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END OF THE SEVENTY-FIRST VOLUME.
MINUTES FOR SESSION 1902—1903.

November 20, 1902.

Dr. W. T. BLANFORD, Vice-President, in the Chair.

Mr. H. Brereton Baker was admitted into the Society.

A List of the Presents received was laid on the table, and thanks ordered for them.

In pursuance of the Statutes, notice of the ensuing Anniversary Meeting was given from the Chair.

The Rev. Robert Harley, Professor Meldola, and Dr. R. H. Scott were by ballot elected Auditors of the Treasurer’s accounts on the part of the Society.

The following Papers, received during the Recess, and published in full or in abstract, in accordance with the Standing Orders of Council, were read in title:

“Observations on ‘Flicker’ in Binocular Vision.” By C. S. Sherrington, M.A., M.D., F.R.S.

“Harmonic Tidal Constants for certain Australian and Chinese Ports.” By Thomas Wright, of the Nautical Almanac Office. Communicated by Professor G. H. Darwin, F.R.S.

“On the Influence of the Prolonged Action of the Temperature of Liquid Air on Micro-organisms, and on the Effect of Mechanical Trituration at the Temperature of Liquid Air on Photogenic Bacteria.” By Allan Macfadyen, M.D. Communicated by Professor James Dewar, F.R.S.

“On the Measurement of the Bactericidal Power of small Samples of Blood under Aerobic and Anaerobic Conditions, and on the Comparative Bactericidal Effect of Human Blood drawn off and tested under these Contrasted Conditions.” By A. E. Wright, M.D., Professor of Pathology, Army Medical School, Netley. Communicated by Professor J. R. Bradford, F.R.S.


“An Intracellular Toxin of the Typhoid Bacillus.” By Allan Macfadyen, M.D., and Sydney Rowland, M.A. Communicated by Lord Lister, F.R.S.

The following Papers were read:—


November 27, 1902.

Sir William Huggins, K.C.B., O.M., President, in the Chair.

Mr. Alfred Harker and Mr. Robert Kidston were admitted into the Society.

A List of the Presents received was laid on the table, and thanks ordered for them.

Professor Waldemar Christofer Brögger, Professor Gaston Darboux, Professor Ewald Hering, Mr. George William Hill, Professor Albert Abraham Michelson, Baron Ferdinand von Richthofen, Graf H. zu Solms-Laubach, and Professor Julius Thomsen were elected Foreign Members of the Society.

In pursuance of the Statutes, notice of the ensuing Anniversary Meeting was given from the Chair, and the list of Officers and Council nominated for election was read as follows:—
President.—Sir William Huggins, K.C.B., O.M., D.C.L., LL.D.

Treasurer.—Alfred Bray Kempe, M.A.

Secretaries.—Sir Michael Foster, K.C.B., D.C.L., LL.D.
Joseph Larmor, M.A., D.Sc., LL.D.

Foreign Secretary—Thomas Edward Thorpe, C.B., Sc.D.


The following Papers were read:—

I. "Experiments on the Effect of Mineral Starvation on the Parasitism of the Uredine Fungus Puccinia dispersa on Species of Bromus." By Professor H. MARSHALL WARD, F.R.S.

II. "Note upon Descending Intrinsic Spinal Tracts in the Mammalian Spinal Cord." By Professor C. S. SHERRINGTON, F.R.S., and Dr. E. E. LASLETT.

III. "The Inter-relationship of Variola and Vaccinia." By Dr. S. MONCKTON COPEMAN. Communicated by LORD LISTER, F.R.S.

IV. "The Colour-physiology of the Higher Crustacea." By F. KEEBLE and F. W. GAMBLE. Communicated by Professor S. J. HICKSON, F.R.S.

December 1, 1902.
Anniversary Meeting.

Sir WILLIAM HUGGINS, K.C.B., O.M., President, in the Chair.

The Report of the Auditors of the Treasurer's accounts was read, and the thanks of the Society were given to the Treasurer and to the Auditors.

The List of Fellows deceased and Fellows elected into the Society since the last Anniversary was read.
The Report to the Society from the Council upon their work during the past year was, upon the motion of the President, received.

The President delivered his Anniversary Address, and, on the motion of Sir John Evans, seconded by Dr. Selater, the thanks of the Society were given to the President for his Address, and he was requested to allow it to be printed.

