Science News a Century Ago

Egyptian Mummies

THE *Gentleman's Magazine* of April 1837 relates that "on March 6 at the close of a series of six very interesting and instructive lectures on Egyptian antiquities delivered at Exeter Hall by Mr. Pettigrew that gentleman unwrapped a mummy presented for the occasion by Mr. Jones of the Admiralty. The inscription on the outer case differed from that on the inner. Both stated the party to have been a female, but the names and genealogies were different, and the latter stated the mother of the deceased to be living when her daughter died. It might be that the wrappings would settle this point; which, however, they did not—for no name was found on them, as often occurs. The mummy was Greco-Egyptian, and embalmed after the ancient manner, the bowels being extracted by an incision on the left flank, and the brains probably through the nostrils, as the nose was much broken. The legs were separately bandaged, and the ankles bound by strips of painted linen, about half an inch in breadth. The figures were not hieroglyphic, but simply ornamental. Bands of the same kind surrounded the arms, which were crossed upon the breast; and a similar circle went round the neck, with a thin golden scarabaeus in front. On each knee was also a thin piece of gold, resembling the lotus-flower; over each eye the providential eye of Osiris of the same material, and another golden ornament upon the top of the ridge of the nose. The upper wrappers were not voluminous, and of coarse nankeen-coloured linen. Then came a complete envelope of asphaltus, and below that the usual disposition and extent of linen robes. On the soles of the feet were slight sandals, transversely striped, black, white, and red, exactly like those painted at the bottom of the inner cases. The finger- and toe-nails were gilt, and there were rings on the fingers."

Henslow's "Descriptive and Physiological Botany"

THE first article in the *Athenæum* of April 8, 1837, contained a notice of Prof. Henslow's "The Principles of Descriptive and Physiological Botany". John Stevens Henslow (1796–1861) was professor of mineralogy at Cambridge in 1822–27 and professor of botany in 1827–61. It was he who recommended Darwin as naturalist to H.M.S. *Beagle*. "If any person," said the *Athenæum*, "doubts the truth of the opinion now prevalent, that Botany has of late years undergone a great revolution . . . he has only to compare the introductory work of Professor Henslow with that of Smith, which although now almost forgotten, was, only a few years since, a standard book upon the subject in this country. . . . As a genuine view of the state of opinions upon physiological and structural botany up to the year 1836, we regard the work of Professor Henslow as a valuable addition to our introductory books. It embraces all that is most worthy of the student, briefly expressed in a clear methodical style, and, in general, with a just distinction between those modern speculations which are founded upon exact observations, and those which are mere creations of an inventive imagination."

Prony's Absorption Brake

UNDER the heading "Dynamometric Check", the *Mechanics' Magazine* of April 8 said: "A Committee of the French Institute, composed of Messrs. Arago, Dulong and Poncelet, has gone through a series of experiments on the 'dynometric (or power-measuring) check', an instrument invented by Prony, and lately improved by M. de Saint Leger, mining engineer at Rouen, for the purpose of measuring with accuracy the power of steam-engines and the quantity of fuel they consume. A large party of members of the Institute and Chamber of Deputies, of professors, engineers, etc., were present at the investigation. The object of the experiments was to ascertain the practical exactness of the apparatus, and for this purpose a steam engine of twelve horse-power of M. Pauweis's manufacture was made use of. The result appeared to be perfectly satisfactory and the scientific world now waits, with some interest, the report of the Committee of the Institute."

Baron de Prony (1755–1839) the inventor of the friction dynamometer, was distinguished both as a mathematician and engineer. He was trained under Perronet at the Ecole des Ponts et Chaussées and himself in 1799 became the director of the school. During the Revolution he directed the preparation of an enormous series of logarithmic tables computed to fourteen, nineteen and twenty-five places of decimals, and under Napoleon superintended the operations in connexion with the regulations of the waters of the River Po, and the draining of the Pontine Marshes.

Societies and Academies

Paris

Academy of Sciences, February 22 (*C.R.*, **204**, 533–624).

HENRI LAGATU and LOUIS MAUME: The possibility of measuring separately, at any period of growth, the feeding effect and improving effect of an application of manure. The method is based on the analysis of a leaf removed from the plant at regular intervals.

EDOUARD CHATTON and MME. SIMONE VILLENEUVE: The division of the mouth and the formation of the peristome in *Cyclochæta astropectinis*. Their immediate genetic continuity.

