

SHORTER NOTICES

Précis d'Analyse Mathématique à l'usage des candidats au certificat de calcul différentiel et intégral. By E. Lainé. Vol. I, viii+231 pp.; Vol. II (in collaboration with G. Bouligand), 315 pp. Paris, Librairie Vuibert, 1927.

Among the large number of the French textbooks with the similar purposes, this is perhaps one of the most interesting. A definite and, in our opinion, a fortunate break with the old tradition is made by introducing the vector notation in the treatment of the fundamentals of differential geometry. The corresponding part (iv) of the book as well as the part (v) devoted to the partial differential equations (and written by G. Bouligand) are the best in the book. The usage of the vector notation makes intuitive and simple many results which otherwise are obtainable but with a great labor. The inductive method is also used in the treatment of the partial differential equations (the only ones being treated are those of the first order and some of the second order, of the Monge-Ampère type). The reader is compelled here to make his own conclusions on the basis of intuitive geometric discussion.

As to the remaining parts (Introduction: Review of some facts of algebra and analytic geometry; Part i: Functions of a real variable; Part ii: Analytic functions; Part iii: Ordinary differential equations), they reveal the tendency of putting too much material into too limited space (279 pp.). The resulting treatment is often rather brief and formal, and sometimes a little confusing. As for examples we may mention: infinite double integrals (Vol. I, 69-70); line and surface integrals (I, 76-77); extrema of functions of two variables (I, 82-83); differentiation under integral sign (I, 107). There are found some lapses and quite a few misprints. The text is supplemented by a large number of exercises; some of them, interesting as they are, appear rather difficult from the point of view of the means available in the text.

J. D. TAMARKIN

The Early Mathematical Sciences in North and South America. By Florian Cajori. Boston, Richard G. Badger, 1928. 156 pp.

Excluding introductory matter and a six-page index, this book consists of eleven chapters distributed over 139 pages as follows: Mathematics, 18 pp.; Practical Astronomy and Surveying, 37 pp.; Surveys and Maps, 24 pp.; Meridian Measurements of the Earth, 8 pp.; Transit of Venus, 10 pp.; Comets, 5 pp.; Almanacs, 5 pp.; Orreries, 3 pp.; The Earliest Permanent Observatory in America, 8 pp.; Physics, 16 pp.; Societies, Academies and Journals, Conclusion, 5 pp. As may be inferred from these chapter headings, the work appears to be a series of notes or sketches on topics more or less closely related to mathematics, physics and astronomy rather than a systematic study of the development of these sciences

as sciences in North and South America during the sixteenth, seventeenth and eighteenth centuries. This inference becomes more apparent upon noticing the sub-headings in Chapter I, Mathematics: The Maya symbol for zero; The Peruvian and North American knot records; The calderón and cifrao in the writing of numbers; evolution of the dollar mark; magic squares; mathematical publications in America.

The fact that such paragraph titles as "Brattle using Halley's quadrant at Harvard" (p. 42), "Brattle and Kearsley using ring-dials" (p. 44) and "Laval at the gulf coast" (p. 43) occur along with "Early determinations of positions in and near Mexico" (p. 36) and "Marcgrave's observations in Brazil" (p. 41) suggests that the author has not given the form of this work the careful revision his other publications would lead us to expect.

Typographical errors are not unusually numerous but those which the reviewer has noticed lead him to wonder if the proof-reading has not been done chiefly in the publisher's office. For example, on p. 12 "Axtecs" appears in place of "Aztecs"; a reference to Hevelius on p. 46 is referred to in the index (p. 153) as "Hevelins"; under B in the index (p. 151) occurs "Brahe. See Tycho Brahe" and under T (p. 156) is found "Tycho, Brache" instead of "Tycho Brahe"; and although Professor J. L. Coolidge of Harvard must be well known personally to the author his name is cited as "J. J. Coolidge" in three different places (pp. 26, 28 and 152).

The mechanical makeup of the book is scarcely what might be expected from the Gorham Press of Boston. On various pages (e.g., pp. 74, 77, 93, 111, 124) certain lines stand out prominently and, in some places, the contrast is almost sufficient to give the appearance of a line of boldface type. Whether this variation comes from setting the text on one linotype machine and the corrections on another or from other causes, it is so easily corrected by a competent pressman that its appearance suggests careless or hurried presswork. Also, the reviewer has an impression that the illustrations which appear on plate paper might have been improved, both in appearance and in placing on the pages, without adding unduly to the cost of publication.

The reviewer has found the book quite interesting and, so far as he is able to judge, its statements of fact have been carefully verified.

U. G. MITCHELL