

to make to South Africa for the purpose of carrying on geological investigations, are also recommended.

OXFORD.—The following is the text of the speech delivered by Prof. Love in presenting Messrs. P. H. Cowell and A. C. de la C. Crommelin for the degree of D.Sc. *honoris causa* on May 21:—

“Ducentos fere abhinc annos Edmundus Halley, qui tum apud nos Professor erat Savilianus, a Newtono doctus vi quadam certa planetas suos intra circulos contineri, cum cometam magnum ipse observasset, hunc annorum quinque fere et septuaginta intervallis quasi legitimo tempore semper rediturum esse praedixit. Vates erat verus, et nos hoc anno tertium ex illo tempore cometæ reditum videmus. Cum quidem omnes astronomi ineunte statim anno eius adventum specularentur, simul atque visus est id egerunt ut cursum quo circa solem volveretur certissime constituerent. Ad hanc rem acceperunt duo viri, Philippus Herbertus Cowell, Andreas Claudius de la Cherois Crommelin, scientia et peritia singulari praediti, qui hunc nodum nova prorsus ratione solverunt. Qua in re distinguere vix possumus quid huic vel illi acceptum referendum sit: illud constat, nisi alter mathematicorum, alter astronomorum peritissimus fuisset, rem non potuisse navari.

“Duco igitur ad vos Philippum Herbertum Cowell, qui, cum plures annos astronomiæ rationibus cognoscendis se dedidisset, multas palmas iam adeptus, id tandem consecutus est ut cometæ Halleiani iter nova ratione statueret, et omnes calculos laboriose subduceret.

“Duco etiam Andream Claudium de la Cherois Crommelin, qui cum multos annos cometarum naturam investigasset, doctrina maxima instructus ad hoc munus accessit, et re latissime perspecta cometæ redeuntis, iter non solum hoc anno definire potuit, sed quoties per duo millia ducentos quinquaingenta annos his caelestis hospes terram revisit.”

The Vice-Chancellor (Dr. T. H. Warren), in admitting Messrs. Cowell and Crommelin to the degree, spoke as follows:—

“Salve fratrum par nobile, nec laboribus nec laude divisum, quos dum veluti Geminos illos, vel stellam quamdam duplicem, pari gloria, togis paribus fulgentes intueor, venit mihi in mentem aliquid versu dicere Vergiliano, licet paulum mutato,

‘In medio duo signa, Conon et quis fuit alter,
Praedixit flammæ reducis qui gentibus orbem?’”

“Ego auctoritate mea et totius Universitatis libenter admitto utrumque, te Cononem, te Aratum novum, ad gradum Doctoris in Scientia, honore causa.”

THE honorary degree of Doctor of Laws was conferred upon Commander Peary by the University of Edinburgh on May 24, in recognition of his north polar work.

A REUTER message from Salem, Mass., U.S.A., states that the will of the late Mr. Isaac C. Wyman bequeaths practically his entire estate, valued at 2,000,000., to Princeton University Graduate School for such use “as the trustees may decide.”

A REUTER message from Cape Town states that the late Sir Donald Currie's daughters, Mrs. Mirrielees, Mrs. Molteno, and Mrs. Wisely, have given a sum of 25,000. to the University of Cape Town for the construction of a hall as a permanent memorial to Sir Donald Currie. The University has gratefully accepted the gift, and has reserved a portion of the fund, producing 150l. per annum, for the foundation of a Currie Scholarship.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, May 17.—M. Armand Gautier in the chair.—The president announced the death of Stanislas Canizzaro, correspondent of the academy, and gave a short account of his work.—Gaston Darboux: The use of new methods of recurrence in the theory of orthogonal systems.—M. Bigourdan presented photographs of the Halley comet by M. Iniguez, taken at the Observatory of Madrid.—A. Lacroix: The mineralogical constitution of the French phosphorites. The optical and physical properties are described in detail, and complete

¹ Cf. Verg. Ecl. iii., v. 40.

