elucidation of pressing technologic problems. The subject is not an easy one. In many papers that have appeared, particularly those devoted to theory, the treatment has been such as to muddy the waters rather than to clarify them. This timely and elegantly written monograph succinctly brings the reader up to date. The authors have, with expertness, separated the grain from the chaff.

The first four chapters, entitled "Origin and characteristics of small-angle x-ray scattering," "General theory," "Experimental equipment," and "Methods of interpretation of experimental results," cover these subjects clearly, thoroughly, and, above all, thoughtfully. The final two chapters deal with the results achieved to date and will prove a surprise to many scientific workers, who will discover that here is a versatile physical technique, useful in such diverse fields as metallurgy, biology, and mineralogy, which they have perhaps overlooked. The metallurgist will discover that small-angle x-ray scattering studies of severely cold-worked metals tell him some of the story of what happens during cold-working, and the biologist will find that the sizes and shapes of protein and virus molecules can be obtained from the interpretation of small-angle data.

A bibliography, originally compiled by K. L. Yudowitch and expanded somewhat to include recent work, follows the text. It lists 569 papers. Here, a perhaps petty criticism can be made. It is too complete; some papers are listed that do not deal with the subject even remotely.

To anyone interested in small-angle scattering this book is a "must." The volume may perhaps be disconcerting to those who have worked in this field, for it will also tell most of us where we have erred!

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Echinodermata. vol. IV of *The Invertebrates.* The coelomate bilateria. Libbie Henrietta Hyman. McGraw-Hill, New York, 1955. vii + 763 pp. Illus. $10.

One must sincerely regret that the four outstanding echinodermologists to whom Libbie Hyman pays homage in her introduction did not live to see this volume published. These men who spent 40 to 60 years of their lives on the study of echinoderms would, more than any other reader, have been able to appreciate the gigantic work that the author has completed. To be acquainted with the enormous amount of literature is in itself an accomplishment, especially for a nonspecialist, and to weld the whole subject together into a complete and harmonious picture is more than what one could expect a single individual to do.

The volume consists of a single chapter, divided into 12 parts. After a brief outline of the history of the phylum and its most salient features, the reader is given a bird's-eye view of the classification, and then the different classes are treated in detail. The arrangement of each section is similar to that used in the earlier volumes of the series, and in other works of similar scope. Considerable space is given to the distribution, since the echinoderms are well suited to delimit marine geographic provinces.

Much of the account follows the classical pattern, laid down in the large works published in Europe around the turn of the century, and here brought up to date with the inclusion of the many important contributions that have been made since that time. Of particular interest is the part that deals with these animals' physiology, which was almost unknown 50 years ago.

The last section deals with the phylogeny of the echinoderms and justifies the unorthodox manner in which the author has rearranged the various classes. Based as it is, on larval forms, it is an arrangement that most students of these animals have visualized, without having taken any further step in that direction. The views of the author are well supported by the most recent biochemical studies. The account is fascinatingly written and is convincing, although the author probably will agree, in the case of these unpredictable animals, that one can modify Miss Hawes' opinion on fashion and say that phylogeny is spinach.

The style is easy flowing and clear; the language is refreshingly unorthodox and picturesque, although the author never forgets to brief the reader on the peculiar language of the specialists, without which they would not be able to delve into the original papers. The typographic setup is of the same quality as in the previous volumes; typographic errors are rare and quite unimportant, and there are few statements that need to be corrected.

The illustrations complete the text and appear whenever they are needed. Many are original, while others have been redrawn by the author, which also adds to the harmonious aspect of the volume. The numbering is clear, the legends are models of clearness, and, characteristic of the author's ability to omit irrelevant matters, all measurements are consistently left out where they are not needed. The method of giving the reference to a special question in the text as is done here is infinitely to be preferred to the nondescript numbers used in similar works. It takes a little more space, but it fixes the author's name in the reader's mind in connection with this particular problem. If the reader wishes to check on such a point, he turns to the end of the volume, where 40 pages of literature are printed with a compactness reminiscent of a New York subway during rush hours, but where one with the greatest ease can extract complete information about each paper.

The obvious enjoyment the author has had in tackling this odd group of animals and overcoming all obstacles seems to penetrate the whole work. It comes out in the open in the preface, where the echinoderms are saluted as a noble group of animals. After one has had the pleasure of reading this volume, one is happy to salute the noble work of a noble writer.

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The Atomic Nucleus. Robley D. Evans. McGraw-Hill, New York, 1955. xv + 972 pp. Illus. $14.50.

This book has been two decades in the making: it is the result of 20 eventful years' experience in teaching a course in the rapidly changing subject of nuclear physics to seniors and first-year graduate students at Massachusetts Institute of Technology. It could not have been written so well by anyone without such experience, and both today's student and instructor are very much in Robley Evans' debt for making their respective tasks so much easier.

Although I have not had the good fortune of having been a member of one of Evans' classes, I did meet the present book as an old friend after a lapse of years, for in common with many others on this continent I used, in the early 1940's, the mimeographed versions of Evans' class notes as very welcome material for my own first attempts at teaching a similar course, now taken over by a colleague. As often happens on meeting old friends after an interval of a decade or more, one is struck by an increase not only in their experience of the world and in their wisdom but, alas, also in their girth. In this case the "girth" is partly unavoidably due to the growth of the subject, but to some extent the usual explanation of obesity—too catholic an appetite—also applies here. Of the book's 972 pages, 566 are devoted to a discussion of the nucleus (with time out at several points for what amounts to a short course on wave mechanics supplemented later by an additional 38-page mathematical appendix). Of the balance, 179 pages deal with the interactions between particles, radiation, and matter, and 63 with a condensed course on sta-