definitely useful. It is therefore a pity that they were not made more extensive instead of being cramped into four pages. The formulæ, which occupy 25 pages, are not so well chosen. There are no formulæ of spherical trigonometry, nor are the derivatives of hyperbolic functions and their inverses given. Taylor's and Maclaurin's series should include a remainder term. The table of integrals is, however, welcome. The book is well bound and has a thumb-nail index, but the price is rather high.

The Adjustment of Errors in Practical Science. By R. W. M. Gibbs. Pp. 112. (London: Oxford University Press, 1929.) 5*s*. net.

THIS little volume is "the result of an attempt to simplify and condense into a readable form the gist of the Theory of Errors". It deals with the elements of probability, normal curves of error, distribution of errors, lines of closest fit, correlation coefficients and ratios, observational errors, and so on. The text is clearly and simply written, and is well illustrated by graphical diagrams. The chief mathematical theorems upon which the theory of error depend are not given in the text, but are established separately in an appendix at the end. Here the author has wisely aimed at giving clear and simple demonstrations in order that the mathematical treatment may be within the range of the non-specialist. In this he has in general succeeded; nevertheless, a fair amount of mathematical knowledge is necessary to appreciate fully some of the proofs, especially those dealing with the fundamental integrals.

Lists of common symbols and special formulæ used throughout the book are given at the end, and an excellent system of cross-reference has been adopted.

Elementary Differential Equations. By Dr. Thornton C. Fry. Pp. x + 255. (London: Macmillan and Co., Ltd., 1929.) 10*s*. 6*d*. net.

THIS volume is intended primarily for students of engineering, and is the outcome of 'out-of-hour' courses given at the Bell Telephone Laboratories. It embraces the significance and origin of differential equations, linear equations of the first and higher orders, systems of linear equations and other equations of a higher order than the first. The treatment is mainly practical, but a little elementary theory is included.

The author recognises the danger of dealing solely with technical applications and has made a commendable attempt to develop sound mathematical principles so far as is possible in such a treatise. Thus, there are sections devoted to brief elementary discussions on existence theorems, continuity, singular solutions, boundary conditions, essential conditions of convergence in series solutions, etc. There is a good chapter on the geometrical interpretation of a first order equation, and the book is full of excellent examples bearing on a variety of important applications.

The text is well arranged and printed, and the few necessary diagrams are very clearly drawn.

Physics and Chemistry.

(1) *Molecular Spectra and Molecular Structure: a General Discussion held by the Faraday Society, September 1929.* Pp. iii + 611-954. (London: The Faraday Society, 1929.) 15*s*. 6*d*. net.

(2) *Bandenspektra und ihre Bedeutung für die Chemie.* Von Prof. Dr. R. Mecke. (Fortschritte der Chemie, Physik und physikalischen Chemie, herausgegeben von Prof. Dr. A. Eucken, Band 20, Heft 3.) Pp. iii + 87. (Berlin: Gebrüder Borntraeger, 1929.) 7·60 gold marks.

(1) THE Faraday Society's General Discussion on Molecular Spectra and Molecular Structure, held at Bristol on Sept. 24–25, 1929, has already been reported in these columns (Oct. 12, 1929). The full report, which has now been issued as a separate publication, is remarkable in that it contains not less than forty original papers, together with verbal and written contributions to the discussion. It is, therefore, unsurpassed as a comprehensive survey of the important subject with which it deals, and has the special merit of being many months in advance of any volume that could be written by the most experienced author, since it discloses for the first time new facts and new opinions that can only gradually find their way into even the most up-to-date text-books.

(2) One of the most welcome visitors to the Bristol meeting was Prof. Mecke, of Bonn, the joint author of a paper on "The Absorption Spectrum of Ammonia Gas in the Near Infra-red". Prof. Mecke is also the author of a monograph on "Band-spectra and their Significance for Chemistry", published in a well-known series of *Fortschritte*, or progress-reports, on chemistry, physics, and physical chemistry. A recent monograph of this series, on the valency-number and its relation to the structure of the atom, was reviewed at length in these columns nearly a year ago (NATURE, April 13, 1929). Since the logical sequel to the study of line spectra of atoms is obviously that of the band spectra of molecules, those chemists who have read the former monograph in order to secure some knowledge of atomic physics will obviously be well advised to extend their studies to the latter monograph, which records the spectroscopic behaviour of chemical compounds and therefore presents a much wider field for the consideration of chemical problems. In particular, those who wish to appreciate the technicalities of the Bristol report will find in Prof. Mecke's monograph an excellent introduction to a very modern and somewhat difficult subject.

Physikalisch-chemisches Praktikum. Von Prof. Dr. K. Fajans and Dr. J. Wüst. Pp. xvi + 217. (Leipzig: Akademische Verlagsgesellschaft m.b.H., 1929.) 13·50 gold marks.

THE "Physikalisch-chemisches Praktikum" of Prof. Fajans and Dr. Wüst had its origin in instructions for experiments in physical chemistry which were prepared in 1910 by Prof. Bredig and his colleagues for use in his laboratory at Karlsruhe. Ten years of continuous service in Munich resulted in so many modifications that finally a plan was