

## Societies and Academies

## PARIS

Academy of Sciences, May 11 (*C.R.*, 202, 1541–1628). LÉON LECORNU: The elasticity coefficients of an anisotropic body. RICHARD FOSSE, PAUL DE GRAEVE and PAUL EMILE THOMAS: The synthesis of cyanic acid by the action of phosgene on ammonia. Phosgene and cold aqueous ammonia give urea only as a secondary product; the primary product is cyanic acid. JEAN BAPTISTE SENDERENS and JEAN ABOULENC: The action of sulphuric acid, in the gaseous phase, on alkyl chlorides and bromides. The monosubstituted derivatives give carbon, hydrochloric acid (or bromine), sulphur dioxide, carbon monoxide and dioxide. Less carbon is formed with the di- and trisubstituted derivatives. Carbon tetrachloride gives phosgene. HENRI LAGATU and LOUIS MAUME: On the possibility of variations in opposite sense and of great amplitude, in the course of the same year, for the nitrogen, phosphorus, potassium equilibrium in the leaf of a cultivated plant. GEORGES PÓLYA: The number of isomers of certain chemical compounds. EUGÈNE BLANC: The distance of two ensembles. ANDRÉ KOLMOGOROFF: The Betti groups of metric spaces. ENRICO VOLTERRA: The deformation of elastic arcs. STEPHAN SERGHIESCO: A mechanical theory of the corpuscle of light. LABARTHE, VICHNIEVSKY and Mlle. MANSON: The nature of the vibratory phenomena due to certain combustions of the fluid developed in a thermal motor. HENRI MÉMERY: A solar period of 100 years. ANDRÉ LALLEMAND: The determination in absolute values of stellar magnitudes. ALBERT ARNULF, DANIEL BARBIER, DANIEL CHALONGE and Mlle. RENÉE CANAVAGGIA: Colour temperatures and continuous absorption of hydrogen for stars of the first spectral types. MAX GELOSO: The mechanism of the electrolysis of manganese salts. NICOLAS KÜRTI, PAUL LAINÉ, BERNARD VINCENT ROLLIN and FRANZ SIMON: The appearance of ferromagnetism in some paramagnetic salts at very low temperatures. Experiments carried out with the large Bellevue magnet. Ferric ammonium alum, at temperatures below 0.03 K., behaves as a ferromagnetic body. PIERRE JACQUINOT: The Zeeman effect and Paschen-Back effect in the case of the extreme  $j$ - $j$  coupling. Example of the  $2p^5ns$  configurations of neon. GEORGES ALBERT BOUTRY: Talbot's law in photo-electric photometry. MARC ANTOINE FOËX: Separations by decantations of liquid layers in fused boron-alkaline earth glasses. Proof of differences in the concentration of lime and baryta in the two layers obtained after fusion of boro-lime-baryta glasses. The ratio of the densities of the two layers is constant at a given temperature for all the alkaline earth glasses. JULIEN BRÜLL: Kinetics of the hydration of some cobalt complex compounds. OSIAS BINDER and PIERRE SPACU: The substitution of water for chlorine in the cobaltidichloro-*trans*-diethylenediamine ion. JEAN LOUIS DELSAL: The polarimetric study of aluminium malate. ERNEST TOPORESCU: The preparation of sodium bicarbonate. Reply to a criticism of B. Neumann and R. Domke. JEAN VINCENT HARISFE: 2, 4-Dimethylphenylacetic acid. Its preparation starting with pinonic acid. GUSTAVE VAVON and LOUIS BOURGEOIS: The reactivity and structure of the primary fatty amines. B. BRAJNKOV: The essential constituent of the Normandy

