

## REVIEWS OF BOOKS

**Journal of Nuclear Energy.** Vol. I., No. 1. J. V. DUNWORTH, Editor-in-Chief. (Pergamon Press Ltd., London, August, 1954.) Pp. viii + 92. Price £4 10s. per volume (issues published quarterly), £3 10s. to subscribers.

The Pergamon Press has been active in recent years in launching new scientific journals in specialized subjects, and in most cases the projects have happily been recognized as filling a definite need. Despite the uneasy feeling that the reviewer has at the present rapid increase in the number of technical journals, he has considerable confidence in the seaworthiness of this newcomer, and no hesitation in wishing it all success.

The nuclear power industry already accounts for a considerable fraction of modern technological investment, while its future in countries with few hydro-electric resources and dwindling supplies of chemical fuel need not be enlarged upon here. Nuclear technology is now a field of its own, which is not readily included either in nuclear physics or orthodox civil and mechanical engineering. A glance at the titles of the papers in this first issue shows what is meant: "The design of totally enclosed mechanical pumps, with particular reference to a 50 h.p. sodium pump". "The creep of aluminium during neutron irradiation." "Piloteage automatique d'un réacteur nucléaire." "Economic power from fast breeder reactors." Some of the papers in this issue would also be appropriate to journals of pure physics, such as those on the fission and absorption cross-sections of  $^{235}\text{U}$  and  $^{238}\text{U}$  with slow neutrons, and one deals with a radiobiological subject, which appears definitely less justifiable in such a publication; but a good three-quarters of them are in the borderline fields just described, falling between nuclear physics and engineering.

At first sight it is surprising to find no American representatives on the distinguished international advisory board, and no papers by American authors in a journal devoted to this subject. The reasons for this are, however, outlined in a foreword by Sir John Cockcroft, which reveals that this journal has been founded in the first place for the publication of technical articles from the staff of the Atomic Energy projects in eight European countries, with the hope that contributions will later be received from British Commonwealth and other sources. It will be interesting to see whether this hope is fulfilled. Certainly this publication has a more scholarly and less technological air than certain of its U.S. counterparts, reflecting in some ways the attitudes of its parent Atomic Energy projects, and if the standard of papers remains high it may indeed ultimately become fully international. Whether this proves to be so or not, the progress of the venture will be watched with interest by a rapidly growing group of specialists.

N. M.

**The Structure of Textile Fibres — An Introductory Study.** Ed. A. R. URQUHART and F. C. HOWITT. (The Textile Institute, 10 Blackfriars Street, Manchester 3; 1953.) Pp. 165. Price 12s. 6d.

This is an excellent book. The editors define precisely the purpose and scope of the book and the authors, each an expert in the field he covers, perform their allotted tasks satisfactorily.

The book is "an experiment in interpretation" of the work of the scientists studying fibres to those engaged in the textile industry but without scientific training, and those beginning the study of textile technology. The method used is to begin with the most elementary principles and rudimentary concepts and progressively go deeper into the morphological, fine and molecular structure of fibres so that by

the last chapter the student is being taught the principles governing the synthesis of man-made fibres.

The first three chapters give in simple language the basic concepts concerning properties and structures of polymeric substances. To those engaged professionally in teaching, these chapters, *on their own*, must be disturbing. The oversimplified treatment and naïve analogies must raise doubts about their usefulness. These doubts, however, are resolved immediately succeeding chapters are read through, for in these the treatment, though still beautifully simple, leads the student to subjects of increasing difficulty and the authors make great use of their opening chapters by continuously reminding the reader of the earlier, more elementary concepts. It is notoriously difficult to write simply and clearly about a complicated subject, and the authors of the first three chapters must, accordingly, be praised for their successful efforts.

The main attack on the subject opens with the fourth chapter where cotton is studied. Clearly and systematically the student is taught the main features of cellulose morphology and chemistry. By considering the reaction of the various hydroxyl groups, the authors explain the principles of esterification and of hydrolytic and oxidative reactions as well as the significance of ionization and hydrogen bonding in fibre chemistry. Finally, the fine structure of cotton as revealed by X-ray studies is outlined. What imparts solidarity to this elementary treatment is the way the authors adopt of linking each important reaction or feature with some practical process of dyeing or finishing with which the reader is probably more familiar. Thus, only the most unimaginative student of the subject will fail to understand that the sentences he is reading are pregnant with more matter than appears on a first or hurried reading.

In a similar way succeeding chapters deal with silk, wool, flax and other long vegetable fibres, viscose rayons, cellulose acetate, regenerated protein fibres, alginate fibres and finally synthetic fibres. The treatment throughout is uniformly clear, simple and logical. The thirteen authors are obviously aware of each others contributions; thus, there is unity in treatment and mutual reinforcement by cross references. There are very few mistakes—to be precise, only three obvious ones were noted. The index is satisfactory. Perhaps the only improvement that can be suggested for the next edition is to give the beginner, for whom the book is written, further help by appending to each chapter a brief list of a few well chosen books for further reading. The book is fully worth its price.

A. H. N.