the numbers which Epstein, in his recent article published in the *Archiv der Mathematik und Physik,* calls primitive roots of m are those which correspond to the operators of highest order in the group of isomorphisms of the cyclic group of order m, and hence the determination of the number of such primitive roots is a very special case of the determination of the number of operators of a given order in an abelian group. In the present paper special attention is paid to the group of isomorphisms of the holomorph of the cyclic group of order 2^m, and one of the most important results is stated as follows: The group of isomorphisms of the holomorph of the cyclic group of order 2^m is the direct product of the group of order 2 and the group of cogredient isomorphisms of the double holomorph of the cyclic group of order 2^m. This paper will appear in the *Transactions.*

14. In this paper Professor Davis studies the connection between his theory of colored imaginaries and the pole and polar theory of the cubic curve. If $f(x, y, z) = 0$ is the equation of the cubic, $\Delta'(x, y, z)$ the first polar of x', y', z' with regard to $f(x, y, z)$, while Δ'' is the polar of x'', y'', z'', then when we write $x = x' + ix''$, etc., we get $f(x', y', z') = \Delta'(x'', y'', z'')$ and $f(x'', y'', z'') = \Delta''(x', y', z')$. It is upon the basis of these two equations that the paper is built.

O. D. KELLOGG,
Secretary of the Section.

NOTE ON THE COMPOSITION OF FINITE ROTATIONS ABOUT PARALLEL AXES.

BY PROFESSOR ALEXANDER ZIWET.

1. IT is well known that the succession of two finite rotations of a rigid plane figure in its plane (or, what amounts to the same, of a rigid body about parallel axes), say a rotation of angle θ' about a point O' followed by a rotation θ'' about O'', is equivalent to a single rotation of angle $\theta = \theta' + \theta''$ about a point O. The center O is found as the intersection of the lines obtained by turning $O'O''$ about O' through an angle $-\frac{1}{2}\theta'$ and $O''O'$ about O'' through $+\frac{1}{2}\theta''$.

As a clockwise rotation of angle ϕ is equivalent to a counterclockwise rotation of angle $2\pi - \phi$, the angles of rotation can