"His Majesty has been pleased to approve of the appointment of your Lordship as Chancellor, and of Mr. Lubbock as the first Vice-Chancellor of the University.

"I feel convinced that it is not necessary to recommend to your Lordship either a zealous attention to the interests of learning, or a constant regard to those principles of religious freedom, which have furnished motives for the Royal grant. . . .

"You may be assured that on my part also I shall esteem it an honour to co-operate in the advancement of an institution destined to confer the distinctions justly due to proficiency in literature, science or art, without imposing a test of religious opinions, or binding by the fetters of the 17th century the talent and merit of this present enlightened age."

Among the scientific men who composed the "one body politic and corporate" entrusted with the affairs of the University were Airy, Neil Arnott, Captain Beaufort, W. T. Brandl, Faraday, Prof. Henslow, Mark Roget, Sheepshanks, James Walker and many others eminent in medicine.

Opening of the London and Greenwich Railway

ON December 14, 1836, the London and Greenwich Railway as far as Deptford was officially opened by the Lord Mayor of London amid great rejoicings. The construction of the long viaduct of brick arches had been regarded as a very great achievement. Engines had been at work on the line for some time, but on the day of the opening five trains travelled to and from London Bridge and Deptford. "Comparing the sensation which the traveller feels on this," said a writer in *The Times*, "as compared with other railroads, one may state, that owing, no doubt, to the fact that the whole road being over archways, there is a rumbling noise which is not heard on other roads. Much of this, however, is obviated by the construction of the carriages."

At a luncheon held at the Bridge-house Tavern in the afternoon, the Lord Mayor said: "The great object which the new railway would effect was that of economising time; the great characteristic of modern commercial life was the value set upon time." In their replies to the various toasts, the speakers referred to the gratifying prospects with which the railway commenced, the great benefits such undertakings conferred upon commerce and upon domestic trade and "the great accommodation which this individual channel of communication supplied to the City of London and the town of Greenwich".

The Optical Phenomena of Crystals

IN a paper entitled "Further Observations on the Optical Phenomena of Crystals" read to the Royal Society on December 15, Henry Fox Talbot referred to the property of some crystals, similar to those possessed by the tourmaline, of analysing polarized light. If a drop of a solution of sulphate of chromium and potash in tartaric acid is placed on a plate of glass, evaporation soon yields filmy crystals which frequently have this property. The plumose crystals of boracic acid when crystallized from a solution of borax in phosphoric acid also possess this analytic power, and present very beautiful appearances when viewed with the polarizing microscope. Talbot said that he entertained the hope that it would be possible to obtain large and permanent crystals, which would possess the advantages of the tourmaline, without the inconvenience resulting from its dark colour.

Societies and Academies

Paris

Academy of Sciences, November 16 (*C.R.*, 203, 961–1036).

EMMANUEL LECLAINCHE: Notices on Sir Arnold Theiler and on Edoardo Perroncito.

HENRI DOUVILLÉ: The shell of the lamellibranchs: its formation in *Ostrea edulis*.

CHARLES GOLDZIHER: Logistic extension of the mortality formula of Makeham.

BERTRAND GAMBIER: Surfaces of which the asymptotics of either system belong to linear complexes.

PAUL VINCENSINI: Surfaces deformable with transformation of kinematically conjugated systems into conjugated systems.

JEAN DIEUDONNÉ: Derivatives of rational fractions.

PIERRE HUMBERT: The extension to prepotentials of Kelvin's theorem.

SKLENAR: A new aviation motor.

ROBERT ESNAULT-PELTERIE: Remarks on the preceding communication.

JEAN CHAZY: Advances of the node and perihelion of a planet under the action of a circular ring.

BERNARD KWAL: Quantic mechanics and the principle of relativity.

PIERRE VERNOTTE: The theoretical dimensions of the cellular vortices of Bénard.

GASTON DUPOUY: The utilization of the ballistic galvanometer as a null instrument.