chemical analyses are given.—Paul **Sabatier** and A. **Mailhe**: A general method of direct preparation of the thiols by catalysis, starting with the alcohols. The general method proposed consists in passing a mixture of the vapour of the alcohol with sulphuretted hydrogen over thoria at a temperature between 300° C. and 360° C. The mercaptans from the first five primary alcohols were prepared with excellent yields. The substitution of sulphur for oxygen was also successful with allyl alcohol, benzyl alcohol, and various secondary alcohols, but the yields in these cases were not so good as with the primary alcohols. Thiophenols can also be prepared in the same way.—M. Blaserna was elected a correspondent for the section of physics in the place of Lord Rayleigh, elected a foreign associate.—E. **Esclangon**: Observations of Halley's comet. These results were obtained at the Observatory of Bordeaux, and diagrams are given showing the appearance of the comet on various dates.—J. Comas **Sola**: The flattening of Io, first satellite of Jupiter. Observations with the 38-cm. equatorial at the Fabra Observatory, continued since 1905, have confirmed the view that Io is flattened, in proportion, greater than any other body known in the solar system. The maximum flattening has been determined at one-fourth.—M. **Borrelly**: Observations of Halley's comet made at the Observatory of Marseilles with the comet finder. Data are given for observations for fifteen nights between April 21 and May 10, together with the positions of the comparison stars.—M. **Tzitzóica**: A new class of surfaces.—E. **Ouivet**: The differential equation of the motion of a heavy spherical projectile in air.—Maurice **Fréchet**: Continued functionals.—M. **Herrgott**: The electric thermophile. An account of a woven material containing fine nickel wire, which is supple and can be heated electrically.—A. **de Gramont** and M. **Drecq**: Certain conditions of appearance of the band spectrum attributed to cyanogen. The band spectrum usually considered to be characteristic of cyanogen appears to be due to the simultaneous presence of carbon (in sodium carbonate) and nitrogen. The bearing of this on comet spectra is mentioned.—M. **Houllé**: The dimensions of the material elements projected by the cathodes in vacuum tubes. The metal projected (silver) is deposited on a glass plate, and the minimum thickness determined at which the layer conducts electricity. The conductivity appears suddenly, and is only established starting from a certain thickness of the metallic layer. The diameter of the particles calculated from the results of these experiments is of the order of 22 to 26 $\mu\mu$.—A. **Besson** and L. **Fournier**: The action of the silent discharge upon acetaldehyde in the presence of hydrogen. The product of the reaction was a very complicated mixture containing acetic acid and its homologues and several ketones.—F. **Bodroux** and F. **Taboury**: Synthesis of aromatic nitriles. Benzyl cyanide is treated with sodium amide and alkyl iodide or bromide. One or both of the hydrogen atoms of the methylene group can thus be replaced by alkyl groups, and several applications of this general reaction are cited.—Georges **Darzens**: The action of the hydracids upon the glycidic esters.—A. **Arnaud** and S. **Posternak**: Two new isomers of stearolic acid.—Marcel **Godchot** and Jules **Frezouls**: Hexahydrophenylglycolic acid.—C. **Beys**: The estimation of tartaric acid in crude natural materials.—J. **Bertheaume**: A new method of estimating the three methylamines in admixture with ammonia. The hydrochlorides are dried and extracted with pure chloroform, in which the hydrochlorides of dimethylamine and trimethylamine are soluble. These are further separated by means of their periodides, and the ammonia and methylamine separated by François's method with yellow oxide of mercury.—G. **Boyer**: Studies on the biology of the truffle (*Tuber melanosporum*).—Paul **Dop**: The Strychnos of eastern Asia.—J. **Strohl**: The relative weight of the heart and the effect of high altitudes.—Maurice **Nicloux**: The decomposition of chloroform in the organism. A method is described permitting the estimation of small quantities of chloroform mixed with large quantities of air. The author applies this to determine the amount of chloroform destroyed in the blood, and concludes that about one-half the total amount of chloroform fixed at the moment of anæsthesia is decomposed in the organism.—

H. **Coutière**: Cray-fish of the genus *Saron* with male dimorphs.—L. **Nègre** and J. **Briodé**: The nature of the parasite of epizootic lymphangitis.—G. **Seliber**: The determination of the volatile acids in the products of fermentation of some micro-organisms according to the method of Duclaux.—L. **De Launay**: The mean atomic weight of the silicated earth's crust.—Jean **Boussac**: The distribution of the levels and *facies* in the so-called autochthone (Nummulitic) of eastern Switzerland.—Maurice **Fillozat**: The chalk of Blois.—Louis **Gentil**: The ancient orogenic movements in the Haut-Atlas of Morocco.

DIARY OF SOCIETIES.

THURSDAY, MAY 26.

ROYAL SOCIETY, at 4.30.—Croonian Lecture: Alterations of the Development and Forms of Plants as a Result of Environment: Prof. G. Klebs.
ROYAL INSTITUTION, at 3.—The Constitution and Internal Structure of Alloys: Dr. W. Rosenhain.
INSTITUTION OF ELECTRICAL ENGINEERS, at 8.
ROYAL SOCIETY OF ARTS, at 4.30.—The People of Burma: Sir Richard Carnac Temple, Bart.
FRIDAY, MAY 27.
ROYAL INSTITUTION, at 9.—The Forthcoming Antarctic Expedition: Capt. R. F. Scott, R.N.
ROYAL INSTITUTION, at 3.—The World of Plants before the Appearance of Flowers: Dr. D. H. Scott, F.R.S.
PHYSICAL SOCIETY, at 5.—On an Oscillation Detector actuated solely by Temperature Variation of Resistance: Dr. W. H. Eccles.—Exhibition of a Resonance Transformer: A. Eagle.—The Limitations of the Weston Cell as a Standard of Electromotive Force: Dr. S. W. J. Smith.
INSTITUTION OF MECHANICAL ENGINEERS, at 8.—*Adjourned discussion* upon Mr. S. N. Brayshaw's Paper on A Research on the Hardening of Carbon and Low-tungsten Tool-steels: Prof. J. O. Arnold.—Comparison of the Tensile, Impact-tensile, and Repeated-bending Methods of Testing Steel: B. Blount, W. G. Kirkaldy, and Capt. H. Riall Sankey.

