conics. The author states for example that every plane quintic can be regarded as conjugate to a line in an involution determined by a net of cubics, having a suitable number of fundamental points.

11. By the aid of parametric representation of the points on a non-singular plane cubic, Professor Emch discusses the collinearity of the 27 points of contact of tangents to the cubic from its 9 inflexions. He finds 81 lines containing each 3 such points, and 81 other lines connecting 2 contact points with an inflexion.

12. Professor Halsted gave a brief outline of "intrinsic spherics", or spherical trigonometry independent of the parallel postulate, and advocated from a pedagogical standpoint the introduction of the sphere as two-dimensional figure into elementary geometry, instead of the use of the three-dimensional globe.

13. The problem of determining all algebraic minimal surfaces was solved analytically by Weierstrass in 1866 (see his collected works, volume 3, pages 39–52). Darboux, in his Théorie générale des surfaces, part 1, No. 221, has shown that such surfaces can always be generated by the translation of an algebraic curve. This shows that the function $F(s)$ used in the formulas of Weierstrass must be algebraic. Professor Hancock proposes as a problem next to be attacked the question of determining all those minimal surfaces which are not themselves algebraic, but contain a sheaf of algebraic curves.

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ON THE USE OF HYPERCOMPLEX NUMBERS IN CERTAIN PROBLEMS OF THE MODULAR GROUP.

BY DR. J. W. YOUNG.

(Read before the American Mathematical Society, September 17, 1904.)

THE following discussion connects two subjects which have hitherto been considered apart, and indicates a method of attacking certain modular group problems which seems susceptible of further elaboration.