

## SHORTER NOTICES

*Encyklopädie der Mathematischen Wissenschaften mit Einschluss ihrer Anwendungen.* Volume 3 in three parts. Geometry, edited by W. Fr. Meyer and H. Mohrmann. First part: A. *Rein geometrische Theorien*. B. *Grundlagen der Anwendung von Algebra und Analysis auf Geometrie*. Second half, articles 8–13. Leipzig, Teubner, 1914–1931. xii+769–1595+1–264 pp.

This volume appeared in the following six parts, at the times indicated.

Heft 5, June 1914, contains article III AB 8 by J. Sommer, *Elementare Geometrie vom Standpunkte der neueren Analysis aus*; and part I of article III AB 9 by M. Zacharias, *Elementargeometrie und elementare nicht-euklidische Geometrie in synthetischer Behandlung*.

Heft 6, January 1921, contains part II of article III AB 9.

Heft 7, January 1921, contains article III AB 10 by G. Berkhan and W. Fr. Meyer, *Neuere Dreiecksgeometrie*; and part I, by H. Rothe, of article III AB 11, *Systeme geometrischer Analyse*.

Heft 8, July 1924, contains part II, by A. Lotze and Chr. Betsch, of article III AB 11.

Heft 9, May 1922, contains article III AB 12 by E. Steinitz, *Polyeder and Raumeinteilungen*.

Heft 10, December 1930, contains article III AB 13 by H. Tietze and L. Vietoris, *Beziehungen zwischen den verschiedenen Zweigen der Topologie*.

An index for the entire part I of Band III appears at the end of the volume, by A. Boy. Articles 12 and 13 have their pages numbered 1–264, in italics, evidently because part II of article 11 appeared two years after article 12.

The subjects covered can be assigned roughly to three categories. Most of the volume (articles 8, 9, 10, 12) is devoted to topics such as ordinary euclidean geometry, and geometry of configurations in euclidean spaces. Another division of the volume consists of the two parts of article 11, on systems of geometric analysis, by Rothe, Lotze and Betsch. This section, covering pages 1277–1595, deals with a wide variety of subjects of great interest to analysts and mathematical physicists, as well as to geometers. Finally, there is the Tietze-Vietoris article on topology, the only recent article in the volume.

The Dehn-Heegaard article on *Analysis Situs* (III AB 3) deals largely with formal combinatorial operations, which have never been proved to correspond to general homeomorphisms. The Zoratti-Rosenthal article *Die Punktmengen* (II C 9 a) contains a considerable amount of material on general topology, for the most part in the small, but makes only few direct references to the complex of analysis situs. The Tietze-Vietoris article at the end of the present volume is intended to be a connecting link between the latter two articles. It gives very full discussions of some of the fundamental ideas and problems of analysis situs, and covers well the many important developments of the subject in recent years. Numerous references to American mathematicians bear witness to their important contributions to topology in the last two decades.

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