

PROCEEDINGS
OF
THE LONDON MATHEMATICAL SOCIETY.

VOL. XXX.

THIRTY-FIFTH SESSION, 1898-99
(since the Formation of the Society, January 16th, 1865).

November 10th, 1898.

THE FIFTH ANNUAL GENERAL MEETING OF THE LONDON MATHEMATICAL SOCIETY, as incorporated under the Companies Act, 1867, on October 23rd, 1894, held at 22 Albemarle Street, W.

Prof. E. B. ELLIOTT, M.A., F.R.S., President, in the Chair.

Present, twenty members.

The President briefly referred to the recent deaths of Mr. R. Holmes, formerly a member of the Society, and for a short time its Honorary Librarian; Mr. Walter Wren, elected October 16th, 1865; and Dr. J. Hopkinson, F.R.S., elected February 13th, 1873.

The Treasurer, Dr. J. Larmor, gave a short abstract of his report. Its reception was moved by Mr. A. B. Kempe, and seconded by Mr. S. Roberts, and carried.

The Chairman announced that Mr. Gallop would be asked again to act as Auditor.

Mr. Love made the following statement:—Number of foreign members, 13 + 2 new = 15; number of ordinary members, 228 + 10 new = 238; one foreign member and four ordinary members had died, and one member had resigned; so that the number of ordinary members was 233.

The Society's losses by death, had been, in addition to those stated above, Signor Brioschi, elected honorary member May 9th, 1878; Dr. Percival Frost, elected December 9th, 1869; and Mr. Henry Perigal, elected January 23rd, 1868.

The exchanges of *Proceedings*, and journals purchased, remain unaltered.

The following communications had been made or received:—

- Note on a Property of Pfaffians : Mr. H. F. Baker.
 The Conformal Representation of a Pentagon on a Half Plane : Miss M. E. Barwell.
 On the General Theory of Stationary Motion in an Infinite System of Molecules : Mr. S. H. Burbury.
 The Construction of the Straight Line joining Two given Points ; On the Continuous Group that is defined by any given Group of Finite Order (two papers) ; and on Linear Homogeneous Continuous Groups whose Operations are Permutable : Prof. W. Burnside.
 On a Law of Combination of Operators (Second Paper) ; and Transformations which leave the Lengths of Arcs on Surfaces unaltered : Mr. J. E. Campbell.
 On Aurifeuillians (with a supplement) : Lt.-Col. A. J. C. Cunningham.
 On the Numerical Value of $\int_0^1 e^{x^2} dx$: Mr. H. G. Dawson.
 The Transformation of Linear Partial Differential Operators by Extended Linear Continuous Groups : Prof. Elliott.
 The Character of the General Integral of Partial Differential Equations ; On those Transformations of the Coordinates which lead to New Solutions of Laplace's Equation ; and An Essay towards the Generating Functions of Ternariants : Prof. Forsyth.
 A Theorem concerning the Special Systems of Point-Groups on a Particular Type of Base Curve : Miss F. Hardcastle.
 The Integral $\int P_n^2 dx$, and Allied Forms in Legendre's Functions, between Arbitrary Limits : Mr. R. Hargreaves.
 On Discontinuous Fluid Motions involving Sources and Vortices : Mr. B. Hopkinson.
 On the Reflection and Transmission of Electric Waves by a Metallic Grating : Prof. H. Lamb.
 On the General Theory of Anharmonics : Prof. E. O. Lovett.
 Point-Groups in a Plane, and their effect in determining Algebraic Curves : Mr. F. S. Macaulay.
 On the Calculus of Equivalent Statements (Seventh and Eighth Papers) : Mr. H. MacColl.
 Note on Bessel Functions ; and Zeroes of the Bessel Functions : Mr. H. M. Macdonald.
 On the Poncelet Polygons of a Limaçon ; and On a Regular Rectangular Configuration of Ten Lines : Prof. F. Morley.
 On certain Regular Polygons in Modular Network : Prof. L. J. Rogers.

On the Calculation of the most Probable Values of Frequency-Constants, for Data arranged according to Equidistant Divisions of a Scale: Mr. W. F. Sheppard.

On the Intersections of Two Conics of a given Type; and On the Intersections of Two Cubics: Mr. H. M. Taylor.

The Geodesic Geometry of Surfaces in non-Euclidean Space: Mr. A. N. Whitehead.

On Systems of One-Vectors in Space of n Dimensions; Mr. W. H. Young.

