have made, but there remains an important communication gap between applied epidemiologists and the theoretical ecologists.

There is no attempt to be comprehensive or to supersede existing textbooks; this is a complementary work for advanced students. It will be particularly valuable as a basis for seminar discussions and as a source of wide-ranging up-to-date references. My only complaint is that the fashionable complexity of the language used, though meticulously accurate, will preclude the use of this book by many overseas students.

Three contributions to the sagging shelves of parasitological literature: our students, on appropriate courses, will be advised to avoid Leventhal and Cheadle, to at least read Donaldson, and to buy Whitfield. □

R.W. Ashford is Senior Lecturer in Parasitology at the Liverpool School of Tropical Medicine, Liverpool, UK.

Radioactivity in context

Malcolm C. Scott

Radioactivity: A Science in Its Historical and Social Context. By E.N. Jenkins. Second edition. Pp.197. (Taylor and Francis: Basingstoke, UK, 1979.) Paperback £4.75.

THE discovery of radioactivity and, subsequently, fission is one of the many fascinating stories associated with the development of science generally, and one which gives as valuable an insight as any into the nature of the scientific method. The general topic of radioactivity and its exploitation is also one for which it can be argued that there are moral issues involved, principally in the use of nuclear power. A book covering both these aspects should, therefore, provide stimulating reading.

It is therefore with regret that one records that the author of this book has not been able to meet the challenges presented in communicating either the excitement of discovery or the moral implications. Although the thirteen chapters cover a reasonably comprehensive spread of material, ranging from 'The Discovery of Radioactivity" through "The Chemistry of the Fission Products" to "The Biological Effects of Radiation", the quality of the coverage is not very uniform. As the author was a research chemist until taking holy orders in 1962 it is perhaps to be expected that the chemistry sections are the most fluent. However, some of the other sections seem disjointed and even faintly dated, in the sense that developments since the book's first edition, in 1962, sometimes do not get the weight which workers active in the field would assign to them. Additionally, the advances made in the teaching and textbook presentation of scientific material in the 1960s and 70s are not reflected here: in fact, parts of the book are distinctly heavy going, and would hardly seem to appeal to the first-year university student, or equivalent, for whom the book is intended.

There are a number of minor errors and misleading statements which, though not central to understanding, leave one uneasy. For example, the different quenching mechanisms in a Geiger counter are confused (page 24) and the definition of neutron multiplication factor (page 107) cannot easily be related to and is inconsistent with the data given in the associated table. Perhaps the most disappointing aspect, however, is that moral and social questions do not get the depth of coverage which one would expect from reading the introduction. For example, what does the risks versus benefit balance sheet look like for the medical uses of radiation or for nuclear power? Are enough facts known for us to be able to draw up such a balance sheet? Can there be a qualitative difference between risks producing the same number of deaths in a given period of time and, related to this, what makes some risks socially acceptable whilst other, lower ones, are unacceptable? The reader looking for a discussion of these and related questions will not find them, yet these, surely, lie at the heart of any 'moral' evaluation.

Given the didactic philosophy behind the *Wykeham Science Series* and the excellence of some of the resulting books this one is somewhat disappointing. □

Malcolm C. Scott is a Senior Lecturer in the Department of Physics at the University of Birmingham, UK, in charge of the MSc course on the Physics and Technology of Nuclear Reactors.

Behaviour of practical systems

I.S. Grant

Transmission and Propagation of Electromagnetic Waves. By K.F. Sander and G.A.L. Reed. Pp.410. (Cambridge University Press: Cambridge and New York, 1978.) Hardback £24.50; paperback £5.95.

THIS book is intended to be used as a textbook in the later stages of undergraduate electrical engineering or applied physics courses. The emphasis is on the practical design and inherent limitations of the transmission lines, waveguides and antenna systems used in modern communications.

Familiarity with Maxwell's equations is assumed, and the book starts by deriving the plane wave solutions to Maxwell's equations. Boundary conditions are discussed, and reflection, refraction and absorption at interfaces between media are described with considerable mathematical elaboration. Guided waves in transmission lines and wave guides, and waves radiated from antenna, are all introduced as solutions to Maxwell's equations. I have some reservation about whether this approach is the most suitable for all students whose primary aim is to understand the behaviour of practical systems. But the treatment is not very formal, and the authors illustrate their argument with realistic worked examples. The first half of the book is completed with a standard treatment of transmission line theory, discussing reflections and impedance matching, and with a short section on the reflection of pulses.

The second half of the book is devoted to the propagation of communication signals in transmission line, waveguide and microwave systems. Attenuation and noise are considered for all the systems, and the characteristics of cables and waveguides capable of carrying signals over very long distances are described in considerable detail. The generation, reception and processing of signals is not discussed except where it is necessary as part of the explanation of how signals may be changed during propagation; modulation and multiplexing have to be understood, for example, in order to consider the signal degradation due to intermodulation when non-linearities occur in repeater amplifiers. The treatment of propagation is excellent — not difficult, but clearly explaining what is happening in terms of the basic principles given in the earlier part of the book. □

I.S. Grant is a Senior Lecturer in the Department of Physics at the University of Manchester, UK.