

## Societies and Academies

## London

Royal Society, December 9.

R. W. GURNEY and N. F. MOTT: Theory of the photolysis of silver bromide and the photographic patent image. An attempt is made to explain the photolysis of silver halides in terms of the concepts of atomic physics. The mechanism by which the silver atoms formed by the light coagulate to form specks of metallic silver is discussed. The ideas used in this discussion are then turned to the photographic latent image, and are shown to account qualitatively for the variation of developed density with temperature, and, for given exposure, with intensity of light. A brief discussion is given of the Herschel effect, and of sensitization by dyes.

A. L. REIMANN: The temperature variation of the work functions of clean and of thoriated tungsten. Measurements were made of the contact potential difference between a constant source of electrons and a neighbouring tungsten filament collecting space-charge-limited electron current, the condition of which was varied. This filament was either clean or covered with a layer of thorium atoms, and, in addition, it was held at various temperatures. In this way direct information was obtained concerning the rates at which the work functions of clean and fully activated thoriated tungsten (W-Th) vary with temperature. Within the limits of experimental uncertainty there is no difference between the temperature coefficients of the two work functions. The temperature coefficient found is about that which would be required to account for the observed value of the thermionic constant  $A$  of clean tungsten on the assumption of practically perfect transmission. It must be concluded that the factor (of the order of 10–20) by which the  $A$  of W-Th is less than that of clean tungsten is due to internal reflection of electrons at the W-Th surface.

## Paris

Academy of Sciences, November 3 (*C.R.*, 205, 761–824).

GEORGES CLAUDE: The search for aeroplanes lost at sea. Remarks on the use of fluorescin.

ROBERT ESNAULT-PELTERIE: The coefficient of self-inductance of a solenoid. Two approximate formulæ are suggested, one giving an accuracy of 3 per cent and the other of 0.1 per cent.

GEORGES GIRAUD: A new category of equations where the principal values of integrals are represented.

JEAN CABANNES and CHARLES BOUHET: An attempt at the classification of the Raman lines of a quartz crystal.

MARC KRASNER: The definition of certain non-commutative rings. The classification of the primitive extensions of bodies with discrete valuation.

E. J. GUMBEL: The generalization of Boole's inequality.

HENRI CARTAN: Filters and ultra-filters.

ERNEST VESSIOT: The equations  $F(x, y, z, p, q, r, s, t) = 0$  which have a general explicit integral.

MICHEL GHERMANESCU: A new class of nuclei of Fredholm.

JEAN LERAY: The solution of the problem of Dirichlet.

JEAN DUFAY and SSU PIN LIAU: The colour indices of the  $O$  and  $B$  stars and the selective absorption of light in space.

GEORGES REBOUL and JEAN REBOUL: The ionizing radiations of low quantum emitted spontaneously by the ordinary metals. Ordinary metals, like the true radioactive metals, constantly emit radiations. These appear to belong to the bands situated in the region of the soft X-rays.

VITOMIR H. PAVLOVIĆ: An improved apparatus for the subjective study of colour mixing.

RENÉ BERNARD: Stimulation potentials of the  $B^3H$  and  $C^3H$  levels of the nitrogen molecule.

TIEN KIU: Remarks on photographic plates sensitized with salicylate.

ALEXANDRE TRAVERS and ROBERT DIEBOLD: The isolation of pure cementite by acid attack of ferrous materials and on some physical properties of this body. The product isolated contained 6.6 per cent of carbon, the theoretical figure being 6.67 per cent. The Curie point, electrolytic potential and X-ray spectrum were determined.

PAUL COUTURIER: The action of mixed organo-magnesium derivatives on some hydroxy or alkoxy aromatic amides.

PIERRE MASTAGLI: The reducing action of the alkaline benzylates on hydratropic and  $\alpha$ -alkylcinnamic aldehydes.

GEORGES DUPONT and CHARLES PAQUOT: Some reactions of isoprene and of dimethylbutadiene.

GEORGES BRUHAT and ANDRÉ BLANC-LAPIERRE: The double refraction of quartz by compression and its dispersion in the ultra-violet.

GEORGES DÉJARDIN, ALBERT ARNULF and DÉMÈTRE CAVASSILAS: The absorption coefficients and average temperature of atmospheric ozone.

DAVID MALAN: Stormy discharges in the upper atmosphere.

RENÉ SOUÈGES: The embryogeny of the Convolvulaceæ. The development of the embryo in *Convolvulus arvensis*.

MARCEL GOMPEL: Researches on the oxygen consumption of some coastal aquatic animals.

PAUL WINTREBERT: Morphogenesis and epigenetic induction.

AUGUSTE and RENÉ SARTORY and JACQUES MEYER: The infection of cultures with a fungus by *Rhizoglyphus echinopus*, a parasite of the potato.

