Le diamant

Histoire, cristallographie, performances esthétiques, taille, gisements, prospection, essai de reproduction synthétique, origine naturelle. Par Edmond Bruet. (Bibliothèque scientifique.) Pp. 256+8 plates. (Paris : Libr. Payot, 1952.) 800 francs.

AS the sub-titles indicate, Edmond Bruet's new book, "Le diamant", makes no pretence to deal with the physical properties of the mineral, on which so much research has been carried out in recent years. The author is a geophysicist, and is primarily interested in the occurrence of diamond and in the art of diamond prospecting. The most extended treatment is given to the alluvial deposits in the forests of French Equatorial Africa, on which he writes from first-hand knowledge. Much of this will be new to British readers, since these fields, though they yield some 130,000 carats annually, only account for about 1 per cent of the total world production and are in consequence not much talked about. Recovery of diamond in this area is carried out by primitive methods, using native man-power to drill for samples, and crude jigs shaken by hand for washing and concentrating the gravel.

The more productive fields of South Africa, the Congo, etc., are also well described, and there are interesting chapters on the discovery of diamond in the Canyon Diabolo meteorite, and on the still unsolved mystery of its genesis in the rocks. On this subject, it is curious how little attention has been paid to the foreign minerals included in diamond (pyrope, zircon, enstatite, diopside, hæmatite, graphite, mica and quartz), which should provide more significant evidence than do the so-called 'associated' minerals as to the conditions existing when the diamond crystallized. The weakest chapter in the book is that in which methods for identifying the 'satellite' minerals of diamond are given. Here, for example, a list of ten minerals suggested as 'indicators' for use with heavy liquids cover the range 2·07–2·62 only, whereas not one of the minerals to be determined falls within this range.

On the whole, however, the book is interesting and informative ; it can be read with profit by anyone who is interested in the recovery of diamond either in theory or in practice. B. W. A.

Electrochemical Data

By Dr. B. E. Conway. Pp. xx+374. (Amsterdam and New York : Elsevier Publishing Co., Ltd. ; London : Cleaver-Hume Press, Ltd., 1952.) 55*s*.

IN Vol. 2 of "Textbook of Electrochemistry", by Prof. G. Kortüm and Dr. J. O'M. Bockris, was included a chapter of 162 pages, entitled "Tables of Certain Physico-Chemical Properties", which was compiled by Dr. B. E. Conway. He has now expanded this chapter to about twice its original length and issued it as a separate book. In its present form it contains a great wealth of data, including much more than is suggested by the word 'electrochemical' in its narrower sense ; for example, it lists many of the properties of solvents, of melts at high temperatures, of double layers at surfaces, and of colloidal systems. References to original sources are included.

Judgment of such a compilation waits upon two criteria : the partly subjective one of what has been included and what omitted ; and the objective test of accuracy and reliability as shown in regular use. On the former, the selection seems to me to have been generally sound, though minor exceptions occur ; for example, the omission of any data on acid-base indicators, or the devotion of several pages to the Sörensen and Walbum buffer solutions without mention of the much more recent work of the National Bureau of Standards on the standardization of the *p*H scale or even of the British Standards Institution's 1950 publication on this subject. On the latter criterion it is difficult to express an opinion at this stage. Errors and misprints certainly do occur. Some of those noted in the earlier compilation (see *Nature*, **169**, 982 ; 1952) have been corrected, but not all ; and there are others. Row and column headings have been reversed in Table II, 19 ; tables on pp. 56 and 59 list values for quantities A' and A_f respectively, without making it clear that they are essentially the same quantity and differ only because one is based on older values of the fundamental physical constants and the other on Birge's more recent ones ; no temperature is specified for the surface tension data in Table III, 57.

However, these criticisms are rather trivial in relation to the great mass of information provided. The volume will prove very useful not only to electrochemists but also to physical chemists generally.

J. C. SPEAKMAN

Einführung in die freie Geometrie ebener Kurven

Von Prof. Dr. Louis Locher-Ernst. (Elemente der Mathematik vom höheren Standpunkt aus, Band 1.) Pp. 88. (Basel : Verlag Birkhäuser, 1952.) 12.50 francs.

THIS little book is unique of its kind ; it gives an account of a branch of geometry hitherto treated only in rather inaccessible original papers. Although it was more than a hundred years ago that von Staudt and Möbius showed the possibility of studying plane curves by what may be called ultra-pure methods, without the use of co-ordinates, of any metrical considerations, and even of cross-ratios, these methods are still little known. The most important developments of the subjects were made by C. Juel, published in 1913–15 in a Danish scientific journal. Now at last Prof. L. Locher-Ernst has provided an accessible account of the subject, written in a style which makes it very easy to follow. Starting from a simple set of axioms and definitions, he obtains a great number of results ; for example, all possible forms of curves of the third order and third class. He also discusses double points, cusps and double tangents. It appears that many properties usually supposed to be typical of algebraic curves are really quite independent of algebraic or analytical considerations, since they are shared by the much wider class of curves considered here. There are 168 diagrams, 28 problems and an index of axioms and theorems. The book should be carefully studied by every geometer. H. T. H. PIAGGIO

Biological Staining Methods

By George T. Gurr. Fifth edition. Pp. vii+88+4 plates. (London : George T. Gurr, Ltd., 1952.) 5*s*.

IN this, the fifth edition, the author has set out to cater for the investigator and technician who may have to discover appropriate methods for staining his biological materials. Formulæ and methods for staining a wide range of materials, involving the use of more than a hundred and fifty stains, are given, the results obtainable being illustrated by some colour photomicrographs. While a comprehensive general index is given at the end, the book would probably be improved by a short table of contents at the beginning. This valuable little manual may be commended both to general and specialist workers.