

BOOK REVIEWS

GRUENBERG, K. W. and ROSEBLADE, J. E. (editors) *Collected works of Philip Hall* (Clarendon Press, Oxford 1988), xii + 776 pp., 0 19 853254 7, £55.

This handsome volume of Philip Hall's collected works was commissioned by the London Mathematical Society.

Philip Hall published his first paper in 1927 and his last in 1974. During the course of his career he exercised a most remarkable influence on British algebra. His main inspiration as a young mathematician was the published work of William Burnside on the theory of finite groups. At the beginning of his career Hall was almost the only group theorist working in the U.K. but by the time he retired in 1967 many of his former students occupied positions as group theorists in British universities.

Hall was not the sort of gregarious man who enjoys spending many hours talking to colleagues about mathematics. His influence was exercised rather through his published papers and his postgraduate lectures. His papers were always highly polished and remain a model of clarity and lucid writing. His highly original work laid the foundations of the theory of finite p -groups, then of finite soluble groups, then of the algebra of partitions. In the latter part of his career he turned to the theory of infinite groups and wrote seminal papers on finitely generated soluble groups, stability groups, and infinite simple groups. He was very restrained in submitting work for publication and had many unpublished results which often appeared in his Part III lectures at Cambridge.

These lectures were truly inspiring. The reviewer was fortunate enough to attend Hall's lectures over a four year period and experienced personally the inspiration which could be gained from his powerful exposition.

Hall's mathematical outlook was interesting. He was not hostile to the current fashion for abstraction in mathematics, writing a generally favourable review of the early volumes of Bourbaki, but was nevertheless aware that such current fashion did not constitute the whole of worth-while mathematics. At the end of his paper on word problems he comments that such problems 'in spite of, or perhaps because of, their relatively concrete and particular character appear to offer an amiable alternative to the ever popular pursuit of abstractions'.

In Hall's later years the problem of classifying the finite simple groups increasingly dominated work in finite group theory. Hall was not closely involved in this work but retained a great interest in it. He commented once to the reviewer: 'I hope somebody will come along who can tell me about the finite simple groups. I am very curious about them.' His wish was realised when the finite simple groups were classified in 1981, about one year before his death.

The published papers in this volume are accompanied by a most interesting and informative obituary written by J. E. Roseblade, by a number of fine photographs, and by comments on Hall's work in his three main areas of study. These are by J. G. Thompson on finite groups, J. A. Green on the algebra of partitions, and J. E. Roseblade on infinite groups.

It is a tribute to the care with which Hall wrote his papers that for the most part they still today give the best way of proving the results in question. Every group theorist would benefit greatly by possessing this volume of Hall's collected works.

R. W. CARTER