GEORGES MOUIRQUAND and HENRY TÊTE: Chronic food deficiency (partial C avitaminosis). Reversible and irreversible processes.

## Moscow

Academy of Sciences (*C.R.*, 16, No. 4, 1937).

N. M. ERMOLAJEV: The expansion of an infinite integral into a semi-convergent series.

G. A. TIKHOV: The deviation of light rays in the gravitation field of stars.

A. A. ULJANOV: Radiations accompanying the corrosion of metals (1).

V. I. NIKOLAJEV and A. K. SENJUTA: Dehydration of mirabilite *in vacuo*.

A. IMŠENECKI: The morphology of large bacterial cells.

P. A. POVOLOČKO: (1) Chromosome morphology in *Punica granatum* L. (2) Causes of sterility in winter-grown plants of *Nicotiana tabacum*.

M. CH. ČAJLACHJAN: Concerning the hormonal nature of the plant development process.

B. A. ZENKOVIČ : Food of the Far Eastern whale.

A. A. VORTKEVIČ : Morphogenetic activity of different parts of the hypophysis (6). Experiments with the implantation of the posterior part of the hypophysis to tadpoles.

V. V. POPOV and V. S. POPOV : Is the cornea of metamorphosed anurans determined ?

V. V. POPOV, S. P. EVDOKIMOVA and A. G. KRYMOVA : The lens-forming activity of the epidermis in larval and adult Amphibia.

V. V. POPOV, M. N. KISLOV, M. F. NIKITENKO and P. S. ČANTURIŠVILI : The lens-forming activity of epithelium in embryos of *Pelobates fuscus*, *Bufo viridis*, *Bombina bombina* and *Triton cristatus*.

## Vienna

Academy of Sciences, October 14.

W. OBERHUMMER : Possibility of dissolving chromic oxide and chrome iron ore at room temperature. Silver nitrate catalyses the solution of chrome iron ore by dilute sulphuric acid.

GERTRUD WILD : Spectroscopic analysis of fluorites. The presence of rare earths in natural fluorites is confirmed.

E. EPSTEIN : Electrical precipitation of the disperse phase of organic and inorganic dispersoids by radium emanation.  $\alpha$ -Particles cause a reduction of the charge and an increase in the size of the particles in phosphatide and gold sols, leading in the former case to flocculation and in the latter case to colour changes.

K. SCHWARZ and F. EBSTER : Apparatus for the production of electrons of very high energy.

F. SCHOSSBERGER : (1) Use of the fine structure of X-ray absorption edges for the determination of crystal structure. (2) Precision X-ray camera for obtaining powder diagrams at high temperatures, and an apparatus for measuring X-ray diagrams.

C. NEUBERG and C. H. SCHWETZER : Agar-agar.

D. BALAREW : Application of the phase rule to crystal systems.

H. MACHE and O. MOSZKOWICZ : Ionization of air at low pressures by  $\gamma$ -rays : parabolic law for the ionization current. It is shown that if, for pressures greater than 100 mm., current-potential curves be plotted for various amounts of ionization, then points corresponding to the same degree of saturation all lie on a parabola.

H. PRZIBRAM, LEONORE BRECHER and MARTHA GEIRINGER : Colamin, the physiologically active component of choline.

F. MAUSER : Synchronous metamorphosis of the legs of *Dixippus morosus* Br. et Redt.

GERTA SCHMID : Conditions for the development of the imaginal red coloration on the fore legs of *Dixippus morosus* Br. et Redt.

O. HRABIK : Local transformation of solid and hollow bones of *Molge cristata* Laur. It is possible to interchange a hollow bone from one limb with a solid bone from another. In certain cases these bones become transformed so as to become appropriate to their new position.

A. W. REITZ and R. SABATHY : Studies of the Raman effect (78). Nitrogenous substances (8). Nitriles.

A. WARSBERG : Influence of morphine on the excretion of salt in the urine.

K. FEDERHOFER : Normal vibrations of spherical shells (2).

## Appointments Vacant

APPLICATIONS are invited for the following appointments, on or before the dates mentioned :

JUNIOR SCIENTIFIC OFFICERS (chemist and engineer) at the Fuel Research Station, East Greenwich—The Establishment Officer, Department of Scientific and Industrial Research, 16 Old Queen Street, S.W.1 (December 30).

SENIOR LECTURER IN HIGHWAY ENGINEERING in the University of the Witwatersrand—The Secretary, Office of the High Commissioner for the Union of South Africa, South Africa House, Trafalgar Square, W.C.2 (January 7).