The Awards of the Medals for the year were announced as follows, and the Medals were presented from the Chair:—

The Copley Medal...... To Lord Lister, F.R.S.
The Rumford Medal ... ,, the Hon. Charles A. Parsons, F.R.S.
A Royal Medal ......... ,, Prof. Horace Lamb, F.R.S.
A Royal Medal ......... ,, Prof. Edward A. Schäfer, F.R.S.
The Davy Medal ...... ,, Prof. Svante August Arrhenius.
The Darwin Medal ..... ,, Mr. Francis Galton, F.R.S.
The Buchanan Medal .. ,, Dr. Sydney A. Monckton Copeman.
The Hughes Medal ..... ,, Prof. Joseph John Thomson, F.R.S.

The President having, with the consent of the Society, nominated Dr. Günther and Major MacMahon as scrutators to assist the Secretaries in examining the balloting lists for the election of Council and Officers, the votes of the Fellows present were taken. The Scrutators reported that the Council and Officers nominated at the preceding meeting had been duly elected, and their names were accordingly announced from the Chair.

The thanks of the Society were given to the Scrutators.

(The full Report of the Anniversary Meeting, including the Report of the Council and the President's Address, will be published in the 'Year-book' for 1903. The Account of the Appropriation of the Government Grant and of the Trust Funds will also be found in the 'Year-book.')
December 4, 1902.

Sir WILLIAM HUGGINS, K.C.B., O.M., President, in the Chair.

A List of the Presents received was laid on the table, and thanks ordered for them.

The President announced that he had appointed as Vice-Presidents for the ensuing year—

The Treasurer.
Dr. Blanford.
Professor G. Carey Foster.
Professor Judd.

The following Papers were read:—

I. "On the 'Blaze Currents' of the Incubated Hen's Egg." By Dr. A. D. WALLER, F.R.S.

II. "On the 'Blaze Currents' of the Crystalline Lens." By Dr. A. D. WALLER, F.R.S., and A. M. WALLER.

III. "A Contribution to the Question of 'Blaze Currents.'" By Dr. A. DURIG. Communicated by Dr. A. D. WALLER, F.R.S.

IV. "On the Similarity of the Short-period Pressure Variation over Large Areas." By Sir NORMAN LOCKYER, F.R.S., and Dr. W. J. S. LOCKYER.

V. "Isomeric Change in Benzene Derivatives.—The Interchange of Halogen and Hydroxyl in Benzenediazonium Hydroxides." By Dr. K. J. P. ORTON. Communicated by Professor ARMSTRONG, F.R.S.

VI. "On the Vibrations and Stability of a Gravitating Planet." By J. H. JEANS. Communicated by Professor G. H. DARWIN, F.R.S.
December 11, 1902.

SIR WILLIAM HUGGINS, K.C.B., O.M., President, in the Chair.

Mr. Hugh Frank Newall was admitted into the Society.

A List of the Presents received was laid on the table, and thanks ordered for them.

The following Papers were read:

I. "On certain Properties of the Alloys of the Gold-Silver Series." By the late Sir WM. ROBERTS-AUSTEN, K.C.B., F.R.S., and Dr. T. KIRKE ROSE.

II. "The Spectrum of \(\gamma\) Cygni." By Sir NORMAN LOCKYER, K.C.B., F.R.S., and F. E. BAXANDALL.

III. "Abnormal Changes in some Lines in the Spectrum of Lithium." By HUGH RAMAGE, B.A. Communicated by Professor LIVEING, F.R.S.

IV. "Quaternions and Projective Geometry." By Professor C. J. JOLY, F.T.C.D. Communicated by Sir ROBERT BALL, F.R.S.

V. "An Error in the Estimation of the Specific Gravity of the Blood by Hammerschlag's Method, when employed in connection with Hydrometers." By Dr. A. G. LEVY. Communicated by Sir VICTOR HORSLEY, F.R.S.

VI. "The Specific Heats of Metals and the Relation of Specific Heat to Atomic Weight. Part II." By Professor W. A. TILDEN, F.R.S.

The Society adjourned over the Christmas Recess to Thursday, January 22, 1903.
January 22, 1903.

Sir WILLIAM HUGGINS, K.C.B., O.M., President, in the Chair.

The Right Hon. Horace Plunkett, a Member of His Majesty's Most Honourable Privy Council, was admitted into the Society.