RENÉ GARNIER: Two classical theorems of conformal geometry.

D. MANGERON: Certain problems at the polygonal boundary not totally characteristic for a class of partial differential equations of higher order.

M. LUNTZ: Alternating thermoconvective vortices in a thin layer.

DOUCHAN AVSEC: Thermoconvective vortices in superposed layers.

ALBERT TOUSSAINT and SIMON STRIJEVSKY: The envelope curves of the yield for the best propelling screws.

SVETOPOLK PIVKO: The flow of air in the plane of rotation of a supporting helix.

RENÉ RETEL: Supplying fuel to a motor with combustion at constant pressure.

ASSÈNE DATZEFF: The passage of corpuscles through potential barriers.

BERNARD KWAL: The classical dynamics of the electron. Theory of prime functions and the true moment of the electron.

PIERRE VERNOTTE: The simultaneous determination of the specific heat and the thermal conductivity of insulators. Method of the signal.

JEAN TERRIEN: Stimulation of the CuCl bands by fluorescence in the vapour of cuprous chloride.

FRED VLÈS and ERWIN HEINTZ : The interpretation of the infra-red spectrum of the proteins. The qualitative and quantitative recognition of the constituent amino acids in the spectra of the proteins is in accord with Fischer's theory of the peptide structure of the proteins : it also supports to some extent the diketopiperazic theory of Abderhalden. It appears to be opposed to the polycyclic theories, which assume a structure where the amino acids are not preformed in the protein molecule.

PAUL SOLEILLET : The passage of the Zeeman phenomenon to the Paschen-Back phenomenon of hyperfine structure in the polarization of resonance radiations.

PIERRE AUGER and MME. GRIVET MEYER : The secondary effects of cosmic rays in free air and in the subsoil.

NARCUS BRUTZCUS : Contributions to the thermochemistry of the hydrocarbons.

ALBERT MICHEL-LÉVY and HENRI MURAOUR : A series of photographs of phenomena accompanying the detonation of an explosive taken at intervals of 0·00001 sec. From earlier experiments, the authors had drawn the conclusion that the intense luminous phenomena caused by the detonation of explosives are caused by the action of the shock wave on the surrounding atmosphere and not to the explosion gases. This view is confirmed by the photographs now described and illustrated.

RENÉ PARIS and PAUL MONDAIN-MONVAL : The influence of small quantities of metallic oxides on the crystallization of zinc borate.

PIERRE DONZELOT and JEAN BARRIOL : The oscillations of the carbon chain of the benzene molecule.

MAURICE BONZEL : The disturbances brought about by cold hardening on the dilatometric diagram of metals.

ADRIEN PERRET and ALBERT BANDERET : The relations between cyanide, cyanamide and nitride in some elements of the rare earth group.

MAX GELOSO and MLLE. EVELINE GIORDANO-ORSINI : The precipitation of copper sulphate by soda.

MARC TIFFENAU and PAUL WEILL : The dehydration of divinylglycol by sulphuric acid. Transposition of the hydrobenzoin type with migration of the vinyl radical. Divinylglycol, dehydrated with 50 per cent sulphuric acid, gives mainly vinylcrotonic aldehyde.

PAUL RUMPF : The synthesis of the aminosulphonic acids in the fatty series. Introduction to their electrochemical study.

EDMOND URION and ERNEST BAUM : The catalytic and acid dehydration of divinylglycol. The temperature of the dehydration appears to be the main factor determining the nature of the aldehyde produced by the action of catalysts.

B. MARTIN : Curves of dispersion of the reflective powers of some natural tellurides.

PAUL GAUBERT : The diffusion under the action of heat of the colouring material in crystals of artificially coloured phthalic acid.

LOUIS ROYER : The thermoluminescence of certain crystallophyllian and eruptive rocks of Algeria.

PIERRE COMTE : The Cambrian and Silurian series of Léon (Spain).

GEORGES CHOUBERT : The geology of the middle Moulouya and the eastern end of the Haut-Atlas.

CHARLES BOIS : Comparison between the values of the focal depth of earthquakes determined by means of Wadati tables and those obtained by means of Brunner curves.

GUSTAVE NICOLAS and MLLE. BERTHE AGGÉRY : The persistance of chlorophyll as a result of bacterial action.

