

Societies and Academies

Edinburgh

Royal Society, June 1.

E. M. ANDERSON: The dynamics of the formation of cone-sheets, ring-dykes, and caldron-subsidences. Cone-sheet and ring-dyke systems are best known in Scotland and Northern Ireland, but are not confined to these districts. Cone-sheet formation may be explained by an excess of pressure, and ring-dyke formation by a defect of pressure, in an underlying magma basin, with a more or less dome-shaped roof. Solutions of the equations of equilibrium corresponding to certain shapes of basin have been found by the author.

J. B. SIMPSON: Fossil pollen in Scottish Tertiary coals. Lignites of early Tertiary age from Ardnurchan and Mull, treated with Schulze's solution and alkali, yield a residue rich in well-preserved pollen. By this means, twenty genera of plants have been identified so far, including several not previously recorded as Scottish fossils. Of the gymnosperms *Cedrus* pollen is most abundant; *Abies* also has been noted. Dicotyledons include *Alnus*, *Engelhardtia*, *Magnolia*, *Planera*, five of the Asiatic genera of the Hamamelidaceæ and the Madagascan genus *Dicoryphe*. The present-day eastern Asiatic flora shows marked affinities with this ancient Scottish flora. (See also NATURE, Feb. 22, p. 321.)

H. P. DONALD: On the suppression of Tangled in *Drosophila pseudo-obscura*. An additive interaction of genes causing gaps in the venation with one causing extra tangled venation has shown that the phenotypic manifestation of a gene is no indication of its capacity to suppress the effects of another, and that genes with a recessive manifestation may have a dominant suppressing action which is not localized to the regions where the gene itself has visible effects.

H. W. TURNBULL: The revised prepared system of the quadratic complex. This deals with one aspect of the invariant theory of quadratic forms in six variables by supplementing a previous communication in 1928 to the Society.

W. LEDERMANN: On singular pencils of Zehfuss, compound and Schläflian matrices. The paper is concerned with obtaining the canonical form of pencils of matrices related to two given matrices. The types considered are the compound, power and product transformations. Quite recently Roth, Aitken and Littlewood have dealt with the non-singular cases of these. The present paper completes the work of these authors by enumerating and solving all the outstanding singular cases.

Paris

Academy of Sciences, May 25 (C.R., 202, 1725-1824).

DIMITRI RIABOUCHINSKY: Comparative research on the aerodynamics of small and of large velocities.

JACQUES DE LAPPARENT: The formula and structural scheme of attapulgite.

DANIEL DUGUÉ: Certain modes of convergence of laws of estimation.

SERGE FINIKOFF: Some conjugated networks.

CONSTANTIN DRAMBA: The singularities of the restricted problem of three bodies.

EUGÈNE LEIMANIS: The solutions of a differential system in the neighbourhood of a singular multiplicity.

A. D. MICHAL and E. W. PAXSON: The differential in linear abstract spaces with a topology.

FLORIN VASILESCO: The generalized problem of Dirichlet and its relations with *balayage*.

RAYMOND VALTAT: A calculating machine based on the use of binary numeration.

MAURICE D'OCAGNE: Remarks on the preceding note of Raymond Valtat.

PAULINO CASTELLS VIDAL: A machine for resolving systems of linear equations.

JOSEPH CHALOM: Reaction pumps.

A. TOUSSAINT and S. PIVKO: Guided plane stream. The influence on the aerodynamical characteristics of supporting wings.

LOUIS BREGUET: The possibilities of speed and radius of action of gyroplanes. From a theoretical study it is concluded, that in addition to the advantages of vertical take-off and alighting, gyroplanes (helicopters) should, other conditions being equal, have a higher velocity and greater radius of action than ordinary aeroplanes.

MAX SERRUYS: The influence of turbulence on the polytropic coefficient of expansion in petrol motors.

STÉPHAN SERGHIESCO: The formula of Fresnel in a corpuscular theory of light.