A List of the Presents was laid on the table, and thanks ordered for them.

The following Papers were read:—


II. “Characteristics of Electric Earth-current Disturbances, and their Origin.” By J. E. TAYLOR. Communicated by Sir OLIVER LODGE, F.R.S.

III. “Solar Eclipse of 1900, May 28th.—General Discussion of Spectroscopic Results.” By J. EVERSHEID, F.R.A.S. Communicated by the Joint Permanent Eclipse Committee.

IV. “Some Dielectric Properties of Solid Glycerine.” By Professor ERNEST WILSON. Communicated by Sir WILLIAM PREECE, K.C.B., F.R.S.

V. “On the Electrodynamic and Thermal Relations of Energy of Magnetisation.” By Dr. J. LARMOR, Sec. R.S.

January 29, 1903.

Sir WILLIAM HUGGINS, K.C.B., O.M., President, in the Chair.

The Right Hon. Lord Alverstone, Lord Chief Justice, was admitted into the Society.

A List of the Presents was laid on the table, and thanks ordered for them.

The following Papers were read:—

II. "The Bending of Electric Waves round a Conducting Obstacle." 
By H. M. Macdonald, M.A., F.R.S.

III. "On Skew Refraction through a Lens; and on the Hollow Pencil 
given by an Annulus of a very obliquely placed Lens." By 
J. D. Everett, M.A., D.C.L., F.R.S.
February 12, 1903.

Sir WILLIAM HUGGINS, K.C.B., O.M., President, in the Chair.

A List of the Presents was laid on the table, and thanks ordered for them.

The President made reference to the great loss which the Society had sustained through the death of Sir George Gabriel Stokes, Past-President, and read the following letter, which had been drawn up by the Council for dispatch to Sir Arthur Stokes, Bart.:

"Royal Society,
"Burlington House, W.,
"February 12, 1903.

"Dear Sir Arthur,

"We are desired by the President and Council of the Royal Society, and by the Fellows assembled at the ordinary meeting held this day, to make known to you, and to your sister, Mrs. L. Humphry, their most sincere sympathy in the great loss which has fallen upon you through the death of your illustrious father.

"For the long period of thirty-one years the Society was greatly strengthened by the presence of your father as one of its secretaries. Throughout this period his labours were unremitting, both in the discharge of his official duties and in assistance given to the work of individual Fellows; they were thus most fruitful for the progress of science. For five years the Society was proud to claim him as its President.

"Among the great names which are to be found in the roll of the Society, your father's will always be held in honour among the greatest.

"It may be some little consolation to you in your present great grief to be told how much his brethren in science admired, and while admiring, loved him.

"We are,
"Yours very truly,
"(Sd.) M. Foster,
"J. Larmor,
"Secretaries R.S.

"Sir Arthur R. Stokes, Bart."

The following Papers were read:

I. "On the Decline of the Injury Current in Mammalian Nerve, and its Modification by Changes of Temperature.—Prelimi-
nary Communication." By Miss S. C. M. Sowton and J. S. Macdonald. Communicated by Professor Sherrington, F.R.S.

II. "On the Negative Variation in the Nerves of Warm-blooded Animals." By Dr. N. H. Alcock. Communicated by Dr. Waller, F.R.S.

III. "On the Optical Activity of Hæmoglobin and Globin." By Professor Gamgee, F.R.S., and A. Croft Hill.

IV. "On the Nucleo-proteids of the Pancreas, Thymus, and Suprarenal Gland, with especial Reference to their Optical Activity." By Professor Gamgee, F.R.S., and Professor W. Jones.

V. "Studies in the Morphology of Spore-producing Members. No. V.—General Comparisons and Conclusion." By Professor F. O. Bower, F.R.S.

VI. "Primitive Knot and Early Gastrulation Cavity co-existing with Independent Primitive Streak in Ornithorhynchus." By Professor J. T. Wilson and J. P. Hill. Communicated by Professor Howes, F.R.S.

VII. "The Brain of the Archæoceti." By Professor Elliot Smith. Communicated by Professor Howes, F.R.S.

February 19, 1903.

Sir WILLIAM HUGGINS, K.C.B., O.M., President, in the Chair.

A List of the Presents was laid on the table, and thanks ordered for them.

