to trigonometry, since an Arab, Nasir ed-din al-Tusi (1201–1274), wrote a separate treatise on the subject. Such errors are more or less unavoidable. Particular attention is directed to this point, however, since it would seem that special effort should be made to give to the Arabs, the Hindus, the Egyptians, and Babylonians, recognition of their achievements in mathematics, since this emphasizes the universality of the appeal of mathematics.

This handsome volume should find a place in every high school and university library. Through its pages generations of students will find inspiring contact with the old masters of mathematics whose work has made possible so many of the most remarkable developments of modern civilization.

L. C. KARPINSKI

*Theorie der Raumkurven und krummen Flächen.* By V. Kommerell and K. Kommerell. I. *Krummung der Raumkurven und Flächen.* 205 pp. II. *Kurven auf Flächen. Specielle Flächen. Theorie der Strahlensystem.* 194 pp. (Göschen's Lehrbücherei. I. Gruppe: Reine und angewandte Mathematik. Band 20 und 21.) Berlin, de Gruyter, 1931.

These two volumes are a fourth edition, completely revised, of three volumes of the Sammlung Schubert of which the latest editions were published in 1921. The chief differences from the earlier editions, as pointed out in the preface, are: the introduction from the beginning of the parametric representation of surfaces; greater rigor of presentation; the introduction of Levi-Civita's parallel displacement and the Riemann-Christoffel curvature tensor with a brief reference to relativity; a new treatment of the Gauss-Bonnet formula; a fundamental revision of the treatment of the transformation of parameters and of differential parameters. K. Kommerell is chiefly responsible for the scientific content, V. Kommerell for the didactic side of the work.

These volumes seem to us to give a full and extremely good presentation of classical differential geometry. We agree with the statement made by the authors in the preface that the diligent student of this book will be in a position to read original papers and even himself to undertake scientific investigation. We think that the book is not altogether easy to read and hesitate to recommend it to a beginner in the subject. As to content it is roughly comparable to Eisenhart's *Differential Geometry.* The treatment follows classical methods with occasional use of vector calculus, the latter, we think, not used with any gain in simplicity and not enough used to give the reader any familiarity with the subject. The work is rich in reference to original sources and contains several interesting historical discussions, notably those of minimal surfaces and of non-euclidean geometry. The last forty pages of text give an excellent treatment of rectilinear congruences. At the end of the second volume there are 115 exercises covering the whole work. These vary greatly in difficulty. For a number of them references to the original discussions of these problems are given. Each volume has a table of contents at the beginning and, at the end, an index of authors referred to and an index of topics. The book seems remarkably free from errors: we have noticed but one, a misplaced "2" in the equation of the catenary on page 76 of volume II.

J. K. WHITTEMORE