

found that, in the process of revising and adding desirable new material, the second volume was becoming too large. At the suggestion of the publishers this volume was divided and the second part appears as a separate book. In comparing this new edition with the old, it is to be noted that the general character of the text has not been changed. It is still a first introduction to differential geometry, aiming to present the fundamental facts and principles in a simple and concise manner. Brevity, however, is no longer a striking feature, for there are 531 pages in the three volumes of the new edition.

The American student beginning the study of differential geometry now will probably not use this second edition so frequently as his predecessor employed the first one. When the latter appeared, four years after the German edition of Bianchi's book, there was no text in the English language. But now we have Professor Eisenhart's excellent work.

In the present volume the first 90 pages are devoted to the "special surfaces," including W -surfaces, minimal surfaces, surfaces of constant curvature, ruled surfaces, and triply orthogonal systems of surfaces. Here there are various minor alterations and additions, especially under the first three headings. But the greatest changes are to be found in the next 60 pages, which deal with rectilinear congruences. The sections on isotropic congruences are perhaps the most noteworthy, not only because of the fact that the treatment here is fuller than in most of the texts; but, also, because these ten pages contain material from a recent article* by one of the authors. Of especial interest are the remarkably simple formulæ for the middle surface of the most general isotropic congruence.

The book is concluded by a collection of thirty-one problems.

E. B. COWLEY.

Einführung in die Theorie der partiellen Differentialgleichungen.

Von Dr. J. HORN, Professor an der Technischen Hochschule zu Darmstadt. Leipzig, Göschen, 1910. vii+360 pp.

THIS work may be considered as the third volume of the course in differential equations published in the "Sammlung Schubert." The first volume is the well known work by Schlesinger, *Einführung in die Theorie der Differentialgleich-*

* *Math. Annalen*, vol. 70, pp. 143-160.