tions shown under cartesian form. The surfaces having for curvilinear directors $x - y = 0$ and $xy - \frac{1}{2} = 0$ were studied in detail and models exhibited showing their principal types.

Professor White's paper was a further development of the topic considered in the paper presented by him at the Columbus meeting of the Society. Each mixed concomitant (2, 2) of the cubic defines (as in the paper referred to) two covariant nets of conics. These are polars of two cubics of the syzygetic sheaf; the totality of such is exactly that entire sheaf of cubics. But these concomitants (2, 2) and all the concomitants (3, 3) serve to define also *four* covariant sheaves of cubics, not in the syzygetic sheaf, intimately connected on the one hand with the four inflexional triangles, and on the other hand with the eighteen collineations of the cubic into itself. This paper will be published in the *Transactions*.

THOMAS F. HOLGATE.
Secretary of the Section.

EVANSTON, ILL.

ON CYCLICAL QUARTIC SURFACES IN SPACE OF N DIMENSIONS.

BY DR. VIRGIL SNYDER.

(Read before the American Mathematical Society, December 28, 1899.)

THE generation of the cyclide as the envelope of spheres which cut a fixed sphere orthogonally and whose centers lie on a quadric can readily be generalized to space of n dimensions.

In ordinary space it appears that the same surface is the envelope of five different systems; that the quadric loci of centers are all confocal and the associated spheres are all orthogonal; that the possibilities of the system are exactly coextensive with the ∞^{13} possible cyclides.

Let

$$(1)\quad (x_1 - ix_{n+2})\sum_{r=1}^{n} y_r^2 - 2\sum_{r=1}^{n} x_{r+1}y_i + (x_1 + ix_{n+2}) = 0$$

be the equation of a sphere in R_n; it contains $n + 2$ homo-