EMILE MICHEL-DURAND : The alteration of the nucleic compounds of plants in the course of their extraction in a trichloracetic medium. Experiments proving that contact with a cold 10 per cent solution of trichloracetic acid produces a notable alteration in the nucleic compounds of the tissues.

RENÉ MORQUER : Morphogenic researches and vital concurrence in the Hypocreaceæ growing on vines.

MAURICE DE CARAMAN and CHRISTIAN CHAMPY : The supposed sterility of the tiger lily (*Lilium tigrinum*) due to its triploid nature.

GUSTAVE MALÉCOT : Some consequences of Mendelian heredity.

LUCIEN BALOZET : The evolutive cycle of *Brachylæmus suis*.

Amsterdam

Royal Academy (*Proc.*, **40**, No. 1 ; 1937).

F. M. JAEGER : Relative and absolute spatial configuration of isomorphous, optically active, complex salts of trivalent cobalt and rhodium. (1) Comparison of the triethylenediamine and tricyclohexanediamine salts.

F. M. JAEGER and L. BIJKERK : Investigations on complex salts of racemic and optically active cyclohexane-1-2-diamines with trivalent cobalt and rhodium. (1) Trans-cyclohexane-1-2-diamine and its fission into optically active antipodes.

J. BÖESEKEN and E. DE ROY VAN ZUYDEWIJN : Some properties of unsaturated sulphanes.

C. U. ARIENS KAPPERS : The spread of primitive humanity and its links with the more differentiated races as revealed by cephalic and cranial index curves.

P. J. HARINGHUIZEN and D. A. WAS : Investigation of thin layers of tin and other metals. (3) The interaction between metals and lubricating oils. Corrosion tests on copper, tin and lead in lubricating oils. The viscosity, surface tension and acidity of the oil are not influenced by reaction with the metal.

D. SCHEPEL : The number of lattice points on and in the neighbourhood of certain curves.

H. FREUDENTHAL : Manifolds and their representations.

N. ARONSZAJN : The lacunæ of a polyhedron and their relations to Betti's groups.

H. G. BUNGENBERG DE JONG and L. W. J. HOLLEMAN : Examples of stable unmixing in binary systems : salt and water. The bichromate of novocain in water shows the phenomenon of stable unmixing at 74° C. (co-existence of two liquid layers).

E. GORTER and L. MAASKANT : (1) The spreading of protamine insulinate. (2) The spreading of urease and Bence-Jones protein.

S. DE BOER and A. BROUWER : The action of medicines on auricular fibrillation. (2) The action of hydroquinidine, quinidinum purissimum, hydroquinine and quininum purissimum on auricular fibrillation.

I. M. KOLTHOFF : Ageing of fresh precipitates in contact with a liquid medium. The irreversible flocculation of colloids.

Sydney

Royal Society of New South Wales, December 2.

H. G. RAGGATT: Probable late Silurian age of Serpentine, Condobolin-Trundle District, N.S.W. The dominant rocks of the Condobolin-Trundle district are cleaved argillaceous sediments which fossil evidence indicates are Silurian in age. Devonian rocks overlie the Silurian with marked unconformity. Serpentine and other basic rocks are found intruding the Silurian and cleaved in like degree. Pebbles of serpentine are found in basal Devonian (Middle to Upper) conglomerates. It seems probable, therefore, that the Serpentine was intruded during the late Silurian diastrophism.

R. G. GIOVANELLI: Energy distributions in the spectra of some gaseous discharge tubes. A spectroscope having been fitted with a wedge-shaped slit, the continuous spectrum was compared with black-body radiation, and found to have a colour temperature of about 5000° A. The energies in the lines were determined in terms of continua, and the total luminosities associated with the lines and continua compared.

H. FINNEMORE and D. K. LARGE: Cyanogenetic glucosides in Australian plants (6). *Goodia lotifolia*. An unstable cyanogenetic constituent. *Goodia lotifolia* Salisb. the so-called clover tree, yields in the fresh condition 0·14 per cent of hydrocyanic acid, corresponding to 0·86 per cent on the material dried at 100°. When dried in the air for two days, about 75 per cent of this was lost; the rate then slows down and after about a month only a trace is present. Museum specimens are therefore negative. Steaming for ten minutes removed more than 99 per cent of the acid present. The acetone extract on careful drying and washing with dry ethyl acetate yielded the glucoside of parahydroxybenzaldehyde, recognized after its hydrolysis with emulsin by its constituents and by the hydrolysis of its phenyl hydrazone. Associated with this glucoside was an unstable cyanogenetic material, possibly its cyanhydrin, which continuously gave off hydrocyanic acid, the richest sample contained 2·9 per cent, the whole of this being removed by ten minutes' steaming.

