THE BOSTON COLLOQUIUM OF THE AMERICAN MATHEMATICAL SOCIETY.

THE Fourth Colloquium * of the AMERICAN MATHEMATICAL SOCIETY was held, in connection with the tenth summer meeting, at the Massachusetts Institute of Technology, Boston, Mass., opening on Wednesday morning, September 2, and closing on the following Saturday morning. The total attendance at the several lectures was gratifyingly large, including the following thirty-one members of the Society and other persons interested in mathematics:

Professor F. H. Bailey, Dr. G. A. Bliss, Dr. C. L. Bouton, Professor Ellen L. Burrell, Professor F. N. Cole, Professor L. L. Conant, Professor E. W. Davis, Mr. H. N. Davis, Professor W. P. Durfee, Mr. W. B. Ford, Mr. N. R. George, Jr., Miss A. B. Gould, Rev. J. G. Hagen, Dr. C. N. Haskins, Dr. Gustavus Hay, Professor J. I. Hutchinson, Dr. Edward Kasner, Professor H. P. Manning, Dr. C. M. Mason, Mr. E. A. Miller, Professor Frank Morley, Professor W. F. Osgood, Dr. A. B. Pierce, Professor I. J. Schwatt, Miss M. E. Trueblood, Professor H. W. Tyler, Professor E. B. Van Vleck, Dr. Roxana H. Vivian, Professor H. S. White, Professor F. S. Woods, Professor T. W. D. Worthen.

Three courses of lectures were given, as follows:

Professor E. B. VAN VLECK: "Selected topics in the theory of divergent series and of continued fractions." Six lectures.

Professor H. S. WHITE: "Linear systems of curves on algebraic surfaces." Three lectures.

Professor F. S. WOODS: "The connectivity of non-euclidean space." Three lectures.

Two lectures were given each morning, and two on each of the afternoons of Wednesday and Friday, the courses alternating with one another. Thursday afternoon, which was thus left free, was devoted to an excursion to Nantasket, in Boston harbor.

A synopsis of Professor White's lectures follows in the

* Interesting data concerning the previous colloquia are given in Dr. Edward Kasner's report of the Ithaca Colloquium, BULLETIN, Vol. 8 (1901), pp. 22–25.

present number of the BULLETIN. Reports of the lectures of Professors Van Vleck and Woods will appear in later numbers.

F. N. COLE.

COLUMBIA UNIVERSITY.

LINEAR SYSTEMS OF CURVES UPON ALGEBRAIC SURFACES.

AN ABSTRACT OF THREE LECTURES DELIVERED AT THE BOSTON COLLOQUIUM, SEPTEMBER 2–5, 1903.

BY PROFESSOR H. S. WHITE.

THE notion of equivalence as formulated in projective geometry has simplified greatly the study of algebraic curves and surfaces, particularly those of low order. The next step toward a wider survey is the admission of all birational transformations of the plane, or of space of three or more dimensions. In the plane, the theory of Cremona transformations is no longer new, and the elements are familiar to all students of geometry. Not so, however, in space of more than two dimensions; probably for the reason that nothing is known analogous to the theorem that a plane Cremona transformation is resolvable into a succession of quadric transformations and collineations. And even in plane geometry the intricacies of the transformations themselves have kept most students from the matter of higher importance, the properties of figures that remain invariant under all transformations of the group. Yet there does exist a body of doctrine under the accepted title of "Geometry upon an algebraic curve," and a fair beginning has been made upon a similar theory, the "Geometry upon an algebraic surface." * These titles are intended to cover only such properties of a curve or surface as appertain to the entire class of curves or surfaces that can be related birationally to the fundamental form.

* Consult, for an outline of the geometry upon an algebraic curve, Pascal's Repertorium der höheren Mathematik, Part II, Chapter V, § 4; or the more extended articles: C. Segre, "Introduzione alla geometria sopra un ente algebrico semplicemente infinito"; E. Bertini, "La geometria delle serie lineari sopra una curva piana secondo il metodo algebrico,"—both in *Annali di Matematica*, series II, vol. 22 (1894). For the corresponding theories regarding surfaces, the best reference is to the comprehensive summary by Castelnuovo and Enriques: "Sur quelques récents résultats dans la théorie des surfaces algébriques," *Math. Annalen*, vol. 48 (1896).