Mr. G. Heppel and Mr. J. B. Dale having been appointed Scrutators, the ballot was taken, with the result that the following gentlemen, nominated by the Council, were elected to serve on the Council for the ensuing Session:—The Rt. Hon. Lord Kelvin, G.C.V.O., F.R.S., President; Prof. Elliott, F.R.S., Prof. H. Lamb, F.R.S., and Lt.-Col. A. J. C. Cunningham, R.E., Vice-Presidents; Dr. J. Larmor, F.R.S., Treasurer; Mr. R. Tucker and Mr. A. E. H. Love, F.R.S., Hon. Secretaries. Other Members of the Council:—Dr. Glaisher, F.R.S., Prof. M. J. M. Hill, F.R.S., Dr. Hobson, F.R.S., Prof. W. H. H. Hudson, Mr. A. B. Kempe, F.R.S., Dr. F. S. Macaulay, Major MacMahon, R.A., F.R.S., Mr. D. B. Mair, and Mr. W. D. Niven, C.B., F.R.S.

Lt.-Col. Cunningham was then moved to the Chair, and, after moving a vote of thanks to Prof. Elliott for his conduct during his two years' tenure of office, which was carried by acclamation, called upon him to read his Presidential Address. After the reading of the Address, Prof. Elliott consented, in reply to the wish of the members present, to its being printed in the *Proceedings*.

The following papers were formally communicated:—

The Structure of certain Linear Groups with Quadratic Invariants: Dr. L. E. Dickson.

Multiform Solutions of certain Differential Equations of Physical Mathematics and their Applications: Mr. H. S. Carslaw.

On the Null-Spaces of a One-System and its Associated Complexes: Mr. W. H. Young.

On the Functions Y and Z which satisfy the Identity $4(x^p - 1)/(x - 1) = Y^2 \pm pZ^2$: Prof. L. J. Rogers.

The following presents were received for the Library:—

"Journal of the Institute of Actuaries," Vol. xxxiv., Pt. 3 (two copies); October, 1898.

"Beiblätter zu den Annalen der Physik und Chemie," Bd. xxii., St. 9, 10; Leipzig, 1898.

"Vierteljahrsschrift der Naturforschenden Gesellschaft in Zurich," 1898, 2^{es}, 3^{es} Heft.

"Proceedings of the Cambridge Philosophical Society," Vol. ix., Pt. 9; Easter, 1898.

"Jornal de Sciencias Mathematicas e Astronomicas," pelo Dr. F. G. Teixeira, Vol. xiii., No. 4; Coimbra, 1898.

"Monatshefte für Mathematik und Physik," Jahrgang ix., 1898, Pt. 4; Wien.

"Bulletin of the American Mathematical Society," Vol. v., No. 1; New York, October, 1898.

"Nachrichten von der Königl. Gesellschaft der Wissenschaften zu Göttingen," 1898, Heft 3.

"Mémoires de la Société des Sciences de Bordeaux," Tome iii., Cahier 1; Paris, 1898.

Roe, E. Drake.—Die Entwicklung der Sylvester'schen Determinante nach Normal-Formen," 8vo; Leipzig, 1898.

"Bulletin de la Société Mathématique de France," Tome xxvi., Nos. 7, 9; Paris, 1898.

"Mathematische Annalen—General Register zu den Bänden i.-L.," von A. Sommerfeld; Leipzig, 1898.

"Atti della Reale Accademia dei Lincei—Rendiconti," Vol. vii., Fasc. 7, 8, Sem. 2; Roma, 1898.

"Annales de la Faculté des Sciences de Toulouse," Tome xii., Fasc. 4; Paris, 1898.

"Transactions of the Cambridge Philosophical Society," Vol. xvii., Pt. 1.

"Annali di Matematica," Serie 3, Tomo i., Fasc. 4; Milano, 1898.

"Educational Times," November, 1898.

"Journal de l'Ecole Polytechnique," Série ii., Cahier 3; Paris, 1897.

"Annals of Mathematics," Vol. xii., Nos. 4, 5; Virginia, 1898.

"Indian Engineering," Vol. xxiv., Nos. 13-16, Sept. 24-Oct. 15, 1898.

"Atti del R. Istituto Veneto," Tomo lv., Dispense 3-10; Tomo lvi., Dispense 1-7.

"Philosophical Transactions of the Royal Society of London," Vols. CLXXXVII.-CXC.