LECTURERS IN CIVIL, ELECTRICAL AND MECHANICAL ENGINEERING in the University of Cape Town—The Secretary, Office of the High Commissioner for the Union of South Africa, South Africa House, Trafalgar Square, W.C.2 (January 19).

PROFESSOR OF MINERALOGY AND GEOLOGY in the University of Cape Town—The Secretary, Office of the High Commissioner for the Union of South Africa, South Africa House, Trafalgar Square, W.C.2 (January 31).

ASSISTANT for research on various diseases of small fruits at the East Malling Research Station, East Malling, Kent—The Secretary.

## Official Publications Received

### Great Britain and Ireland

Royal College of Surgeons of England. Scientific Report for the Year 1936-1937. Pp. 40. (London : Royal College of Surgeons of England.) [1511]

Board of Trade. Statistical Abstract for the British Empire for each of the Ten Years 1927 to 1936 (Trade and Commerce Section). (No. 66.) (Cmd. 5582.) Pp. xv+229. (London : H.M. Stationery Office.) 3s. 6d. net. [1511]

ULAWS Monographs and Reports, No. 2a : Report of a Discussion on the Destruction of Sea-Birds by Oil Waste, held at University College, University of London, on May 10, 1937. Pp. 16. (London : University of London Animal Welfare Society.) [1611]

Twenty-one Years : a Professor looks out on the Glass Industry. Being the Presidential Address delivered on the occasion of the Twenty-first Anniversary Meeting of the Society of Glass Technology, at Sheffield, November 9th, 1937. By Prof. W. E. S. Turner. Pp. 70. (Sheffield : Society of Glass Technology.) 10s. [1611]

Science Museum : Board of Education. (Catalogue of the Atom Tracks Exhibition (November 1937—February 1938). The Results of 25 Years of Research by Prof. C. T. R. Wilson's Expansion Chamber Method, in which the Tracks of Individual Atoms and Electrons are rendered Visible and Photographed. (Compiled by Dr. P. A. B. Ward. Pp. 28. (London : H.M. Stationery Office.) 6d. net. [1611]

### Other Countries

Annual Report of the Board of Regents of the Smithsonian Institution, showing the Operations, Expenditures and Condition of the Institution for the Year ended June 30, 1936. (Publication 3405.) Pp. xiv+446+122 plates. (Washington, D.C. : Government Printing Office.) 1.50 dollars. [1511]

Indian Forest Records (New Series). Vol. 3, No. 4 : Entomological Investigations on the Spike Disease of Sandal (32) Lygaeidae (Hemipt.). By N. C. Chatterjee. Pp. 105-122. 8 annas ; 10d. Vol. 3, No. 5 : Cis Latr. et Anobiides nouveaux des Indes (Coléoptères). Par M. Pic. Pp. 123-126. 3 annas ; 4d. Vol. 3, No. 6 : Immature Stages of Indian Coleoptera (22). By J. C. M. Gardner. Pp. 127-140. 12 annas ; 1s. 3d. (Delhi : Manager of Publications.) [1511]

Indian Central Cotton Committee : Technological Laboratory. Technological Bulletin, Series A, No. 38 : Technological Reports on Trade Varieties of Indian Cottons, 1937. By Dr. Nazir Ahmad. Pp. v+145. (Bombay : Indian Central Cotton Committee.) 1.8 rupees. [1511]

Queen Victoria Memorial, Salisbury. Annual Report for the Year ended 31st March 1937. Pp. 8. (Salisbury, S. Rhodesia : Queen Victoria Memorial.) [1611]

South African Institute for Medical Research. Annual Report for the Year ended 31st December 1936. Pp. 98+2 plates. (Johannesburg : South African Institute for Medical Research.) [1611]

Proceedings of the United States National Museum. Vol. 84, No. 3023 : On the Detailed Skull Structure of a Crested Hadrosaurian Dinosaur. By Charles W. Gilmore. Pp. 481-492. Vol. 84, No. 3022 : Annotated List of West Virginia Mammals. By Remington Kellogg. Pp. 443-480. (Washington, D.C. : Government Printing Office.) [1611]

### Catalogues, etc.

Moll Recording Microphotometers. (MF 37.) Pp. 12. (Delft : P. J. Kipp and Zonen.)

Calendar for 1938. Pp. 32+32+32 maps+Diary. (Bonnybridge : John G. Stein and Co., Ltd.)

Books for Presentation. (Catalogue No. 543.) Pp. 60. (London : Bernard Quaritch, Ltd.)

Kodak X-Ray Materials and Accessories. Pp. 40. Kodak X-Ray Reduction Camera. Pp. 8. (London : Kodak, Ltd.)

Zeiss Nachrichten. Sonderheft 2, August 1937. Pp. 48. Folge 2, Heft 3, August 1937. Pp. 81-112. (Jena : Gustav Fischer.)