obtains the asymptotic distributions of a large class of functions of these runs. An example of his results is the following: It is proved that the following are asymptotically normally distributed: (a) the total number of runs; (b) $R(p)$, the number of runs of length p; (c) $R(p)$ and $R(q)$ jointly. Similar results are obtained for runs defined by any of a large set of criteria, of which the one given above is of value in statistical applications. (Received May 1, 1943.)

TOPOLOGY

198. Paul Alexandroff: *On homological situation properties of complexes and closed sets.*

The purpose of this paper is to find and to study topological invariants which connect the homological properties of a space K with those of its closed subset A and of the open complement $G=K\setminus A$, and thus contribute to characterize from the homological point of view the *situation of A in K*. Thus the paper constitutes an extension of results already known when K is simply connected (when its β groups are 0 and also when K is a manifold). (Received April 3, 1943.)

NEW PUBLICATIONS

BELL, C., and THOMAS, T. Y. Essentials of plane and spherical trigonometry. New York, Holt, 1943. 6+152 pp. $1.80.

BRENKE, W. C. Plane and spherical trigonometry. New York, Dryden, 1943. 10+269 pp. $1.90.

CAMM, F. J. Mathematical tables and formulae. London, Newnes, 1943. 144 pp. 3s. 6d.

CRAIG, H. V. Vector and tensor analysis. New York and London, McGraw-Hill, 1943. 14+434 pp. $3.50.

HAMMOND, J. R. Concise spherical trigonometry with applications and reviews of solid geometry and plane trigonometry. Boston, Houghton Mifflin, 1943. 13+256 pp. $2.20.

HYSLOP, J. M. Infinite series. Edinburgh and London, Oliver and Boyd; New York, Interscience, 1942. 11+120 pp. $1.75.

MCCREA, W. H. Analytical geometry of three dimensions. Edinburgh and London, Oliver and Boyd; New York, Interscience, 1942. 7+144 pp. $1.75.

MARGENAU, H., and MURPHY, G. M. The mathematics of physics and chemistry. New York, Van Nostrand, 1943. 12+581 pp. $6.50.

Miscellaneous physical tables. Planck's radiation functions and electronic functions. New York, Work Projects Administration, 1941. 7+61 pp. $1.50.

MURPHY, G. M. See MARGENAU, H.

Selected topics in higher mathematics for teachers. Association of Teachers of Mathematics of New York City, 1943. 107 pp. $.50.

THOMAS, T. Y. See BELL, C.

WILKS, S. S. Mathematical statistics. Princeton University Press, 1943. 12+284 pp. $3.75.