The following Papers were read:—

I. "On the Formation of Definite Figures by the Deposition of Dust." By Dr. W. J. Russell, F.R.S.

II. "Mathematical Contributions to the Theory of Evolution.—On Homotyposis in Homologous but Differentiated Organs." By Professor Karl Pearson, F.R.S.

III. "The Evaporation of Water in a Current of Air." By Dr. E. P. Perman. Communicated by Professor E. H. Griffiths, F.R.S.

IV. "On the Determination of Specific Heats, especially at Low Temperatures." By H. E. Schmitz. Communicated by Professor Schuster, F.R.S.
February 26, 1903.

Sir WILLIAM HUGGINS, K.C.B., O.M., President, in the Chair.

A List of the Presents was laid on the table, and thanks ordered for them.

The Bakerian Lecture, "On the Constitution of the Copper-Tin Series of Alloys," was delivered by C. T. HEYCOCK, F.R.S., and F. H NEVILLE, F.R.S.

March 5, 1903.

Professor J. W. JUDD, C.B., Vice-President, in the Chair.

Professor Gösta Mittag-Leffler, For. Mem. R.S. (elected 1896) was admitted into the Society.

A List of the Presents was laid on the table, and thanks ordered for them.

In pursuance of the Statutes, the names of Candidates for election into the Society were read as follows:—

The following Papers were read:—


II. “The Electrical Conductivity of Solutions at the Freezing-point of Water.” By W. C. D. WHETHAM, F.R.S.

III. “A Note on a Form of Magnetic Detector for Hertzian Waves adapted for Quantitative Work.” By Professor J. A. FLEMING, F.R.S.
IV. "On the Laws governing Electric Discharges in Gases at Low Pressures." By W. R. CARR. Communicated by Professor J. J. THOMSON, F.R.S.

V. "The Differential Invariants of a Surface, and their Geometric Significance." By Professor A. R. FORSYTH, F.R.S.

March 12, 1903.

Sir WILLIAM HUGGINS, K.C.B., O.M., President, followed by Professor J. W. JUDD, C.B., Vice-President, in the Chair.

A List of the Presents was laid on the table, and thanks ordered for them.

The following papers were read:—

I. "On the Histology of *Uredo dispersa*, Erikss., and the 'Mycoplasma' Hypothesis." By Professor MARSHALL WARD, F.R.S.

II. "The Statolith-theory of Geotropism." By F. DARWIN, F.R.S.

III. "A Study of a Unicellular Green Alga, occurring in Polluted Water, with especial reference to its Nitrogenous Metabolism." By Miss H. CHICK. Communicated by Professor R. BOYCE, F.R.S.


V. "The Oestrus Cycle and the Formation of the Corpus Luteum in the Sheep." By F. H. A. MARSHALL. Communicated by Professor J. C. EWART, F.R.S.

VI. "On the Culture of the Nitroso-bacterium." By H. S. FREMLIN. Communicated by Sir MICHAEL FOSTER, Sec. R.S.

VII. "Upon the Immunising Effects of the Intracellular Contents of the Typhoid Bacillus as obtained by the Disintegration of the Organism at the Temperature of Liquid Air." By Dr. A. MACFADYEN. Communicated by Lord LISTER, O.M., F.R.S.
March 19, 1903.

Sir WILLIAM HUGGINS, K.C.B., O.M., President, in the Chair.

A List of the Presents was laid on the table, and thanks ordered for them.

The following papers were read:—

I. "On the Formation of Barrier Reefs and of the Different Types of Atolls." By Professor ALEX. AGASSIZ, For. Mem. R.S.

II. "On Central American Earthquakes, particularly the Earthquake of 1838." By Admiral Sir JOHN DALRYMPLE HAY, F.R.S.

III. "The Emanations of Radium." By Sir WILLIAM CROOKES, F.R.S.

March 26, 1903.

Professor G. CAREY FOSTER, Vice-President, in the Chair.

A List of the Presents was laid on the table, and thanks ordered for them.

The following papers were read:—

I. "Some Physical Properties of Nickel Carbonyl." By Professor J. DEWAR, F.R.S., and H. O. JONES.

II. "The Electrical Conductivity imparted to a Vacuum by Hot Conductors." By O. W. RICHARDSON. Communicated by Professor J. J. THOMSON, F.R.S.

III. "An Attempt to Estimate the Relative Amounts of Krypton and of Xenon in Atmospheric Air." By Sir WILLIAM RAMSAY, F.R.S.

