

sessions dealt respectively with: (1) a general survey; (2) recent findings on atmospheric turbulence; (3) theory of turbulent diffusion; (4) diffusion of heavy or finite particles; (5) transfer through the troposphere and stratosphere; (6) effects of thermal stratification; (7) pollution patterns from point and area sources. Altogether more than forty papers dealing with different facets of the diffusion problem, and presenting the views of authors with different interests, were discussed. These papers, with notes of the ensuing discussions, are brought together in this volume; a few papers which are published elsewhere are represented by extended summaries.

This collection shows how the balance of contributions has, in recent years, swung from the experimental physicist to the theoretician. Possibly this reflects the wealth of empirical data now available. A notable feature is the increasing emphasis on the spectrum of turbulence.

This volume differs from others in the same series which contain articles summarizing selected topics. It is a collection of new results and new ideas which should do much to stimulate scientists who are interested in diffusion. The production is excellent and the editors should feel well satisfied with this final product of their labours.

A. C. BEST

Australian Atomic Energy Symposium, 1958

Proceedings of a Symposium on the Peaceful Uses of Atomic Energy in Australia, held in Sydney from June 2 to 6, 1958. Pp. xi+788. (Melbourne: Melbourne University Press; London: Cambridge University Press, 1960. Published on behalf of the Australian Atomic Energy Commission.) 100s. net.

AUSTRALIAN interest in the scientific and technological aspects of atomic energy was demonstrated in a symposium held in Sydney in June, 1958, under the auspices of the Australian Atomic Energy Commission. The full report of this symposium, containing 114 papers together with discussions, is now available in book form. The scope of the symposium was all-embracing and ranges from the geology of Australian uranium ores and the extraction of uranium from them, the prospects for nuclear power, descriptions of *Hifor*, the 10-MW. heavy-water-moderated research reactor of the Australian Atomic Energy Commission at Lucas Heights, cosmic radiation, the use of radioisotopes in physical and biological research, to education and controlled thermonuclear reactions.

Some of the papers were presented by overseas visitors, and those were generally of a review nature, but most were from Australian sources, the Australian Atomic Energy Commission itself, the Commonwealth Scientific and Industrial Research Organization and other Commonwealth and State Departments, universities, medical schools and industry. Some papers were of a topical nature, others described original work. The general impression is that of work of high quality and of a lively interest.

The volume contains such a wide variety of papers that it is fated to become a library reference book, but there can be no doubt that the symposium which it reports was a very successful affair. Not only did it bring together the wide range of Australian interests in the peaceful uses of atomic energy, but also it stimulated public interest, as was one of its intentions.

A. S. WHITE

Classical Dynamics

By R. H. Atkin. Pp. ix+273. (London: William Heinemann, Ltd., 1959.) 30s. net.

WITHIN the limits imposed by the author he has produced a useful book. The concise explanations are good even though at times the reader may be dissatisfied with them and wish to learn more; this is especially true of the chapter on small oscillations. Moreover, the large number of worked examples and problems should be of value to students and teacher alike.

In the preface the author, who is now principal of Unischol Tutorial College, says: "I have written this book in the belief that it is possible to learn dynamics and answer examination questions at the same time", and later "It therefore seems sensible to present the subject by first explaining the ideas which are involved, in a suitable algebraic framework, and then illustrating the scope of their applications by solving a large number of typical problems". It is written for physicists and covers most of the classical dynamics in two and three dimensions needed by undergraduates up to, but not including, a reference to Hamilton's equations and variational methods.

Thus "Motion in a Plane" (Chapter 5, Section 3) consists of a clear one-page description of the importance of linear momentum, angular momentum and energy, and of the equations which contain them, together with five well-known examples which between them illustrate problems in trajectories, two particles, the use of conservation laws and rotating axes.

A book of this type is not a text-book but a manual, and the publishers admit this on the cover. No attempt is made to describe the principles of mechanics or to explain how these principles are used in the construction of apparatus and the description of physical phenomena. There is no suggestion that there are difficulties in understanding, for example, angular momentum and gyroscopic motion and that these difficulties have caused scientists to write monographs on these matters. So far as I can discover, modern physics is not even mentioned. In short it in no way resembles my idea of a good text-book on mechanics, either for a mathematician or for an engineer or a physicist.

I think it is fair to ask whether there is any need nowadays for text-books on dynamics except for engineers and for examinations. Since the excellent books by Lamb many more have been published, but few, if any, of them are better. Mechanics is only one of the branches of physics from which admirable problems can be drawn to illustrate the use of the differential and integral calculus. The idea that mechanics and applied mathematics are one and the same thing is Edwardian and can now be quietly forgotten.

G. J. KYNCH

Optics

By Dr. C. J. Smith (A Degree Physics, Part 3.) Pp. vii+736. (London: Edward Arnold (Publishers), Ltd., 1960.) 63s. net.

THIS volume continues Dr. Smith's series of books designed for students taking the B.Sc. General degree. The early chapters deal with the general properties of waves and vibrations, with the measurement of the velocity of light, and with the wave-theory and Newton's corpuscular theory. Lenses