

Gesammelte Abhandlungen by H. Minkowski. Chelsea Publishing Co., New York, 1967. xxxi + 371 + iv + 465 pages and two portraits of the author.

The first edition of Minkowski's Collected Works (two volumes) was published by D. Hilbert, A. Speiser, and H. Weyl in 1911, two years after Minkowski's death. Although some of his papers have been republished in book-form (mainly those dealing with relativity) others appeared in periodicals which are not so easily accessible now. Thus the reproduction of his works in one volume at a relatively low price will be welcome to many mathematicians as well as to new mathematical libraries.

It cannot be the purpose of this note to report on the content of all the papers of Minkowski many of which are now considered as classics. He was one of those few who helped to perpetuate the fame of the Mathematics Department of the University of Göttingen. An excellent, more or less popular report on Minkowski himself as well as on his scientific activity has been given by Hilbert in his commemorative address delivered before the Royal Society of Sciences at Göttingen soon after Minkowski had died. This address has been reprinted on pp. v - xxxi of the present volume; it describes in a convincing manner the endearing character of Minkowski as well as the importance of his many works for the further development of Mathematics.

H. Schwerdtfeger, McGill University.

Collected Papers of G. H. Hardy, Volume 2. Edited by a committee appointed by the London Mathematical Society, Oxford 1967, 702 pages. Can \$18.

This volume of collected papers of the great English

mathematician Godfrey Harold Hardy is the second in a promised series of seven volumes. The editing committee's aim is to collect together Hardy's papers, published in many journals over more than fifty years, presenting them in groups of related topics. The topics of the first volume are Diophantine approximation and Additive Number Theory and those of the second are Multiplicative Number Theory, Other Number Theory and Inequalities. The topics of the future volumes three to seven are indicated on pages 683 to 684. Also included (pages 685-701) is a complete list of papers by Hardy. This list contains nearly 400 papers, averaging between 7 and 8 per year. Nearly 100 of these papers were written with J. E. Littlewood.

One of the most important papers of Hardy contained in this volume is a paper written with J. E. Littlewood and published in 1921 in *Mathematische Zeitschrift* on the zeros of the Riemann zeta function on the critical line. They proved that if $N_0(T)$ denotes the number of zeros of $\zeta(s)$ ($s = \sigma + it$) for which $\sigma = 1/2$, $0 < t < T$, then there is a constant $K > 0$ such that $N_0(T) > KT$, for $T > T_0$, proving that there is an infinity of zeros on the critical line. It is still not known if all the zeros of $\zeta(s)$ in the critical strip lie on the line $\sigma = 1/2$. The estimate $N_0(T) > KT$ was not improved until Selberg showed in 1942 that $N_0(T) > KT \log T$.

This series is a worthwhile addition to the library of anyone interested in analysis, number theory or the history of mathematics.

K. S. Williams, Carleton University

Topology and Order by Leopoldo Nachbin. Van Nostrand Mathematical Studies, Van Nostrand 1965 (Princeton). vi + 122 pages. U.S. \$2.50.

Comme le titre l'indique, il s'agit ici de résultats concernant les relations entre structures topologiques et structures d'ordre. La plupart de ces résultats furent obtenus par l'auteur dans sa thèse *TOPOLOGIA E ORDEM* publiée en portugais par les Presses de