

Birkhoff-Kellogg as its point of departure. Orthogonal series, mean convergence, Vitali's closure theorem, and Hilbert spaces are discussed briefly in the complement to Chapter 4. The last chapter ends with a two page historical survey of differential geometry in higher dimensions and projective differential geometry.

There are undoubtedly readers who will claim that the authors would have given more, had they given less. To me the point of view is refreshing and the multitude of facts make the book a treasure house. The cover and the press work do credit to printer and publisher alike.

EINAR HILLE

Proceedings of a Second Symposium on Large-Scale Digital Calculating Machinery. (Annals of the Computation Laboratory of Harvard University, Vol. 26.) Cambridge, Harvard University Press, 1951. 38+393 pp. \$8.00.

The first of the Harvard Symposia on this topic was held early in 1947, at the dedication of the Mark II Calculator. The Second Symposium was held at the dedication of the Mark III Calculator, at present in operation at the Navy Proving Ground in Dahlgren. Sessions were devoted to engineering developments (which will not be covered in this review), to numerical methods and computational problems in various sciences. There is, in this volume, a reasonably comprehensive survey of the field, both in the United States and in Europe, as it was in 1949.

The most significant mathematical contribution in the present volume is due to C. Lanczos, who, in his picturesque way, presents a method of minimized iterations for the solution of characteristic value problems. W. E. Milne examines various finite difference approximations to the two-dimensional Laplacian operator.

The problem of semi-automatic instruction is discussed by H. D. Huskey and a beginning of a unified theory of computing machines is presented by G. W. Patterson.

Most interesting are the papers describing some of the problems which await solution. Those who are interested in handling differential equations will find enough problems in the papers by H. Feshbach on nuclear physics and by R. D. O'Neal, E. T. Welmers, and H. W. Emmons on aeronautics and aerodynamics. On the other hand, the papers by F. Mosteller, W. W. Leontief, L. R. Tucker, and H. Chernoff on various topics in the economic and social sciences provide ample material for those interested in the manipulation of matrices.