Dr. J. K. N. Jones and the late Dr. E. G. V. Percival; the full and detailed treatment renders this section a very valuable source of modern information for the carbohydrate chemist. The volume ends with chapters on the proteins and the enzymes which supply the scaffolding of the modern ideas concerning these vital substances together with ample references for further detailed study.

The characteristic of the work developed in the first volume—that is, the ready availability of up-to-date leading references—is well maintained in the second part of this important compendium.

## Physical Chemistry made Plain

An Aid for Intermediate Students and Others. By J. H. Mandleberg. Pp. viii+287. (London: Cleaver-Hume Press, Ltd., 1952.) 15*s*. net.

THE author, an industrial chemist, calls himself "a chronic and incurable non-mathematician". His purpose is to teach physical chemistry, at post-matriculation level, mainly through numerical examples, and he thereby hopes to promote its study "by removing some of its terrors". The material is divided into seventeen chapters. The author's method is to recount the general principles of the subject under treatment, to work out several illustrative numerical examples in considerable detail, making the procedures abundantly clear, and to add many more for the student to solve; answers are given to all the problems.

Great pains have been taken to meet the needs of less able students, and in this respect the work is exceedingly well done. Still, understanding comes to many a student only when he sees the graph drawn of the problem in question; yet, there is neither graph, labelled diagram nor line-illustration in the book. Moreover, I find but little support for the claim that "an attractive feature is the frequency with which the student is reminded of the relevance of his work to industrial processes". The author gives brief mention of some principles not susceptible of quantitative treatment at this level, but others he omits. The preface calls this book a "review of physical chemistry": it would be preferable to call it a book of chemical calculations. G. Fowles

## Thermal Diffusion in Gases

By K. E. Grew and T. L. Ibbs. (Cambridge Monographs on Physics.) Pp. xi+143. (Cambridge: At the University Press, 1952.) 22*s*. 6*d*. net.

THERMAL diffusion in gases was predicted theoretically long before it was observed experimentally, and it is only during recent years that the consequences and importance of this effect have been fully developed. The immense stimulus given to the study of thermal diffusion and related phenomena by the utilization of this method for the separation of isotopes and gas mixtures resulted in a considerable output of experimental work. The publication of this monograph, which summarizes these developments, will be especially welcomed.

The emphasis in the monograph is largely on the experimental aspects, and Chapters 1–5 consist of an introduction to the theory of diffusion in gases, an account of the experimental methods and results, and the correlation of results with theory. In Chapter 7 the related phenomenon, the diffusion thermo effect—that is, the setting-up of a transient temperature gradient when one gas diffuses into another initially at the same temperature—is discussed from both the theoretical and experimental aspects. The remaining Chapters 7 and 8 describe the application of thermal diffusion to the separation of the components of gas mixtures and thermal diffusion in the liquid phase, respectively.

This is the only book of its kind containing both a comprehensive survey of the experimental field and a careful and clear exposition of the underlying theory. The book is well written and excellently produced, and it can be recommended to all interested in this subject.

## Photoconductivity in the Elements

By Dr. Trevor Simpson Moss. Pp. x+263. (London: Butterworths Scientific Publications, Ltd., 1952.) 50*s*. net.

PHOTOCONDUCTIVITY is a subject which claims attention on two grounds: it provides a useful tool for examining certain aspects of the nature of the solid state and it has useful practical applications. Photoconductive materials have been studied intensively during the past few years, and this up-to-date book by Dr. T. S. Moss is therefore to be welcomed.

The book is divided into two parts. Part 1 is concerned with theoretical aspects of the properties of photoconductors. The treatment is clear, but the reader is assumed to have the background of, say, a physics graduate; those without this background will, however, be helped considerably by the numerous references given in the text. Part 2 gives a detailed review of experimental studies of the properties of certain photoconductive materials; photoconductive compounds are not included in this review, which is confined to the elements boron, carbon (diamond), silicon, germanium, grey tin, phosphorus, arsenic, antimony, sulphur, selenium, tellurium and iodine.

As a whole, the book is concise and well written; it provides a useful, if somewhat limited, survey of an important subject. A. H.

## Dynamical Oceanography

By Prof. J. Proudman. Pp. xii+409. (London: Methuen and Co., Ltd.; New York: John Wiley and Sons, Inc., 1953.) 55*s*. net.

THIS book covers most of the principles of hydrodynamics that have application to oceanography. The author has a genius for concentrating on the central features of a problem. In a large part of the book the problem is not to solve the hydrodynamical equations, but to show how much can be derived from a few simple properties without actually solving them in detail. In the application to mean conditions, and therefore to steady states, a great deal can be done from continuity of mass and quantity of salt and the circulation theorem, particularly toward estimation of currents far from land. Turbulence and mixing are treated in some detail. Variation of conditions with time appears first in these chapters, in which estimates of eddy-viscosity appear. The rest of the book deals with tides, seiches and waves. The treatment has been deliberately confined to the simpler problems, and little is said about the formidable ones on tides in the open ocean that have been solved by the author and his colleagues.

Quantitative applications appear at many points, with checks against observation whenever these are available. The agreement is in some cases astonishing—for example, the calculation of co-tidal lines for some narrow regions with complicated boundaries, such as the English Channel. Harold Jeffreys