

dangers associated with the operations. In the last chapter new processes are described which are being developed for the production of synthetic liquid fuels and petroleum substitutes.

A glance through the bibliography shows that the author has consulted mainly French works, though Redwood's treatise and several English and American journals are included. Much information of interest to the general reader has been compressed into a small compass and the result is an attractive volume, well illustrated with clear diagrams of apparatus and plant. The chapter on analysis summarises the methods used in the determination of chemical and physical properties of products, empirical formulæ being given for the calculation of constants. The book should appeal not only to technologists but also to a wider public.

*Differential Equations from the Algebraic Standpoint.* By Prof. J. F. Ritt. (American Mathematical Society, Colloquium Publications, Vol. 14.) Pp. x + 172. (New York: American Mathematical Society; Cambridge: Bowes and Bowes; Berlin: Hirschwaldsche Buchhandlung; Paris: Albert Blanchard; Milano: Nicola Zanichelli, 1932.) 2.50 dollars.

THIS book gives a connected account of the author's researches on the algebraic side of the theory of differential equations and forms a welcome addition to the literature of the subject, for this aspect of the theory has received little attention hitherto. About four-fifths of the space is devoted to ordinary and the remainder to partial algebraic differential equations, the treatment broadly speaking following the lines laid down by Kronecker and his successors in the theory of algebraic elimination and the general theory of algebraic manifolds, transcendental equations being excluded from consideration.

The first chapter is devoted to the decomposition of a system of ordinary algebraic differential equations into irreducible systems, and the second to the precise formulation of the notion of the general solution of a differential equation and its use in determining the manifold of an irreducible system. The succeeding chapters apply and develop these results, the last two extending them to systems of partial differential equations. The novelty of the point of view adopted and the importance of the results obtained render the book well worthy of the attention of all interested in the theory of differential equations.

*First Principles of Television.* By A. Dinsdale. Pp. xv + 241 + 38 plates. (London: Chapman and Hall, Ltd., 1932.) 12s. 6d. net.

IT is no easy matter to write a book on a subject like television which is making rapid progress. There is always the risk that when the work is on the eve of publication some new invention will render part of it antiquated. Something of this nature has occurred in this case. Only a few days before writing the preface, the author attended

a demonstration in New York given by U. A. Sanabria, a young experimenter from Chicago, who presented 'close up' pictures on a screen six feet square which were better than anything he had ever seen before. By special neon arcs, special arrangements of holes in the discs and a special amplifier, Sanabria can produce pictures which show an almost complete absence of flicker and the detail of which is quite as good as that provided by the average home cinema. Seaming lines also are very little in evidence. We think it was wise to include in the preface what appears at first sight to be a technical afterthought. Anyone possessing some knowledge of electricity and radio can easily understand this book. We can recommend it to everyone who wants a general knowledge of the first principles of television given in an interesting and easily intelligible form.

*Webster's Collegiate Dictionary.* Fourth edition of the Merriam Series. Pp. xl + 1222. (London: G. Bell and Sons, Ltd.; Springfield, Mass.: G. and C. Merriam Co., 1932.) 21s. net.

FROM the point of view of students of science, technology, etc., we cannot think of a better book of general reference. Besides the normal English words to be expected in a dictionary of this size, there are many scientific, technical, and mythological names which they may have occasion to verify, and most of them are included. In this respect the volume is surprisingly up to date, though there are a few omissions. For example, isotopes and stomates (instead of the older term, stomata), are now familiar terms, yet they do not appear. Also protein has been substituted for proteid, yet the latter term takes precedence in this dictionary and is used throughout, in definitions. These, however, are minor points in an extremely useful reference volume which has clearly involved much care and labour. The book is well bound; but we think a cheaper edition is desirable.

*Mental Deficiency Practice: the Procedure for the Ascertainment and Disposal of the Mentally Defective.* By Dr. F. C. Shrubbsall and A. C. Williams. Pp. vii + 352. (London: University of London Press, Ltd., 1932.) 12s. 6d. net.

THE subject of mental defect is very slow in coming before the public. So many individuals prefer to repress the subject and not admit its existence. It is, however, a very serious problem and one which so many local authorities have shirked and left in a disgraceful condition. Dr. Shrubbsall, who is lecturer in mental deficiency in the University of London, and Dr. Williams, have given us a very useful and practical book in which the procedures for ascertainment and disposal of the mental defective in our midst are set out in a very sensible and clear manner.

The pages devoted to specimen forms and their use should be most helpful to those who may have doubts and difficulties.