ANDRÉ LALLEMAND: The application to photography of a method allowing the energy of the photons to be amplified. The application of an electric field to accelerate the photo-electrons.

ERNEST ESCLANGON: Remarks on the preceding note. The method is important astronomically, especially in the fields of photometry and spectroscopy.

JACQUES RABINOVITCH: The magnetic rotatory polarization and magnetic double refraction of solutions of β-naphthol and of β-methylnaphthalene.

LÉON CAPDECOMME: An arrangement allowing the vertical illuminators of microscopes to transmit rectilinear polarized light of any azimuth.

MAURICE CURIE: Phosphorescent glass. The influence of crystallization. Two specimens of zinc borate containing a trace of manganese oxide were prepared, one almost wholly crystalline, the other vitreous. The crystalline specimen showed strong and durable phosphorescence, the vitreous specimen almost none.

HENRI GUÉRIN: The melting points and densities of the tribasic alkaline earth orthoarsenates.

ETIENNE CANALS and PIERRE PEYROT: The fluorescence of some pure substances. Nine highly purified hydrocarbons showed no trace of fluorescence. Of all the pure substances so far examined, only oxygen compounds are fluorescent.

JEAN BUREAU: The hydrated magnesium nitrites.

PIERRE SÜE: The constitution of the hydrated alkaline niobates.

ANDRÉ MICHEL: Study of the solid solutions of ferrous sulphide with sulphur, selenium and arsenic.

HUBERT FORESTIER and MLLE. MYRIAM GRAFF: The reduction of boric anhydride by manganese. Manganese reduces boric anhydride at a temperature below 1,000° C. forming a ferromagnetic boride (MnB).

ROGER TESTUT: The formation of chromium carbides. By heating chromium powder with excess of carbon, two definite carbides are obtained, Cr_3C_2

and Cr_5C_2. The excess of carbon can be removed by heating in oxygen at 900° C., since neither of these carbides is oxidized below 1,000° C.

CHARLES EMILE BRAZIER: The comparison of pyrheliometers. Two pyrheliometers measure the same physical magnitude only if, other things being equal, their apertures are exactly the same.

ROGER ULRICH: Correlation between the elongation of the fruit and the development of the seeds in the wallflower, *Cheiranthus Cheiri*. The length of the fruit is proportional to the number of seeds, and this is not due to any mechanical action of the young seeds, since there are frequently large intervals between the seeds. It would appear that the seeds in the course of development exercise a stimulating influence on the growth of the pericarp.

JEAN BEAUVERIE: Studies in experimental cytology: the chromoplasts of species of *Ranunculus*.

R. BRUNET and A. JULLIEN: The comparative architecture of the heart in some gastropod molluscs.

ROBERT WEILL: The existence of polypoid larvæ in the cycle of the Trachymedusa *Olindias phosphorica*.

PHILIPPE JOYET-LAVERGNE: Attempt at the valuation of the power of oxidation catalysis in the living cell. The reagent utilized for the study of oxidation processes in the living cell must fulfil two conditions; it must penetrate the cell without causing injury, and the colour changes brought about by oxidation must be appreciable. Alkaline solutions of cobalt sulphate or chloride have been found to be suitable for this study.

PIERRE NICOLLE: Physiological variations of the reticulocytary proportion in the course of gestation, during lactation and after ablactation in the rabbit.

ALEXANDRE LIPSCHÜTZ: A typical and destructive growth of the uterine glands after experimental ovarian interventions.

BORIS EPHRUSSI and MORRIS HENRY HARNLY: The presence in different insects of substances intervening in the pigmentation of the eyes of *Drosophila melanogaster*.

DOMINGO MAURICIO GOMEZ: The physical characteristics of the vessels, circulatory yield and law of decrease as a function of time of the arterial pressure.

PAUL DURAND, PAUL GIROUD, EDOUARD LARRIVE and ANDRÉ MESTRALLET: Virulence of the fluids in the *maladie des porchers*.