GEORGES DURAND: The application of the mass-luminosity relation to the visual double stars.

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

ROGER JULIA and JEAN FALLOU: The extension of the properties of the quadrupole to the most general balanced polyphase systems.

ANDRÉ MICHEL: The conditions of demagnetization of rhombohedral ferric oxide.

ROGER SERVANT: Measurements of double refraction in the extreme ultra-violet. The measurements of P. Sève were given to 2400 Å.; the author extends these to about 1860 Å. and intends to extend the work in the Schumann region up to the extreme limit of transparency of the crystalline specimens.

LÉANDRE CAPATOS and NICOLAS PERAKIS: The magnetic study of the mixed crystals of divalent copper and silver. Measurements made with the complex compounds of pyridine with persulphate of copper and of silver, and of mixed crystals of the type $(Ag_xCu_y.4Py)_2S_2O_8$, where x and y vary from 0 to 1.

GEORGES AHIER: Christiansen filters. These light filters consist of a cell containing powdered glass rendered transparent by immersion in a liquid of the same refractive index. For the liquid, solutions of bromomercurate or iodomercurate of potassium and barium fulfil the required conditions better than the organic liquids usually employed.

VICTOR LOMBARD, CHARLES EICHNER and MAXIME ALBERT: The permeability of palladium to hydrogen. Loss of the diffusing power of pure palladium under the action of temperature. Regeneration of the poisoned palladium. A sheet of pure palladium, after exposure to a temperature of 500° C. or higher, suffers a marked diminution in its permeability to hydrogen. Oxidation in a current of air at 500° C. with subsequent reduction in hydrogen below 140° C. restores the permeability almost to the original figure.

Mlle. O. HUN: The determination of the total hydration of the ions of potassium iodide, by the cryoscopic method.

AUGUSTIN BOUTARIC and Mlle. PAULETTE BERTHIER: The mechanism of the ascent of hydrosols and of coloured solution through porous bodies.

Mlle. LUCIENNE CHAUMETON: The silver salts of amidosulphonic acid.

OSIAS BINDER and PIERRE SPACU: The action of malonic acid on cobaltidichloro-*trans*-diethylene-diamine chloride.

ANDRE BOULLÉ: Calcium metaphosphates and pyrophosphates.

PAUL LACOMBE and GEORGES CHAUDRON: The mechanism of the decomposition of aluminium-magnesium solid solutions.

HENRI FOURNIER: The application of the methods of micro-chemical analysis to the study of the corrosion of light aluminium alloys. Two alloys were studied, duralumin and an aluminium alloy with 8 per cent magnesium. The amounts of aluminium determined were of the order of micrograms.

ROGER PAJEAU: The action of bromine in excess on some benzene derivatives in the presence of beryllium bromide.

LOUIS DANGEARD: Study of the oolitic limestones by staining and decalcification. Staining followed by slow decalcification brings out details of certain micro-organisms concerned in the precipitation of calcium carbonate and in the evolution of a large number of ooliths.

THEODORE MONOD: New data on the structure of the western Sahara.

MARCEL GAUTIER: The stratigraphy of the region of Nemours (Algeria).

ARMAND RENIER: The structural plan of the subsoil of Belgium, chiefly from mining operations.

EMILE BELOT: Geophysical and mineralogical consequences of the hypothesis that the earth has had a vortex tube for origin.

HUBERT GARRIGUE: New results on the light of the night sky.

HENRI MARCELET: The presence of hydrocarbons in the product removed by deodorization in the refining of arachis oil.

PAUL RIOU, GERARD DELORME and HORMISDAS: The distribution of manganese and iron in the pines of Quebec.

ETIENNE FEX and MAURICE LANSADÉ: The pathogenic action of a form of *Fusarium oxysporum* isolated from the potato.

DOMINGO M. GOMEZ: The decrease of arterial pressure as a function of time. Its determination in man by a piezoelectric method.