IV. "On a New Series of Lines in the Spectrum of Magnesium." By A. FOWLER. Communicated by Professor H. L. CALLNDAR, F.R.S.

V An Enquiry into the Variation of Angles observed in Crystals; especially of Potassium-Alum and Ammonium-Alum." By Professor H. A. MIERS, F.R.S.

VII. "Solar Prominence and Spot Circulation, 1872—1901." By Sir Norman Lockyer, F.R.S., and Dr. W. J. S. Lockyer.

VIII. "On the Evolution of the Proboscidea." By Dr. C. W. Andrews. Communicated by Professor E. Ray Lankester, F.R.S.

IX. "On the Cytology of Apogamy and Apospory.—I. Preliminary Note on Apogamy." By Professor J. Bretland Farmer, F.R.S., J. G. S. Moore, and Miss L. Digby.

The Society adjourned over the Easter Recess to Thursday, April 30.
April 30, 1903.

Sir WILLIAM HUGGINS, K.C.B., O.M., President, in the Chair.

A List of the Presents received was laid on the table, and thanks ordered for them.

The Croonian Lecture: “The Cosmical Function of the Green Plant,” was delivered by Professor TIMIRIAZEFF, of the University of Moscow.

The following paper was read:—

“Preliminary Note on the Use of Chloroform in the Preparation of Vaccine.” By ALAN B. GREEN, M.A., M.D. Communicated by W. H. POWER, C.B., F.R.S.

May 7, 1903.

Sir WILLIAM HUGGINS, K.C.B., O.M., President, in the Chair.

A List of the Presents received was laid on the table, and thanks ordered for them.

In pursuance of the Statutes, the names of the Candidates recommended for election into the Society were read, as follows:—

Bridge, Thomas William.  Sampson, Ralph Allen.
Darwin, Horace.  Strahan, Aubry.
Hiern, William Philip.  Symington, Johnson.
Mallock, Henry Reginald Arnulph.  Townsend, John S.
Perkin, Arthur George.

The following Papers were read:—

I. “On Lagenostoma Lomaxi, the Seed of Logriniodendron.” By Dr. F. W. OLIVER, F.L.S., and Dr. D. H. SCOTT, F.R.S.
II. "On the Physiological Action of the Poison of the Hydrophidae. 
By Dr. Leonard Rogers. Communicated by Major A. Alcock, F.R.S.

III. "Preliminary Note on the Discovery of a Pigmy Elephant in the Pleistocene of Cyprus." By Miss D. M. A. Bate. Communicated by Dr. Henry Woodward, F.R.S.

IV. "Experiments in Hybridisation, with Special Reference to the Effect of Conditions on Dominance." By L. Doncaster, B.A. Communicated by Dr. S. F. Harmer, F.R.S.
May 14, 1903.

Professor CAREY FOSTER, Vice-President, in the Chair.

A list of the Presents received was laid on the table, and thanks ordered for them.

The following papers were read:—

I. "On the Discovery of a Species of Trypanosoma in the Cerebrospinal Fluid of Cases of Sleeping Sickness." By Dr. ALDO CASTELLANI. Communicated by the Malaria Committee of the Royal Society.

II. "The Combination of Hydrogen and Chlorine under the Influence of Light." By P. V. BEVAN. Communicated by Professor J. J. THOMSON, F.R.S.

III. "On the Photo-Electric Discharge from Metallic Surfaces in Different Gases." By Dr. W. MANSERGH VARLEY. Communicated by Professor J. J. THOMSON, F.R.S.

IV. "The Elasmometer, a New Interferential Form of Elasticity Apparatus." By A. E. TUTTEN, F.R.S.

V. "Meteorological Observations by the Use of Kites off the West Coast of Scotland, 1902." By W. N. SHAW, F.R.S., and W. H. DINES, F.R. Met. Soc.

VI. "On the Radiation of Helium and Mercury in a Magnetic Field." By Professor ANDREW GRAY, F.R.S., and Dr. W. STEWART, with R. A. HOUSTOUN and D. B. MCQUISTAN.

VII. "A New Class of Organo-Tin Compounds containing Halogens." By Professor W. J. POPE, F.R.S., and S. J. PEACHEY.

VIII. "The Xanthophyll Group of Yellow Colouring Matters." By C. A. SCHUNCK. Communicated by H. T. BROWN, F.R.S.