

as the history of investigation, detrital minerals, their assemblages, stability and application to problems of provenance and correlation, authigenic minerals, clay minerals and various individual types of sediment.

A very complete series of indexes adds greatly to the usefulness of the book. These make it easy to find every available reference to stratigraphical horizons, localities, minerals, figured minerals and technique. To students, the book is an unrivalled introduction to the subject; while to research workers in this field it is an indispensable aid to further progress.

*The Determination of the Felspars in Thin Sections.*

By Dr. Karl Chudoba. Translated by Dr. W. Q. Kennedy. Pp. xii+62. (London: Thomas Murby and Co.; New York: D. Van Nostrand Co., 1933.) Cloth, 6s. 6d. net; paper, 4s. 6d. net.

THE felspars constitute by far the most abundant group of the rock-forming minerals, and their importance in petrographic description and classification is correspondingly high. A translation of Dr. Chudoba's little handbook on the determination of the felspars in thin sections of rocks is therefore particularly welcome. The problems involved are often difficult, but the author has succeeded in giving simple and accurate descriptions of methods which adequately meet most of the practical requirements. The diagrams and photomicrographs, numbering fifty in all, are clear and effective and embody useful summaries of the diagnostic optical properties. The translation has been very successfully carried out and will be highly appreciated by students and practising petrologists.

### Mathematics

*Elementary Calculus.* By C. V. Durell and A. Robson. Vol. 1. Pp. viii+240. 4s. 6d. Vol. 2. Pp. xii+241-548. (London: G. Bell and Sons, Ltd., 1934.) With appendix, 7s. 6d.; without appendix, 6s. 6d.

THE authors of these volumes are among the teachers who are convinced that the youngest student of mathematics should be taught nothing which he will have to unlearn, and that unsound principles are not in fact easier to inculcate than sound ones. The references to Marlborough and Winchester in scholarship and tripos lists show that this theory of mathematical education works well in practice.

The first volume is strictly elementary both in range and in method: the only functions involved are rational and circular, about half the volume consists of unworked examples, and a considerable proportion of the exposition is conducted by means of worked examples. Perhaps the most interesting feature is the early introduction of differentials. The infinitesimal increments familiar in the nineteenth century were so dangerous that the differentials which were confused with them shared their banishment first from the university and then from the school. The true differential returned to Cambridge just after the War, and the current movement to welcome it back to more elementary class-rooms

gains strong support from Mr. Durell and Mr. Robson.

The second volume is a continuation of the first. The structure is extended, on the foundations already laid. These foundations are sound, and of the multitude of students to whom familiarity with the processes of the calculus is a necessity, only a few need undertake a critical examination of them. Examples, worked and unworked, play the same part as in the first volume. The range includes the standard integrations, the commonest geometrical applications of the calculus, and an introduction to ordinary differential equations; the heading of approximations covers not only a statement of Taylor's theorem, but also an account of multiple points and asymptotes of plane curves which in spite of tradition certainly does not belong to a course on the calculus.

If a detail here or there invites criticism, this is not the place for it. The "Higher Certificate" ground has seldom been covered so admirably as in this careful and inspiring work, which fully maintains the authors' reputation. E. H. N.

*Analytical Geometry.* By Prof. V. Poor. Pp. v+244. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1934.) 13s. 6d. net.

DR. POOR'S treatment of analytical geometry is based upon the vector method. It embraces the conic sections in both two and three dimensions, and also some valuable matter on higher plane curves and curve fitting.

The theory connected with the ellipse and hyperbola is considerably shortened and elegantly dealt with generally by the introduction of  $\lambda$  for  $a^2(1-e^2)$ . Diameters, poles and polars are considered in a separate chapter, so that they may be omitted, if necessary, without loss of continuity.

The last four chapters are devoted to a concise discussion of solid analytical geometry, and an excellent plate is provided clearly illustrating the ellipsoid, the elliptic paraboloid and the hyperboloids. Adequate exercises are supplied which are not only well graded but are also designed to illustrate clearly the principles established in the text.

### Miscellany

*Faraday.* By Thomas Martin. (Great Lives Series, No. 40.) Pp. 144. (London: Gerald Duckworth and Co., Ltd., 1934.) 2s. net.

THERE exists, nowadays, no lack of examples for those who would practise the difficult art of biography. At one end of the scale appears Hill's "Boswell", edited anew in six magnificent volumes, and still remaining, despite the new knowledge which has accrued to our generation, an enduring monument to Hill's genius as an editor. At the other end we have these floric biographies, wherein he who desires to discourse learnedly may gain his knowledge at the expense of an hour's reading. But, to invert a well-known *obiter dictum*, easy reading means condemned hard writing, and that author has his work cut out who would compress into a hundred and forty small octavo pages, a critical biography which shall tell