LEOPOLD NÈGRE, ALBERT BERTHELOT and JEAN BRETEY: The action of ethyl stearate on the evolution of experimental tuberculosis of the guinea pig. In guinea pigs submitted to the action of ethyl stearate, the lesions appear later than in untreated animals.

PIERRE DRACH: The water absorbed in the process of exuviation; fundamental data for the physiological study of moulting. Definitions and quantitative determinations.

MME. VERA DANTCHAKOFF: Some factors determining secondary sexual characters.

Mlle. N. CHOUCROUN: Superficial electrification, a specific character of bacteria.

Vienna

Academy of Sciences, April 23.

GUNTHER LOCK and GÜNTHER NOTTES: Derivatives of 3,5-dimethoxybenzaldehyde (5). The Cannizzaro reaction. In the chlorination, bromination and nitration of 3,5-dimethoxybenzaldehyde only the hydrogen atom next to the aldehyde group undergoes substitution.

OTTO DISCHENDORFER and AUGUST VERDINO: Condensation of benzoin and thymol (2). Determination of the constitution of the nitration products of 4-methyl-7-isopropyl-2,3-diphenylcumarone.

MAX PESTEMER and FRIEDRICH MANCHEN: Ultra-violet absorption of some aromatic hydrocarbons (4). Constitution of hexahydroxyrene.

OTTO REDLICH and WALTER STRICKS: Raman spectra of *o*-dideuteriobenzene and *N*-deuteriopyrrole.

ANTON KAILAN and SIEGFRIED ROSENBLATT: Velocity of esterification of alcohols in formic and acetic acid, and of formic acid in tertiary butyl alcohol.

L. ZECHMEISTER and L. v. CHOLNOKY: Thirty years of colour science.

R. JAGITSCH and A. MASCHIN: Reactions in the solid state (2). A study of the formation of copper ferrite by the Hahn emanation method.

LUDWIG ECKHART: The line of striction of a hyperbolic ruled surface.

HUGO BONDY and VIKTOR VANICEK: Relative abundance of potassium and lithium isotopes and the emission of alkali ions from glass melts. The abundance ratios of potassium and lithium isotopes from different glass melts were found to be $^{39}\text{K}/^{41}\text{K} = 14.1$ and $^7\text{Li}/^6\text{Li} = 12$. If a glass melt contains several alkali metals, the emission at low temperatures is due almost entirely to the element with the lowest ionization potential, and the surface of the melt undergoes impoverishment of the elements of higher ionization potential.

ERWIN FISCHER COLBRIE: Nuclear disintegration by a radium B + C source (2). Nitrogen. Protons liberated by radium C' α -particles from nitrogen are found, by absorption measurements, to form two groups of different energy.

ADRIAN SCHUSTER: Tenebrionid (Col.) finds of Prof. Franz Werner and Dr. Otto Wettstein in the Greek Aegean Isles and in the Italian Dodecanese in 1934 and 1935.

E. STEINACH, H. KUN and O. PECZENIK: Recent researches on the action of sex hormones. (1) Castrated male rats do not show hyperaemia of the brain on injection with androsterone unless this contains oestrogenic substances. (2) The minimum dose of free male hormone required by castrated rats before copulation with a female occurs is reduced to nearly a third by the injection of female hormone. (3) The male organism is capable of converting excess male hormone into a substance with oestrogenic properties.

KARL KARAS: Kinematics of an expanding sheet.

April 30.

F. E. SUESS: Interpretation of the occurrence of pumice stone at Kofels in Oetztales. It is suggested that this occurrence and the peculiarities of the surrounding terrain are best explained as the result of the impact of a large meteorite.

FRITZ LIEBEN and BELLA BAUMINGER: The behaviour of sugars and formic acid in the presence of oxidizing bacteria.

RICHARD SCHUMANN: The moon, sun, and variations of latitude (1).