

**Proceedings of the Symposium on Algology**

Edited by D. Raghavan and P. Kachroo. (Organized jointly by the Indian Council of Agricultural Research and Unesco South Asia Science Co-operation Office, New Delhi, December, 1959.) Pp. viii+406. (New Delhi: Indian Council of Agricultural Research.) n.p.

THE importance of algae as actual or potential parts of the food supply for the vast populations of Asia (and elsewhere) and as a source of industrial or agricultural products is now well known. This symposium was organized to discuss present knowledge and stimulate further work, the latter aspect being the subject of a series of recommendations made by an international committee. About thirty papers were given. Prof. M. O. P. Iyengar, the doyen of Indian phycologists, described several new or interesting green algae in one of the two 'popular' lectures. In the other Prof. I. Tamiya, who has done so much to further the controlled mass culture of algae, reviewed the present use of algae as food and the problems which must be solved before the agricultural or industrial utilization of forms such as *Chlorella* is an economic proposition. The quality of the other published papers is rather variable. There are accounts of original research work, valuable assessments of present knowledge, accounts of subjects previously reviewed elsewhere and curiosities such as the alleged activation of photosynthesis by sound waves from an electric bell. Nevertheless, even if a few parts of the published accounts are not very interesting, the meeting together of so many phycologists to report and discuss matters of mutual interest will have been of great value. This symposium is a further welcome example of the practical interest in algae shown by the Indian Council of Agricultural Research.

J. W. G. LUND

**Essay on Atomism**

From Democritus to 1960. By Lancelot Law Whyte. Pp. vii+108. (Edinburgh and London: Thomas Nelson and Sons, Ltd., 1961.) 16s.

MR. WHYTE clearly regards the present state of thought in fundamental physics as an uneasy stage of lull before the storm. His essay is an attempt to analyse the history of atomism for clues to the next series of developments. The search does not, of course, result in any new theories nor does it present any startling new evidence. It does, however, present existing evidence in a digestible form.

The average scientist would associate the origin of the atomic concept of matter with Democritus, but is uneasily aware of a discontinuity in the story before it begins again with Dalton. The chronological table and commentary, which occupy nearly half this volume, conveniently plug this gap in our knowledge and also summarize the story after A.D. 1800. The increasing density of entries in the post-1945 section naturally reflects both the increasing effort in physics and also the impossibility of picking out the really important developments immediately they occur.

In his analysis the author reasonably suggests that further major progress will probably involve the re-examination of some tenaciously held articles of faith as with the case of parity conservation. This is, of course, nothing more than anyone with a broad awareness of the history of science will already have concluded. However, Mr. Whyte does indicate also what he considers to be the specific points of weakness in present theory and even the requirements of an 'ideal atomic theory'. Few would probably agree

with him in detail, but his thoughts should serve as a useful basis for fireside discussions among amateur fundamental theorists. The book is firmly recommended for this purpose though scarcely to the complete layman.

J. W. LEECH

**Nuclear Energy Simplified**

By John Ernest Radford. Pp. ix+141. (London: Macdonald and Co. (Publishers), Ltd., 1961.) 28s. net.

THIS book is another attempt to make nuclear power and associated topics intelligible to the general reader. It does so by simple descriptions and diagrams, avoiding the use of mathematics.

The first half of the book outlines the development of the atom, nuclear fission and radioactivity. The material is quite well presented but the style lacks clarity and some sections are difficult to follow. In particular, the part dealing with the applications of radioisotopes is done in a perfunctory manner and suffers from loose phraseology (for example, p. 53, "radiation of low energy intensity"). A description of several nuclear reactors and their fuels is followed by a chapter on the design and operation of Calder Hall. Possible future developments in the field of nuclear energy are explored, and here the section on thermonuclear processes suffers in that reference is made almost solely to *Zeta*, other machines being ignored. The final chapter discusses health hazards from radiations, but unfortunately is misleading and out of date.

The overall impression is that too many topics (from atomic structure to waste disposal) have been included in the book with a resulting loss of coherence. Basically, however, the book is sound and could be useful background reading for anyone with a little knowledge in this field. It is well produced with clear diagrams, a good index and few errors.

D. I. PAGE

**Nuclear Reactor Instrumentation**

By M. W. Jervis. (Nuclear Engineering Monographs, No. 13.) Pp. vii+74. (London: Temple Press, 1961.) 12s. 6d. net.

"NUCLEAR Engineering Monographs" are intended to give readers a broad outline of particular subjects in return for a modest outlay. This latest book in the series certainly achieves this objective with considerable success, the author having covered a great deal of ground in a compact and readable volume. The scope is not as wide as the title suggests, the accent being almost entirely on reactors of the gas-cooled graphite-moderated type with only occasional references to other reactor systems.

In writing a treatise occupying only 74 pages a major difficulty is to decide what to omit. Thus, while the choice of material included is generally good, some of the subject-matter is inadequately presented. In the introduction, for example, the simplified treatment of reactor kinetics could have included with advantage the effects of delayed neutrons; the case for wide-range neutron flux instrumentation could have been made more convincingly.

Despite these shortcomings, which are ameliorated by the provision of an ample bibliography, the book outlines principles and discusses the construction and application of those instruments which are peculiar to nuclear reactor control and to the safety of plant and personnel. The author has justifiably avoided instrumentation commonly encountered in other engineering fields.

IAN WILSON