A. R. PENFOLD and F. R. MORRISON: The occurrence of a number of varieties of *Eucalyptus radiata* (*E. numerosa*) as determined by chemical analyses of the essential oils (2). A tree planted from the seed of *Eucalyptus radiata*, Variety *A*, threw two stems from the one root system. The leaves and terminal branchlets were separately examined, when the essential oils were found to differ from one another not only in yield, but also in chemical composition. This provides definite confirmation of the contention that a species described as *Eucalyptus Lindleyana*, Variety *stenophylla* by W. F. Blakely in 1934 does not exist, for the evidence shows that *E. radiata* (*E. numerosa*) and Blakely's variety *stenophylla* have been found growing together on one and the same plant. This observation will exert a considerable influence not only on the economics of the eucalypts, but also upon the botanical classification of this important group of trees.

H. J. HYNES: Species of *Helminthosporium* and *Curvularia* associated with root-rot of wheat and other graminaceous plants. It is pointed out that seven distinct species of *Helminthosporium* have been isolated by various workers from foot-rot-affected wheat in different countries. Of these, three have been isolated and studied by the author from Australian material. The morphological characters of isolates of each of these species are discussed, and it is pointed out that as a result of K. B. Boedijn's new classification in which the small-spored species of *Helminthosporium* are included, the species *Helminthosporium M.* should now be designated as *Curvularia ramosa* (Bainier) Boedijn, and *H. tetramera* as *C. spicifera* (Bainier) Boedijn. The principal features of the new genus, *Curvularia*, are outlined.

Vienna

Academy of Sciences, December 17.

FRANCES G. WICK: Triboluminescence. Triboluminescence may be due to electrical discharges through the air around the crystal, or to radiation from centres in the crystal. These centres may be produced by X-rays, or they may be a characteristic of the crystal itself. In the latter case, they can be destroyed only by pulverizing the crystal.

HANNE LAUDA: Decay of the latent image on the photographic plate. The decay of the latent image is greater at high temperatures, at high intensities of illumination, and for low densities.

KASIMIR GRAFF: Colorimetric measurement of stars down to mag. 6·3 between 10° and 40° S. Decl.

S. REISCH: Galvanomagnetic method of measuring small displacements. The displacement is communicated to a coil of bismuth wire in a magnetic field, and the resulting change of resistance is measured.

G. KOLLER and H. CZERNY: Limonin, the bitter principle of orange seeds.

KARL FEDERHOFER: Normal vibrations of an axially compressed circular cylindrical shell.

K. KARAS: Normal vibrations of non-uniform strings.

January 14.

F. WESSELY and K. JENTZSCH: Bitter principle of Columbo wood (5). Methylation of columbin.

JULIUS PIA: Tectonics of the Prague Dolomites (South Tyrol).

ALFRED JELINEK: (1) Mechanics of periodic mountain winds. (2) Production of periodic mountain winds by thermal fluctuations.

A. BURGER and E. EKHART: Daily circulation of the atmosphere in Alpine regions.

JOSEF PRIEBSCH and H. KRAMER: Effect of temperature on cosmic rays. Observations at Hafelekar (2,300 m. above sea-level) with an unscreened Steinke apparatus show that there is a temperature effect with even the softest cosmic rays. The sign of the correlation coefficient, however, changes during the course of the year, being positive in summer and negative in winter. Observations with a screened apparatus give a negative correlation coefficient throughout the year.

F. HERITSCH: Rugose corals from Timor, Djoulfa and the Salt Range, with notes on the stratigraphy of the Permian.

January 21.

GEORG KOLLER and HERTHA RUSS: Constitution of solorinic acid.

K. W. F. KOHLRAUSCH and R. SKRABAL: Studies of the Raman effect (64). Cyclopentane and cyclobutane carboxylic acids and their derivatives.

FRANZ BUKATSCH: Influence of the thermal waters of Bad-Gastein on the assimilation of carbonic acid by various water plants.

HERBERT HABERLANDT: Luminescence of fluorites and other minerals (3).

EMIL HAUCK: Cranial form of the coyote (*Canis latrans*).