would go far over the head of the reader desiring "a basic understanding" —unexplained references to "eigenvalues" and other jargon, and some of the most hair-raising equations *ex machina* ever put to paper, with no hint of derivation or underlying assumptions—while omitting to provide essential detail which any responsible designer, engineer or manager would require before making use of much of the information in the books.

Volume 1 opens with a chapter on nuclear reactor theory, which at once undermines the reader's confidence by getting a well-known number wrong: the Trinity test took place not on 6 July but on 16 July 1945. It may be merely a typographical error, but any book with as much undefended numerical data as this cannot afford such a demoralising error on page 2. This and subsequent chapters might serve as a recapitulation for those who already know the subject and simply need to have their memory refreshed; but the explanations will require much expansion by any student using the book as a first-time text. The questions at the chapter-ends might have been drawn from the author's draft outline: "1. Explain the buildup of atomic structure. 2. Explain the atomic number and mass number. 3. What is an isotope? . . ." and so on. A student could regurgitate the foregoing text verbatim—but might not have the faintest idea of its meaning. The chapter on 'Nuclear reactor design' uses the word 'design' as a noun, not as a verb; nowhere is there any effort to discuss the actual process of nuclear design. Instead there are reams of description, naming of the parts. There are chapters on 'Types of nuclear power plants' (mostly repeated in Volume 2) and licensing (ditto, and entirely taken up with US procedures), on shielding, containment, steam and turbine cycles, electricals, instrumentation, and radioactive waste management. Volume 2 also includes chapters on safety analysis, project services, quality assurance, scheduling and plant operation, nuclear fuel management and plant cost management. Appendices list terminology and US regulatory guides. Unfortunately the index is skimpy, making the books less useful even as a concise nuclear encyclopaedia.

The economic information is alarmingly erratic. "The annual fuel expense equals about $25/kWe, which, over 30 years of plant life, implies expenditures of $750/kWe for nuclear fuel": only if you buy all the fuel at the beginning, or ignore the entire process of discounting and the economic track record of the civil nuclear industry. Similar flat statements of purported economic fact could be disputed at great length. So could the declaration of faith with which the author concludes the books: "Nuclear power is the safest, cleanest and least expensive energy source available today and in the foreseeable future. We must, therefore, take advantage of it." Given the losses so far sustained by those engaged in civil nuclear power worldwide, it is not clear who is taking advantage of whom. However, it is unhappily clear that these two volumes will do little to raise the flagging esprit de corps of Mr Pedersen's colleagues, nor entice fresh blood into the enterprise.

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Annelid physiology

Physiology of Annelids. Edited by P. J. Mill. Pp. 683. (Academic: New York and London, 1978.) £28; $58.

THIS book should probably be compared with the Annelid volume of Florkin and Scheer's series on Chemical Zoology, the closest thing we have had until now to a volume on annelid physiology. Happily, only 5 of the 14 chapters in Mill's volume cover topics previously reviewed, and only two of these are by the same authors (Clark on systematics and Oglesby on osmoregulation). Comparable reviews must otherwise be sought in volumes devoted to specific physiological systems (for example, respiration and reproduction); there, in fact, they may be somewhat more useful, as physiologists are more often interested primarily in their physiological specialty and less frequently interested in results in all fields of physiology from a specific group of animals.

The volume has unfortunate technical flaws (smeared print on a number of pages in my copy) and numerous distracting errors in grammar, punctuation, and figure labelling (especially in the editor's chapter) which detract from the flow of the text. These are in addition to frequent, obvious typographical errors.

Richards' chapter on the epidermis and cuticle is a welcome summary, although more might have been included on gland cell ultrastructure, and several erroneous statements on seta formation in reproductive forms of polychaetes are included. Mill provides a list of most of the information available on sense organs and their associated pathways, but offers little synthesis.

Tashiro and Kuriyama's mistitled chapter on neurosecretion is really a good review of synapses and neurotransmitters as they occur in annelids. Annelid neurosecretion in the neuroendocrine, peptidergic sense has been reviewed several times in recent years, but neurotransmitters have been somewhat neglected; thus, the chapter is more useful than the title would lead one to believe.

Olive and Clark's chapter on reproduction nicely complements the only other recent review of this subject. Division of annelid species into monotelic and polytelic groups (that is, those which breed only once and those which breed more than once) provides an interesting touchstone especially for the analysis of polychaete life cycles. It particularly illuminates the various possibilities for physiological control. Polychaete diversity is as evident in reproduction as it is in feeding habits and external structure and this classification offers an opportunity to analyse this diversity on a rational basis.

In separate chapters, Weber discusses both respiration and the respiratory pigments. His approach is functional and he provides a good summary of the abundant recent work, especially on the pigments and their function. The diversity of polychaete life styles and respiratory pigments provides interesting material for the investigation of physiological and biochemical adaptation, and enough work has now been done in this area to sketch the broad outline of different probable physiological strategies in different respiratory stress situations. Mangum provides a critical, constructive review of the related area of temperature adaptation. These chapters emphasise polychaete diversity and will doubtless command a good audience.

In an unusual chapter on defence mechanisms, Dales reviews several neglected, and somewhat disparate topics including wound-healing (a neglected component of regeneration), responses to both parasites and microorganisms, and, briefly, graft rejection and immunity.

Oglesby's exhaustive and critical review of salt and water balance physiology again emphasises polychaetes and their diversity. This chapter ought to stand for some time as the definitive statement of our knowledge in this area.

Considering the cost of a volume such as this, both the reader and the contributing authors have a right to expect better quality from both the editor and the publisher.

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