In the first of these papers he determines all directions of a space \( R_\mu \) of \( \mu \) dimensions through a point \( P \) of \( R_\mu \), which are normal to all the directions of a second space \( R_\lambda \) containing the point \( P \), when \( R_\mu \) and \( R_\lambda \) are both immersed in a general space \( R_n \) whose arc element is given by

\[
ds^2 = \sum a_{ik} dx_i dx_k.
\]

In the second paper he develops the symbolic expression for Kronecker's extension of Gauss's curvature of a surface to a space of \( n \) dimensions \( R_n \), immersed in a euclidean space of \( n + 1 \) dimensions, in terms of the symbols of the differential quantic

\[
ds^2 = \sum a_{ik} du_i du_k \quad (i, k = 1, 2, \ldots, n),
\]

which defines the arc element of \( R_n \), and then generalizes his results to a space \( R_\lambda \) of \( \lambda \) dimensions immersed in a general space of \( n \) dimensions, and defined by \( n - \lambda \) relations

\[
U' = \text{const}, \quad U'' = \text{const}, \quad \ldots, \quad U^{(n-\lambda)} = \text{const}.
\]

Further applications are sure to follow, and Maschke's symbolic method will doubtless play in the theory of differential quantics a rôle similar to that of the ordinary symbolic method of Aronhold and Clebsch in the theory of algebraic quantics, thus, together with his contributions to the theory of linear substitution groups, securing him a permanent place in the history of mathematics.

Oskar Bolza.

Freiburg, I. B.,
August 8, 1908.

The concluding (October) number of volume 30 of the American Journal of Mathematics contains the following papers: "On a group of transformations which occurs in the problem of several bodies," by E. O. Lovett; "Normal curves of genus 6, and their groups of birational transformations," by Virgil Snyder; "On the range of birational transformations of curves of genus greater than the canonical form," by Virgil Snyder; "A set of assumptions for projective geometry," by Oswald Veblen and J. W. Young; "On the pentastroid," by R. P. Stephens; "A table of the values of \( m \) corresponding to given values of \( \phi(m) \)," by R. D. Carmichael.

The seventy-eighth meeting of the British association for the advancement of science was held at Dublin, September 2-9, 1908, under the presidency of Professor F. Darwin, Dr. W. N. Shaw being chairman of section A, mathematics and physics. Twenty-four papers, mainly on physical or astronomical subjects, were read, many of which took the nature of symposia. The next meeting will be held at Winnipeg, Canada, opening August 25, 1909, under the presidency of Professor J. J. Thomson.

The thirty-seventh annual meeting of the French association for the advancement of science was held at Clermont-Ferrand, August 3 to 10, 1908, under the presidency of Professor P. Appell, dean of the faculty of sciences of the University of Paris. The following papers were read before Sections one and two, mathematics, astronomy, geodesy and mechanics. By E. N. Barisien, "Solution of the equation of the third
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1908.


The next meeting of the association will be held at Lille in 1909, sections one and two under the chairmanship of Professor E. LEBON.


The number of American doctorates in mathematics for each year of the last decade is 13, 11, 18, 8, 7, 14, 21, 11, 13, 22.

The Italian scientific society has awarded its gold medal for his researches in mathematics to the late professor G. Picciani, of the University of Bologna.

Professor C. Somigliana, of the University of Turin, has been elected member of the Accademia dei Lincei.

Professor E. Almans, of the University of Pavia, has been elected corresponding member of the Institute of Lombardy.

Professor F. Severi, of the University of Padua, has been elected corresponding member of the Institute of Venice.

Professor V. Volterra, of the University of Rome, has been elected foreign associate of the Academy of Sciences of Halle.

Dr. R. Bonola has been appointed docent in projective and descriptive geometry at the University of Pavia.

Dr. M. N. Vanecek, of the Bohemian technical school at Prague, has been promoted to an associate professorship of mathematics.
NOTES.

Professor W. Fenssner, of the University of Marburg, has been made honorary professor.

Professor R. Fricke, of the technical school at Brunswick, has declined a call to the professorship of mathematics at the technical school at Hanover.

Professor H. A. Lorentz, of the University of Leiden, has been elected foreign knight of the order pour le mérite in sciences and arts.

Professor H. Poincaré has been elected honorary member of the physico-chemical society of Erlangen.

Mr. R. F. Scott has been elected master of St. John’s College, Cambridge, in succession to the late Dr. C. Taylor.

Professor M. Lacombe, of the technical school at Zürich, has been appointed professor of geometry at the University of Lausanne, as successor to the late Professor Joly.

Dr. H. Husson has been appointed professor of mechanics at the University of Caen.

Professor M. Dulac, of the University of Poitiers, has been appointed professor of mathematics at the scientific school of Algiers.

Dr. M. Bourgeois has been appointed professor of astronomy and geodesy at the Ecole polytechnique of Paris, to succeed Professor H. Poincaré, who has retired.

Professor A. S. Chessin, of Washington University, St. Louis, has been granted a year’s leave of absence.

Mr. F. H. Hodge has been appointed professor of mathematics at Parsons College, Fairfield, Iowa.

At the University of North Carolina, Professor A. Henderson has been promoted to a full professorship of mathematics. Mr. G. K. G. Henry and Mr. J. C. Hines have been appointed instructors in mathematics.

At the University of Kansas Mr. G. W. Hartwell, of Columbia University, has been appointed assistant professor of mathematics; Dr. P. Wernicke, of Washington University, Mr. M. Gaba and Mr. C. A. Pierce have been appointed instructors in mathematics.
At the Worcester Polytechnic Institute Professor L. L. Conant has been promoted to the head professorship of mathematics; Professor A. D. Butterfield, of the University of Vermont, has been appointed assistant professor of mathematics; Mr. J. J. Bullard and Mr. J. H. Redfield have been appointed instructors in mathematics.

Professor G. A. Bliss, of Princeton University, has been appointed associate professor of mathematics at the University of Chicago.

Professor T. E. McKinney, of Wesleyan University, has been appointed professor of mathematics at the University of South Dakota.

Mr. N. C. Riggs has been appointed assistant professor of mathematics at the Carnegie Technical School at Pittsburg.

Dr. W. B. Stone and Mr. J. B. Cleveland have been appointed instructors in mathematics at the University of Michigan.

Mr. H. F. MacNeish has been appointed instructor in mathematics at Princeton University.

Dr. R. L. Moore, of Princeton University, has been appointed instructor in mathematics at Northwestern University.

Dr. E. B. Lytle has been appointed instructor in mathematics at the University of Illinois.

Mr. C. W. Cobb has been appointed instructor in mathematics at Amherst College.