

SECTION ON MATHEMATICS

Chairman: J. E. DOTTERER, Manchester College

The attendance at the Mathematical Section showed a marked increase over that of previous years. Professor P. D. Edwards, of Ball State Teachers College, was elected chairman for 1939.

ABSTRACTS

Invariant subspaces lying in algebraic hypersurfaces of a certain class. D. R. SHREVE, Purdue University.—The paper considers a class of algebraic hypersurfaces representing a generalization of the Clebsch Diagonal Surface and the Segre Cubic Variety. The subspaces discussed are generalizations of the 15 diagonal lines and the 15 planes, respectively lying in these two surfaces. The treatment is algebraic.

Concerning an equality of Landau. A. C. SCHAEFFER and R. J. DUFFIN, Purdue University.—A theorem of Landau relates the bound of a function and the bound of its first two derivatives. It is shown here how inequalities of this type may be sharpened.

Entire functions of exponential type. R. J. DUFFIN and A. C. SCHAEFFER, Purdue University.—Suppose $f(z)$ is an entire function of exponential type. A sufficient condition that $f(z)$ be bounded for real values of z is found.

On flat-sphere geometry. R. H. DOWNING, Purdue University.—In previous papers a partial development of flat spread-sphere geometry in non-Euclidean odd dimensional space has been given. This paper is concerned principally with the surface elements formed when two flats of $(n-2)/2$ dimensions, which are tangent to the absolute surface, intersect in a line. The corresponding elements in an image space of the same dimensions, obtained under the general flat-sphere transformation, are also discussed.

The most dense lattice-form distribution of congruent convex solids. PAUL M. PEPPER, University of Notre Dame.—Various attempts have been made to find that arrangement or those arrangements of certain simple congruent convex solids for which the ratio of space filled to all space is as great as possible, for example, the densest packing of spheres in space. When the convex solid lacks the complete symmetry of the sphere, this problem becomes most difficult and apparently impossible of solution except in certain special cases. There is, however, a quite similar problem wherein the arrangements considered are limited to those for which corresponding lines in the congruent solids are kept parallel. This paper concerns itself with the results which have been obtained for such homothetic arrangements.