BOOK REVIEWS

Topologie I. *Espaces métrisables, espaces complets.* By C. Kuratowski. (Monografie Matematyczne, vol. 20.) 2d. ed. Warsaw-Wrocław, 1948. 12+452 pp. $7.50.

Topologie II. *Espaces compacts, espaces connexes, plan euclidien.* By C. Kuratowski. (Monografie Matematyczne, vol. 21.) Warsaw-Wrocław, 1950. 8+444 pp. $6.00.

Noteworthy in the development of topology is the large number of fundamental results which, however originally discovered or proven, eventually find their true setting among those theorems most simply and easily established by set theoretic methods. This is due in large measure, of course, to extensive and powerful new tools which have been discovered from time to time. For example, the development and exploitation of the homotopy relation between mappings has very greatly extended the range of applicability of the set theoretic method and has rendered many results in topology, analysis and other fields of mathematics accessible to this approach. The same is true of studies in the development and uses of restricted types of mappings and in many other phases of topology.

A better illustration of this point will hardly be found than in the two volumes of Kuratowski under review. Here the hand of the master is apparent and guides the reader on every page, presenting him with a perfectly organized and beautifully simple pathway to a large body of the deepest results in topology and in other fields which are essentially topological in character. One finds here the topological invariance of the Euclidean domain, the invariance of the property of separating Euclidean n-space, as well as the theorems of Rouché and Runge from analysis—to give a few examples—skillfully obtained by the author with what seems to be small effort and with tools readily accessible to the beginning graduate or advanced undergraduate student. No use is made of homology theory and only restricted use of groups is made, largely in connection with homotopy.

The new edition of volume I offers a considerable body of new material and some other changes from the original edition all of which adapt it perfectly for use along with volume II. The two volumes together constitute a simple, effective, and definitive treatment of topological results at present obtainable by set theoretic methods. As the manuscript for volume II was nearly complete