"argile à silex". V. AGAFONOFF: The red and brown soils with carbonate crust in Tunis. A. ROBAUX: The nummulitic Flysch on the Malaga (Andalusia) transversal. JEAN CHEVRIER: Relations between the electrical conductivity of the air and some meteorological factors at the Observatory of Ksara (Liban). The electrical conductivity of the air was found to increase with the temperature, to diminish as the relative humidity increased. The effects of pressure changes were irregular, with a tendency to a fall in conductivity as the pressure increased. NICOLAS P. PÉNTCHEFF: The proportion of neon in natural gases. Studies of the rare gases obtained from a spring at Kovankik, Bulgaria. JEAN PIVETEAU: An ancestral form of the tailless amphibians in the lower Trias of Madagascar. ANDRÉ EICHHORN and ROBERT FRANQUET: Chromosomal numeration and nuclear evolution in *Koelreuteria paniculata*. Mlle. FERNANDE FLOUS: Polyphyletism in the Abietæ. JEAN GIAJA and STEFAN GELINEO: Barometric pressure and resistance to cold. The resistance to cold of the rat is reduced when the pressure is reduced to that corresponding to an altitude of 2,000 metres. If the animal is protected against cold, its body temperature can be maintained at much lower pressures. LOUIS LAPICQUE: Remarks on the preceding communication. A warning that the results cannot be applied to man, on account of the difference in size. Mlle. MARIE LOUISE VERRIER and RAYMOND PANNIER: Researches on the composition of the retinal purple and its relations with the visual cells. JEAN RÉGNIER and ANDRÉ QUEVAUVILLER: The influence of the suppression of electrolytes, in preservative liquids, on the values of the excitability parameters and on the resistance to the galvanic current of the motor nerve of *Rana esculenta*. RICHARD JAHIEL and MME. SIMONE DELAUNEY: The difference of the action of the polypeptides according to their mode of introduction into the organism. The toxicity of the polypeptides depends on the mode of introduction into the organism. Small repeated daily injections have no toxic effect, but under the conditions of experimental anaphylaxy the toxic effect is large. LOUIS C. MAILLARD and JEAN ETTORI: The distribution of titanium in the organs of man. The amounts of titanium found in eighteen organs are given: no general conclusions can be drawn from the data. GUSTAVE GUITTONEAU and Mlle. JEANNE BRIGANDO: Resistance to staining acquired by heating of certain microbial bodies in milk. PIERRE LÉPINE and Mlle. VALENTINE SAUTTER: The existence in France of the murin virus of lymphocytary chorio-meningitis. ALEXANDRE BESREDKA and LUDWIK GROSS: The nature of the immunity in rabbits vaccinated against epithelioma.

## Moscow

Academy of Sciences (*C.R.*, 1, No. 5, 1936. I. VINOGRADOV). A new improvement of the estimation of trigonometrical sums. N. G. CHUDAKOV: Zeros of the function  $\zeta(s)$ . D. L. SHERMAN: A contribution to the method of N. I. Muschelishvili on the problem of elasticity theory. S. BACHALOV: A couple of congruences. N. MOISEJEV: Probability of stability according to Liapunoff. E. K. ZAVOISKIJ and B. M. KOZYREV: Changes of absorption of weak electric fields of high frequency in certain substances as a function of the strength of these fields (2). V. V. SCHULEJKIN: Origin of the periodic variations of the

regime of Atlantic currents. N. N. MALOV: Measurements of resistance of human bodies, and its connexion with the strength of the current over a wide range of frequencies. K. MISUTCH: Collateral oxidation processes during reduction of nitrogen compounds of the aromatic series. Role of a salt of bivalent iron in the reduction process. A. J. CHARIT and N. V. CHAUSTOV: Flavins and metabolism (5). The effect of the introduction of alloxan and thymonucleic acid into the food of rats on the flavin content in their liver. N. LAZAREV: Distribution in the blood and the intensity of action of anæsthetics. D. KOSTOFF: Studies on polyploid plants (13). Haploid *Nicotiana rustica*. B. VASILJEV: A haploid plant of durum wheat, *Triticum durum* Desf.

## SYDNEY

Royal Society of New South Wales, April 1. H. FINNEMORE, S. K. REICHARD and D. K. LARGE: Cyanogenetic glucosides in Australian plants. (3) *Eucalyptus cladocalyx*. It is shown that these leaves, which have long been known to be fatal to animals and to be cyanogenetic, contain as much as 0.6 per cent of hydrocyanic acid, the whole of which may be liberated by autolysis. The acid occurs in the form of the glucoside prunasin, previously found by Finnemore and Cox in *Eremophila maculata*. A simplified process for its isolation is now described. The powdered leaves are percolated with cold acetone, the acetone extract washed with petroleum ether, the purified residue extracted with boiling ethyl acetate, from which the glucoside separates on cooling, especially if a little chloroform be added to the solution. The yields are very good. R. D. WILSON: A bacterial disease of snake beans. The occurrence of a bacterial disease of snake beans (*Vigna sesquipedalis*) in New South Wales in 1935 is recorded. The results of comparative studies between the causal organism and cultures of the cowpea spot, lilac blight and citrus pit organisms are given. Differences were observed only in the fermentation of raffinose and in the degree of pathogenicity to various hosts. It is proposed that the snake bean pathogen should be designated *Bacterium syringae* (van Hall) E. F. Smith. A 'rough' strain of the snake bean pathogen is described. The disease was shown to be seed-borne. ADOLPH BOLLIGER: A new reaction for the determination of creatinine. A ten per cent solution of 3-5 dinitro-sodium-benzoate and normal sodium hydroxide are added to the fluid to be examined. If creatinine is present in a concentration of more than 5 mgm. per cent, immediately after adding the sodium hydroxide a purple colour will appear which deepens considerably on further standing. After about 15 minutes, the colour will change towards red or pink, and will ultimately become yellow. If the concentration of creatinine is less, it will take 5-15 minutes for the colour to appear. The colour reaction can be used, with a colorimeter, for quantitative estimation of creatinine.

