

Not quite the whole truth

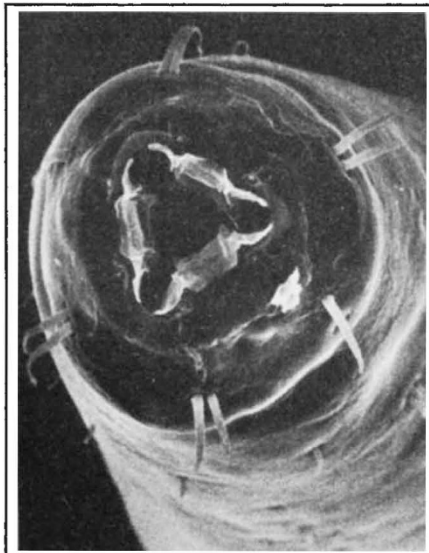
Neutron Stars, Black Holes and Binary X-ray Sources. (Astrophysics and Space Science Library, Vol. 48.) Edited by Herbert Gursky and Remo Ruffini. Pp. xii+441. (Reidel: Dordrecht and Boston, Massachusetts, 1975.) Dfl. 135; \$54.00 cloth; Dfl. 95; \$38.00 paper.

THE study of neutron stars and black holes, believed to be associated with many of the binary X-ray systems now discovered in space, has certainly progressed to the point where there is a need for a book pulling together the current state of the art in both observation and theory, and this volume fills the role, on the whole, admirably. The introduction by the editors provides a historical overview that is both comprehensive and a pleasure to read, but then the sense of anticipation with which the reader begins on the book proper is somewhat dashed by the terrible standard of English which he encounters: "Supernovae are the explosion of a star. This awesome and exciting realisation came about at the turn of the century from the following sequence of observations", and so on. In any multi-author book (this one is based on a session of the annual meeting of the AAAS held in February 1974), active editing is necessary to achieve a uniformly clear level of communication, and it is quite possible to achieve this without losing the character of the remarks of individual contributors. Am I alone in pleading for the abandonment of the Royal "we" in single author papers and in objecting to such circumlocutions as "while analysing the data on directions for that paper the author also came across information . . ." when he could say "I found"? Even one of the editors is guilty of jargon disease in an individual contribution, and as the price of books increases such irritations seem to become more noticeable and less excusable.

In terms of scientific content, however, this is a very good book. The emphasis on physical interpretation rather than on the erudite mathematics of general relativity is welcome, and although there is some repetition of ideas, especially from the different authors discussing aspects of the standard binary model, this helps in providing a better insight than if the model was discussed on a 'once-and-for-all' basis in a chapter of its own. One of the most remarkable features of the family of binary models is the patience with which a few dedicated theorists have worked out details for different mass ratios and configurations, even in the days before observations of binary X-ray sources gave an

impetus to work of that nature.

The chapter on observational properties of pulsars features the most complete table of pulsar parameters I have ever seen, covering 105 of these objects, and provides an early attempt to use this wealth of data for statistical investigations of pulsar properties. While the book was in preparation the discovery of a pulsar in a binary system opened a new phase in pulsar studies, and although E. J. Groth, the author of this section, might not agree it is in some ways convenient that his review should thus neatly tie up the pulsar package in the light of discoveries made before that identification.



Scanning electron micrograph of head of nematode worm, *Enoplus* sp.. Taken from *The Biology of Free-living Nematodes* by Warwick L. Nicholas. Pp. viii+219. (Clarendon: Oxford; Oxford University Press: London, August 1975.) £8.25.

The binary pulsar discovery paper is reproduced in an appendix, together with other contemporary and historic papers, a convenience for those readers too lazy to leaf through bound copies of journals in libraries. Other facilities for the lazy reader, however, are not so good. The index is inadequate, and the form of referencing is not uniform from one contribution to another. The editors seemed to have sacrificed something of the possible polish of the book for a breathless impression of urgent topicality, typified by the inclusion of the binary pulsar paper and an accompanying editorial comment. This is a trifle odd in view of the long publication time, and in my view quite unnecessary. The book cannot be expected to cover everything, and life would certainly be dull for the astrophysicist if the entire black hole story really could be wrapped up in one volume at this stage.

John Gribbin

Pathology of fishes

The Pathology of Fishes. (Proceedings of a Symposium.) Edited by William E. Ribelin and George Migaki. Pp. xii+1,004. (University of Wisconsin: Madison and London, September 1975.) \$35.00.

THE publication of this book represents a major step forward in fisheries biology. Until now, there has been little published in English on the diseases of fish. Indeed, the whole subject has been comparatively neglected; it is the decline in natural fish stocks under pressures of world fishing interests, combined with the rise of the fish-farming industry in the western world, which has given scientific and political recognition and impetus to this important field. It is encouraging to see how the increased importance of fish production has stimulated the members of many professions and branches of science to join the ranks of the traditional fisheries scientists.

This very substantial book is a record of a symposium sponsored by three of the pathology institutes in the US. It is essentially a medical textbook; the 39 chapters are arranged in six major parts to give detailed information on the specific diseases of fish, diseases of particular species, lesions of organ systems, chemical and physical agents of diseases, nutritional disease and neoplasias in fish. Each chapter has a substantial bibliography and the book is profusely illustrated with micrographs. There is a remarkable consistency of style and arrangement of material, and the editors and authors are to be congratulated on producing a coherent textbook from the various contributions.

There are still vast gaps in knowledge and this is exemplified by the very first chapter on comparative fish histology. In many ways this is the weakest contribution, and to a large extent reflects the lack of information on the structure of the normal fish. It deals in a superficial way with the information that is available, and this is unfortunate when so much of what follows is based on the interpretation of deviations from normal structure. To illustrate and supplement the text, the authors rely on the many plates and figures, the general quality of which is excellent; and some are outstanding, for example, those in the chapter on the infection of salmonid gills by amoebae. There is a particularly valuable part of the book dealing with chemical and physical agents of disease and a fascinating review of the extent and variety of neoplasias in fish.

The book should find a place not only on library shelves, but on the workbenches of fisheries biologists throughout the world.

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