Die Lehre von den Kettenbruchen. 3d ed. Vol. I. *Elementare Kettenbruche.* By Oskar Perron. Stuttgart, Teubner, 1954. 6+194 pp. 29.40 DM.

Earlier editions of Die Lehre von den Kettenbruchen are divided into two parts, the first containing the arithmetic theory of continued fractions and the second containing the analytic theory. The author's plan for the third edition is to treat these two parts in separate volumes. Volume I is an enlargement and improvement of what was previously Part I. The chapter headings of Volume I are identical with those of Part I in the second edition (Teubner, Leipzig, 1929) and, in fact, most of the sections of Volume I are a verbatim reproduction of the corresponding sections of Part I. There has been some re-partitioning of material in the various sections, and six new sections have been added. The early introduction of matrix notation has improved the presentation of certain sections. Additional material on diophantine approximation is given (§14) and some references to recent investigations in this field are cited. A continued fraction proof is given for classical decomposition theorems on 2×2 matrices with determinant ± 1 (§18), and a brief alternate proof of the Lagrange theorem on periodicity is given (§21). The continued fraction expansion for irrationals of the form $2^{-1}(1+(4G+1)^{1/2})$ is applied to the solution of the diophantine equation $x^2-xy-Gy^2=1$ (§30). The derivation of the regular continued fraction expansion for $e^{2/m}$ (§34) is accomplished easily without recourse to Lambert's function-theoretic expansion for tan z as in earlier editions. The chapter on semi-regular continued fractions includes material on the shortest and longest expansions for a given rational number (§39), on the approximation to a real number by the approximants of a semi-regular expansion of the number (§41), and on the nearest and "farthest" integer continued fractions (§43).

W. T. Scott

Grundlagen der analytischen Topologie. By G. Nöbeling. Berlin, Springer, 1954. 10+221 pp. 33 DM.; clothbound, 36.60 D.M.

This carefully written monograph has a good chance of becoming the definitive text on the subject which it treats.

The basic primitive concept dealt with is the topological (partially) ordered set V, the word "topological" conveying that there is a "closure operation" defined on the *elements* A of V, which is idempotent, monotone, and makes $A\leqq A^-$. Frequently the axioms are augmented to give abstract closure algebras, or even topological Boolean lattices.