SHORTER NOTICES

Leçons sur l'Intégration des Équations aux Dérivées Partielles du Premier Ordre. 2d edition, revised and enlarged. By Edouard Goursat. Paris, J. Hermann, 1922. 459 pp.

Almost a generation has passed since the first edition of this book appeared in 1890. It was not reviewed in the BULLETIN, for the BULLETIN itself had not yet appeared above the mathematical horizon. But during all of this time it has been an invaluable work of reference. The first edition was worked out by the author's pupil C. Bourlet from a course of lectures given by Goursat. The present edition has been entirely rewritten by Goursat himself. While the general outline and scope of the book has not been altered, the chapters dealing with existence theorems and linear equations have been entirely remodelled. All of the other chapters have been revised, and though they contain much that is the same as in the first edition, they have been somewhat rearranged and enlarged so that the present volume contains 459 pages as against 354 pages in the first edition.

A comparison of the two editions is very interesting. One finds in the present edition a maturity of thought, a ripeness of judgment, and a touch of the master, which is not present in the first edition. Nevertheless there is a freshness of style about the first edition, and a simplicity that might well recommend it to a younger student. In the preface to this edition Goursat states that he has not taken up the method of Pfaff as he intends to devote an entire volume to the *Problem of Pfaff*, which he hopes will appear soon.

The paper in the copy which we have for review leaves much that is to be desired. It is of poor quality, dark in color, and not of a uniform tint. It reflects, doubtless, the present economic situation.

W. D. MacMillan

Darstellende Geometrie. By Th. Schmid, associate professor of geometry at the technical school of Vienna. Volume I, third edition. (Sammlung Schubert, LXV.) Berlin and Leipzig, Vereinigung wissenschaftlicher Verleger, 1922. 283 pages and 170 figures.

The large demand for this popular book has necessitated a third edition of the first volume within three years after the appearance of the second. The characteristic features have been retained, and five new paragraphs added; these are a method of measuring the eccentricity of a conic from a skeleton drawing, its use in putting a cone of revolution through the conic, an approximate construction of π, a determination of the pitch of a regular helix, and a discussion of the existence of an isolated bitangent in the projection of a shadow on a cylinder. Several more historical remarks have been added, and practically all the few typographical errors of the earlier editions corrected.

Virgil Snyder