Amsterdam

Royal Academy (*Proc.*, 39, No. 8, Oct. 1936).

L. S. ORNSTEIN: Scattering of neutrons in matter (2).

J. G. VAN DER CORPUT: Generalizations of Carleman's inequality.

F. M. JAEGER, J. A. BOTTEMA and E. ROSENBOHM: Exact measurement of the specific heats of metals at high temperatures. (26). Specific heats and the electrical resistance of cerium. *ibid.* (27). The specific heats and the electrical resistance of lanthanum.

A. H. BLAAUW, IDA LUYTEN and ANNIE M. HARTSEMA: The limits of the ability to flower and of the growth of the iris bulb (2*a*).

H. M. DE BURLET and A. KOOMAN: Manifestation of the duplex character of the semicircular canal system in the ontogenesis of the labyrinth of vertebrates.

O. POSTHUMUS: Affinities of the Osmundaceæ with *Grammatopteris* and *Asterochlænopsis* and with Zygopterideæ in general.

G. F. C. GRISS: The conformal differential invariants of a covariant symmetrical tensor of the fourth rank in the binary region.

J. A. BARRAU: Casts of points, rays and planes.

W. BLEEKER: Meteorological observations during the three Dutch Karakorum expeditions.

L. ALGERA: Influence of temperature treatment on carbohydrate metabolism, respiration and morphological development of the tulip (2).

M. A. VAN OVEREEM: A sampling apparatus for aeroplankton.

TAN SIN HOK: Contribution to our knowledge of the Lepidocyclinides.

G. H. R. VON KOENIGSWALD: First communication on a fossil hominid from the Early Pleistocene of East Java.

A. THIADENS: Rudistids from southern Santa Clara, Cuba.

J. ARIËNS KAPPERS: Brain – body weight relation in human ontogenesis and the *indice de valeur cérébrale* of Anthony and Coupin.

G. REVESZ: The psychoanalytical impulse theory. A discussion of Freud's work with an attempt to test its consequences and confront it with normal psychological experience and general biological facts.

Rome

Royal National Academy of the Lincei (*Atti*, 23, 459–536; 1936).

F. ENRIQUES: Characteristic property of irregular algebraic surfaces and infinitely close curves.

G. ABETTI: Height of the chromosphere in 1935 and the course of the solar cycle.

M. BETTI and E. LUCCHI: Anomalies in the dissociation constant of some halogenated organic acids.

G. ROVERETTO: Particular continental facies of the Ligurian Oligocene.

G. BARBA: Repetition of a class of functions.

S. CHERUBINO: Reduction of matrices to canonical form (1).

S. CINQUINI: Non-linear functional equations in the analytic field.

S. MINETTI: Holomorphous functions admitting of two exceptional finite values, and the behaviour of a holomorphous function in the neighbourhood of an isolated essential singular point (1).

L. TOSCANO: Powers of a matrix of the second order.

M. MANARINI: Vectorial homographies with kinematic applications in S_n spaces (1). Axials and dilatations.

C. TAGLIACOZZO: A theorem on elastic coactions.

P. CALOI: Two new types of seismic waves in the light of a theory of Somigliana.

G. GOIDÀNICH: A species of *Phytophthora* causing rotting of the collar in the tomato.

L. MAROTTA: Experiments with root apices isolated in culture.

G. BERGAMI: Liberation of a substance similar to acetylcholine from the cut surface of the nerve during physiological excitation.

G. PERETTI: Oxidation-reductions in the small intestine and in the liver of the albino rat during intestinal absorption.

V. ZAGAMI: Behaviour of the glycogen of the heart under the action of insulin.

A. GALAMINI: Contribution to the comparative study of anaphylaxis (1). Alimentary anaphylaxis and subdiaphragmatic vagotomy (2).

A. BASILE: Contribution to the study of the fine structure of striated muscular fibre under normal and pathological conditions (3). Regressive processes of the components of cross-striation.