## WASHINGTON, D.C.

National Academy of Sciences (*Proc.*, 22, 195-247, April 15). FRED L. WHIPPLE and CECILIA PAYNE GAPOSCHKIN: On the bright line spectrum of Nova Herculis. On July 4, 1935, two components were observed. Spectrographically, certain lines were doubled, corresponding to the two components. It

is considered that two gaseous masses of low density were ejected from the central star; the former give rise to the doubled bright lines and the latter to the continuous background. CARL D. LARUE: Tissue cultures of spermatophytes. Pieces so small as 0.5 mm. in length from immature embryos of dandelion, ox-eye daisy, wild lettuce and tomato have been grown in culture to complete plants. It is believed that it is important to use tissue which has recently been differentiated; the presence of growth hormone (auxin) and agar-agar with the nutrient solution also favour growth. LINUS PAULING and CHARLES D. CORYELL: The magnetic properties and structure of hæmoglobin, oxyhæmoglobin and carbonmonoxyhæmoglobin. Magnetic measurements show that oxy- and carbonmonoxyhæmoglobin contain no unpaired electrons (free oxygen has two); hence oxygen undergoes a profound change in electronic structure on attachment to hæmoglobin. New nomenclature, based on recent data, is suggested for hæmoglobin and related compounds. HANS BAUER: Structure and arrangement of salivary gland chromosomes in *Drosophila* species. W. E. CASTLE: Further data on linkage in rabbits. Cross-over percentages for the two linked genes for rex (short coat) and also for the three linked genes, albinism, yellow fat and brown pigmentation, have been determined. Crossing-over in one region of a chromosome 'interferes' with crossing-over in another region, as in *Drosophila*. LEONARD M. BLUMENTHAL: The metric characterisation of a class of spaces. NORMAN LEVINSON: On the non-vanishing of certain functions. W. W. COBLENTZ and R. STAIR: The evaluation of ultra-violet solar radiation of short wave-lengths. The most recent method employs a titanium photo-electric cell calibrated against a standard of ultra-violet radiation. A radiant flux is observed, by this and older methods, almost twice as large as that calculated from early observations of the ultra-violet spectral energy curve. The average intensity of ultra-violet solar radiation of wave-length 3132 Å. and less in the clearest midsummer weather at midday in Washington, D.C., is 75 microwatts per cm.<sup>2</sup>; the corresponding figure for San Juan (there is less ozone in the stratosphere at the tropics) is 95 microwatts per cm.<sup>2</sup>. Extrapolation of all the data indicates an intensity of 600 microwatts per cm.<sup>2</sup> outside the solar atmosphere; this is a 5-8-fold increase, as compared with a 20-30 per cent increase in total solar intensity of all wave-lengths. A. A. ABRAMOWITZ: The double innervation of caudal melanophores in *Fundulus*. A large group of fish, in each of which a band of melanophores was denervated by an incision in the tail, was kept in an illuminated black tank for a fortnight. Each fish was then removed periodically to a white background for 10 minutes or stimulated electrically, and the melanophore condition recorded photographically under the microscope. The fish was replaced on a black background for 10 minutes and the same area rephotographed. Some cells showed full contraction but not full expansion, others neither contraction nor expansion, suggesting regeneration of two sets of nerves, discrete and opposite in action. ROSS G. HARRISON: Relations of symmetry in the developing ear of *Amblystoma punctatum*. Axes of symmetry become fixed at different stages, at which also other tissue determinations occur. W. G. CLARK: Errata to the paper "Note on the effect of light on the bio-electric potentials in the *Avena* coleoptile" (*NATURE*, Feb. 29, 1936, p. 373).