

post-War work on electrolytes. It will therefore be useful to readers who are anxious to bring their knowledge of the subject up to date; and those who are repelled by the mathematical equations may be attracted by the curves which are used

to show the deviations of even the best-behaved electrolytes from the ideal laws laid down for them. An introduction by Prof. Debye sets a seal of authority on this exposition of the Milner-Debye theory of electrostriction.

### Short Reviews

*Plane Algebraic Curves.* By Prof. Harold Hilton. Second edition. Pp. xv+390. (London: Oxford University Press, 1932.) 28s. net.

IN this new edition of Prof. Hilton's able work on the theory of plane algebraic curves, which was first published in 1920, advantage has been taken to recast several important chapters without disturbing the original pagination. Those who are acquainted with the first edition will agree that the author has considerably clarified the text in these chapters and has added fresh proofs to several important theorems, notably on pp. 76, 101 and 199. This should certainly stimulate a greater interest in an admittedly abstract branch of analysis. A considerable portion of the matter is the result of the author's own investigations into the subject. Especially is this the case in the chapters on quadratic transformations, derived curves, unicursal quartics and quartics of deficiency one and two.

No systematic references to original papers are given except at the end of chap. xx on circuits. As a reason for this the author points out: "in a field which has attracted so many workers, it would be almost impossible to trace the steps by which particular results have reached their present form". Whilst this is quite true, it seems a pity that a few of the more important papers were not mentioned in other chapters so that the reader wishing to pursue his studies further might know where to turn.

Every chapter contains an excellent set of exercises, well graded and of reasonable difficulty. Many of the problems are also supplied with hints for their solution. Valuable guidance in reading is provided in the preface, where also will be found a list of errata, as small typographical errors have not been corrected in all cases.

*Statistical Methods for Research Workers.* By Dr. R. A. Fisher. Fourth edition, revised and enlarged. Pp. xiv+307. (Edinburgh and London: Oliver and Boyd, 1932.) 15s. net.

THE volume under review is the fourth edition, revised and enlarged, of a "Biological Monograph" first published in 1925. As the editors point out, "Conspicuous progress is now being seen in the field of general physiology, of experimental biology and in the application of biological principles to economic problems". This involves the analysis of large masses of data by statistical methods, in the process of which, solutions to many complex problems have to be sought. Stimulus is thus given to purely mathematical researches, upon which the

methods dealt with in the book are based. The aim of the author is to apply accurate tests to practical data by systematically attacking small sample problems on their merits. No attempt is therefore made to prove rigorously the various propositions upon which the theory rests; for these the reader is referred to an excellent bibliography at the end.

In this new edition, greater emphasis is laid on the principle of covariance on account of its increasing use in analysis, and a new chapter dealing with the principles of statistical estimation has been added. There are also provided numerical tables of normal distributions, correlation coefficients, etc., in a form suitable for mounting on the faces of triangular or square prisms.

The monograph is indeed a very valuable contribution to the subject by an acknowledged expert, and should prove exceedingly useful to research workers in the field under survey.

*Plasticity: a Mechanics of the Plastic State of Matter.* By Dr. A. Nádai, assisted by A. M. Wahl. (Engineering Societies Monographs.) Revised and enlarged from the first German edition. Pp. xxiii+349. (New York: McGraw-Hill Book Co., Inc.; London: McGraw-Hill Publishing Co., Ltd., 1931.) 30s. net.

IT is not often that one can say, *ex animo*, that a book "fulfils a long-felt want". This is, however, very true of Prof. Nádai's volume, which brings together in a scholarly fashion much scattered information, otherwise difficult of access. The book is divided into two parts. Part I deals with the plastic state of matter with special reference to metals and to mechanical engineering problems, while Part II is concerned with applications of the mechanics of the plastic state to problems of geology and geophysics. The treatment is singularly clear and full throughout, and is built up on a sure theoretical basis in a manner which makes very pleasant reading.

The book is the first of a series of Engineering Societies Monographs published under the auspices of the American Society of Mechanical Engineers. It has been enlarged from the first German edition with the co-operation of the author, and the Publications Committee of the A.S.M.E. is to be congratulated on having made the work accessible to those unacquainted with the German language.

Not only the practising engineer, but also the physicist and geophysicist, will find the volume a very valuable store of information. A. F.