MONDAY, MAY 30.

ROYAL INSTITUTION, at 3.—Earth-tides: Prof. A. E. H. Love, F.R.S.

TUESDAY, MAY 31.

ROYAL INSTITUTION, at 3.—Hereditry in Tudor and Stuart Portraits: Charles J. Holmes.
FARADAY SOCIETY, at 8.—Some Practical Experience of the Sherardising Process: J. W. Hinchley.—Note on the Composition of Eutectic Mixtures: Dr. C. H. Desch.—Relations between Critical Temperature, Boiling-point, and Expansion Coefficient of Phosphorus Pentachloride: E. B. R. Pridaux.—Thermic Reactions in Vacuo. Parts I., II., and III.: F. E. Weston and H. Russell Ellis.
ROYAL ANTHROPOLOGICAL INSTITUTE, at 8.15.—An Anthropological Expedition to the Northern British Solomon Islands: Dr. R. Thurnwald.

WEDNESDAY, JUNE 1.

ROYAL INSTITUTION, at 3.—The Constitution and Internal Structure of Alloys: Dr. W. Rosenhain.
ROYAL SOCIETY OF ARTS, at 8.—The Restoration and Discoveries at the Guildhall, London: S. Perks.
SOCIETY OF PUBLIC ANALYSTS, at 8.—The Composition of Malt Vinegar: E. Russell and T. R. Hodgson.—Some Analyses of Ghee: E. R. Bolton and C. Revis.—A Short Method for Detecting and Estimating Coconut Oil in Butter and Margarine: H. S. Shrewsbury and A. W. Knapp.—The Analysis of Ferrocyanides: Dr. H. G. Colman.—Some Unusual Pathogenic Bacteria in Water: W. Partridge.—The Estimation of Small Quantities of Essential Oils in Spices: J. A. Brown.—An Investigation of Pozzi-Escot's Method for the Estimation of Nitrates: E. Cahen.
ENTOMOLOGICAL SOCIETY, at 8.—Notes on the Scollidæ, and New Fossorial Hymenoptera from Australia: R. E. Turner.—On the Position of the Rhopalosomidæ, with Description of a Second Species: C. Morley.—Descriptions of Micro-lepidoptera from the Malayan Region: E. Meyrick, F.R.S.

THURSDAY, JUNE 2.

ROYAL SOCIETY, at 4.30.—*Probable Papers*: The Influence of Bacterial Endotoxins on Phagocytosis (Preliminary Report): Leonard S. Dudgeon, P. N. Pantoni, and H. A. F. Wilson.—The Origin of Osmotic Effects. III. The Function of Hormones in Stimulating Enzymic Change in Relation to Narcosis and the Phenomena of Degenerative and Regenerative Change in Living Structures: Prof. H. E. Armstrong, F.R.S., and E. Frankland Armstrong.—On the Direction of Motion of an Electron ejected from an Atom by Ultra-violet Light: Dr. R. D. Kleeman.—On Scandium. Part II.: Sir William Crookes, For. Sec. R.S.—The Flow of Water in Curved Pipes: Prof. J. Eustice.
ROYAL INSTITUTION, at 3.—Malaria: Major Ronald Ross, F.R.S.
INSTITUTION OF MINING ENGINEERS, at 11 a.m.—Presidential Address: Dr. J. B. Simpson.—A Storage-battery Extension to a Three-phase Colliery Power-plant: W. Maurice.—On Measurements of the Downward Increase of Temperature in Bore-holes, their Technics and their Practical Importance for Geological Prognosis: Prof. J. Koenigsberger and Dr. Max Mühlberg.
LINNEAN SOCIETY, at 8.—On the Flora of Gazaland: Dr. A. B. Rendle, F.R.S., and others.
RÖNTGEN SOCIETY, at 8.15.—Practical Observations on Every-day X-Ray and Electrical Work: Filtration of Rays, Measurement of Rays, Rapid

Stereoscopic Method: Dr. Howard Pirie.—Recent Improvements in Radiographic Technique: Dr. R. Knox.

FRIDAY, JUNE 3.

ROYAL INSTITUTION, at 3.—The World of Plants before the Appearance of Flowers: Dr. D. H. Scott, F.R.S.
ROYAL INSTITUTION, at 9.—Renaissance Monuments in the Roman Churches, and their Authors: Sir Rennell Rodd, G.C.V.O., K.C.M.G.
INSTITUTION OF MINING ENGINEERS, at 10 a.m.—Experiments illustrative of the Inflammability of Mixtures of Coal-dust and Air: Prof. P. Phillips Bedson.—Testing for Fire-damp: Prof. J. Cadman.—Some Memoranda concerning Coal-dust: H. W. G. Halbaum.

SATURDAY, JUNE 4.

ROYAL INSTITUTION, at 3.—Electric Heating and Pyrometry: Prof. J. A. Fleming, F.R.S.

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