

may be mentioned the recent rapid advance in knowledge of the behaviour and properties of interfaces, a subject which until only some ten years ago appeared to be but a sterile flower cultured by pure physics.

The action of radiation in promoting chemical action has long been an interesting experimental field for chemists, but it cannot be said that much real knowledge has been reaped as a result of their labours. During the last few years, however, physical investigation has revealed certain apparently fundamental laws in the interaction between radiation and matter, and has given us a definite concept of the 'active' molecule postulated by Arrhenius. It is in the application of these laws to photochemical action that we may anticipate a revival of interest in photochemistry.

The Faraday Society has since its inception pursued the policy of promoting discussions, international in character, so as to obtain not only a record of the growth of these various physicochemical subjects, but also to apply the necessary stimulus of interest. The contents of this volume certainly fulfil these conditions. In it we find the signs of the revival of photochemistry, for nearly all the contributions deal with the mechanism rather than with the products of reactions. Whilst it is clear that certain reactions which are simple from the chemical point of view are in reality extremely complex, yet hope is offered from the fact that even complex chemical reactions may result from a series of physical actions which are capable of isolation and identification. It is also evident that a very close collaboration of physicist and chemist will be necessary to make real progress in photochemistry, and to prepare the way for the plant biologist. The Society is warmly to be congratulated for the success it has achieved.

E. K. R.

Practical Physiological Chemistry. By Sydney W. Cole. Seventh edition. Pp. xii+481. (Cambridge: W. Heffer and Sons, Ltd.; London: Simpkin, Marshall and Co., Ltd., 1926.) 16s. net.

THE fact that this well-known work has reached its seventh edition is its own recommendation. Its usefulness has been enhanced by the inclusion of accounts of electrical methods for the measurement of hydrogen ion concentration, and of chapters on biological oxidations and reductions and on the analysis of the blood. The work itself is more suitable for the advanced student and the research worker than for the ordinary medical student, though by judicious selection of material a course for the latter could be easily arranged. The directions for all practical exercises are given in very full detail, preceded in each case by a short theoretical account of the subject. Among the more recent additions, the following appear to be especially noteworthy: the description of the hydrogen and quinhydrone electrodes, the account of glutathione in the chapter on oxidations, and the description of the Hagedorn-Jensen method of estimating the sugar of the blood. The inclusion of a method may be considered as a guarantee of its trustworthiness, provided that the details are faithfully followed.

Practical and Applied Mathematics.

Advanced Calculus. By Prof. William F. Osgood. Pp. xvi+530. (New York: The Macmillan Co., 1925.) 25s. net.

PROF. OSGOOD has here given us a very valuable book on the calculus. It will be useful "not merely to the specialist in mathematics or physics," but "to all who would possess themselves of the calculus as a method for understanding . . . the quantitative relations which follow from the laws of Nature." There are excellent chapters, to mention only a few, on the general methods of integration, with multiple integrals and their transformation; elliptic integrals; vector analysis; the calculus of variations; and finally, a sketch of the theory of functions of a complex variable. The whole is treated with modern rigour and with special reference to physical applications, of which there are many. There are numerous examples for practice together with answers, and the book is excellently produced.

Advanced Calculus: a Course arranged with Special Reference to the Needs of Students of Applied Mathematics. By Prof. Frederick S. Woods. Pp. ix+397. (Boston, New York and London: Ginn and Co., 1926.) 21s. net.

THIS book has been written for those students who are "chiefly interested in the applications of the calculus," but are not "primarily concerned with theoretical questions." The author has, however, wisely included some essential theory not only to render the practical rules intelligible, but also "to introduce the students to theoretical questions and possibly to incite in some a desire for more thorough study." The work ranges from a discussion of elementary functions to partial differential equations, Bessel functions, the calculus of variations, and elliptic integrals. There is a good chapter on the functions of a complex variable, and the whole text throughout is well illustrated by practical examples.

Practical Mathematics. By A. Dakin. (Bell's Mathematical Series for Schools and Colleges.) Part 2. Pp. viii+363-629+xxv-xxxiv. (London: G. Bell and Sons, Ltd., 1926.) 4s. 6d.

MR. DAKIN'S useful little book completes a course specially planned to give practical students a sound knowledge of fundamentals. The treatment is designed to be of real educational value, and the judicious combination of experiment, deduction, and concrete application is a highly commendable feature.

Mechanics and Applied Mathematics: Statics—Dynamics—Hydrostatics. By W. D. Hills. Part 2: *Applied Mathematics.* Pp. xi+248. (London: University of London Press, Ltd., 1926.) 5s.

THIS volume completes the course, begun in Part 1, to cover the London Intermediate Science syllabus. The author has well carried out his aim "to temper theory and practice." The numerous worked examples are clearly explained and, with the text, excellently illustrated. The book should prove very useful.