reviews

Delights of opisthobranch molluscs

V. Fretter

Biology of Opisthobranch Molluscs. Vol. 1. By T. E. Thompson. Pp. 207. (The Ray Society, c/o British Museum (Natural History): London, 1976.) £15.

OPISTHOBRANCHS, the unexpected progeny of shelled gastropods, have relinquished their protective encasement to reveal a grace of form and colour unsurpassed by other molluscs. Yet most have remained relatively unknown to the malacologist because of their retiring and migratory habits and their fondness for the immediate sublittoral, an area difficult to explore before the days of SCUBA diving. This is the first book related to British opisthobranchs for over a hundred years. It is in two sections: the first, dealing with the general biology of the group, includes some magnificent colour photographs and drawings of external features of worldwide forms; the second is a systematic treatment of British species, excluding nudibranchs (which are to be dealt with in a second volume), the parasitic pyramidellids and the planktonic pteropods.

No comprehensive account of the biological activities of sea slugs has been written previously and in the first section the author successfully conveys his interests in, and personal experience of the living animals. The text is lucid and not loaded with excessive detail so that its contents are easily accessible to the non-specialist. It comprises a series of chapters dealing in a general way with various aspects of opisthobranch biology from the point of view of functional anatomy; these constitute one of the outstanding features of the book.

These aspects are dealt with almost on the 'type' system since each consists largely of summaries of the author's own research on a number of species. Without wishing to detract in any way from the value of this, I wish that the relationship to other opisthobranch research had been explained more fully to provide a better understanding of the biology of the group as a whole, although, as opisthobranchs have radiated so divergently, this may be too difficult a task. I wish, too, that the coverage of the systems had been complete—reluctance to enter the field

of neurophysiology, where opisthobranchs have furnished so much important material, is easily understood, but there are other aspects of the nervous system than the physiological; and there are other systems in regard to which the views of so experienced and distinguished a worker would have been welcomed.

The systematic section summarises characters of all orders, provides keys to British species dealt with in this volume and a description of each, including comments on the living animal.

This will be an invaluable guide to the taxonomist. He, like others, would be helped by a subject index.

Illustrations of anatomy are from the author's published works, those of co-workers and redrawings of the anatomy of even some of the most accessible species from classical illustrations published as far back as 1845.

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Meditations on a cell cycle

Multiplication and Division in Mammalian Cells. By Renato Baserga. Pp. xii+239. (Dekker: New York and Basel, May 1976.) SFr. 78.

PROFESSOR BASERGA'S book combines those rare qualities of being readable, informative and very often amusing. The book makes no claims to be an exhaustive study of the multiplication of mammalian cells; ample references direct the reader to review articles of greater depth.

A major part of the monograph is naturally taken up with a review of the cell cycle and aficionados of the relevant literature will recognise Baserga's rather personal views on cell cycle controls. Baserga marshalls a number of arguments (none of them convincing) to support the widely held idea that G_0 cells are not merely cells with a long G_1 which may be shortened by suitable stimulæ, but are a separate class of cells awaiting their fairy godmother to trigger them back into the cycle. This is not just a semantic argument as it determines whether mitogenic stimulæ are regarded as triggers initiating new processes or accelerators of ongoing events. I see nothing wrong with the view that G_1 may be infinitely expandable to include G_0 . Unfortunately the cell cycle is often drawn like the face of a clock with the cell cycle phases apparently given definite durations. This ignores the fact that variation in the length of cell cycle phases (especially G_1) is the rule rather than the exception, and failure to re-

cognise this has placed enormous psychological constraints on the understanding of cell proliferation. The criteria Baserga cites for distinguishing between cells in G_1 and cells in G_0 result from sampling cells from widely separate parts of a continuum of proliferation rates.

The other hobby-horse Baserga rides round the cell cycle is the idea that new genes must be activated to trigger cells from quiescence to rapid growth. This may be true but I find his evidence involving changes in the physical structure of chromatin, chromatin template activity and nuclear acidic proteins far from conclusive. Recent mRNA hybridisation studies show that at most only 5% of the approximately 10^4 separate mRNA sequences differ in resting and growing cells. As only 5–10% of the mammalian genome is transcribed this difference represents less than 0.5% of the total genome. I find it difficult to believe that the large scale changes in chromatin with which he makes such a great play are all devoted to the derepression of such a minute fraction of the genome.

This being said, much of the book is good sense; anyone involved in cell proliferation could do well to read it if only as an antidote to the turgid prose and thought behind much of the burgeoning hard core of the cell proliferation literature. **Robert Shields**

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