

that advantage will be taken of the present opportunity to pave the way for a better system, by the appointment of at least one competent and efficient teacher. All favouritism ought in a case of this sort to be, as we have no doubt it will be, entirely laid aside, and the situation should be given to the candidate who produces the least unequivocal proofs of industry learning and talent".

Iron Shipbuilding

Among the pioneers of iron shipbuilding was Sir William Fairbairn (1789-1874) who, in 1835, opened a shipbuilding yard at Millwall on the Thames. Prior to this, however, he constructed several iron vessels at Manchester. These were built in sections, taken to pieces and reconstructed at the ports. On October 18, 1834, the *Mechanics' Magazine* said that an iron steamer of 96 tons of Fairbairn's was launched at Selby. As she was for Swiss owners, the vessel was to be navigated up the Rhine as far as possible, taken to pieces again, carried overland a distance of forty miles and ultimately launched at Zurich, "and after all this will be considerably cheaper and better than if built on the continent".

Societies and Academies

PARIS

Academy of Sciences, August 27 (*C.R.*, 199, 501-544).
 LOUIS BLARINGHEM: The temperature of flowers. From the results of about 3,000 observations, the author concludes that most plants, at certain stages of growth and especially in the course of the development of the flowers, show a regular excess of temperature of the internal tissues and of the floral organs over the temperature of the surrounding air. This excess is usually 1°-6° but in one case amounted to 9°. EMILE MATHIAS: Blue globular lightning.
 HANS SCHWERDTFEGER: The characteristic roots of the matrices of linear forms. Y. WHY FSCHEN: Remark concerning the solution of the mixed problem relating to the equation $\Delta u - 1/\omega^2 u = 0$ for $\omega \rightarrow \infty$. ROLF NEVANLINNA: The harmonic measurement of ensembles of points. EDGAR ODELL LOVETT: Bertrand's problem for certain curves which generalise conics. CHARLES PLATRIER: The most general infinitely small isothermal transformation of the homogeneous material medium. MIROSLAV NENADOVITCH: Contribution to the theory of supporting wings. PIERRE LEJAY: Gravity anomalies in the south of Indo-China. A map is given showing the anomalies. ALBERT PÉRARD and MIROSLAV ROMANOWSKI: New comparisons of national standards of electrical resistance. Comparison of the standard ohms of Germany, United States, France, Great Britain, Japan and Russia, showing secular changes between December 1932 and November 1933. PAUL JANET: Remarks on the preceding note. It is pointed out that this is the first work done by the Bureau international des Poids et Mesures in the field of electrical units. ARCADIUS PIEKARA: The magnetic anisotropy of the fatty acids. PIERRE BRICOUT and ROBERT SALOMON: The use of the cathode ray oscillograph for the study of the magnetisation of ferromagnetic substances. The apparatus described showed differences between specimens of identical composition when the annealing temperatures differed by only 10° C. It has proved capable of showing when the

time of annealing has been sufficient to bring about the steady magnetic state. CHARLES COURTOT and ABBAS MOTAMED: Introduction to the study of the chemistry of diphenylene selenide. PAUL SELTZER: The vertical distribution of temperature in a forest. JACQUES EMILE ABELOUS and RENÉ ARGAUD: The formation of adrenaline in the suprarenal capsule. The rôle of lipids and lipoids in adrenalogenesis. MARC ANDRÉ: An American crayfish multiplying near Paris. MAURICE DOLADILHE: Researches on the complementary power of blood sera. Mlle. MATHILDE ZIRNHELT: A new culture medium specially favourable to the development and maintenance of the virulence of *B. typhi murium*. Sterilised rye, impregnated with ordinary peptone broth, forms an excellent medium for the culture of this organism. The virulence is increased and the rye can be directly used for the destruction of rats.

CAPE TOWN

Royal Society of South Africa, May 16. J. L. B. SMITH: The South African species of the triglid genera: *Lepidotrigla* and *Peristedion*. The paper revises the South African species of *Lepidotrigla*. *L. Faurei* and *L. Natalensis* are maintained as distinct species, and one new species is described. A new species of *Peristedion* is also described.

GENEVA

Society of Physics and Natural History, June 7. LÉON W. COLLET and ED. PAREJAS: The presence of the Upper Cretaceous in an alpine nappe of Elba. The authors describe grey limestones occurring at the Colle Reciso containing *Coccolithus pelagicus* and *C. leptoporus* with several species of *Actiniscus Ehrenbergeri*. It is the first time that Upper Cretaceous has been discovered above Biancone in Elba. LÉON W. COLLET: On a nummulitic breccia, with Wildflysch facies, from Elba. The elements of the breccia are made up of ophites. The cement is calcareous and contains *Nummulites lucasani* of the Lower Lutetian. The formation of these breccias shows that movements occurred in the Lower Lutetian, in one of the alpine nappes of the island. LÉON W. COLLET and J. BUFFLE: The transportation of alluvial matter in suspension in the waters of the River Arve at Geneva, in 1933. The run off of the River Arve in 1933 was low. The total amount of alluvial matter transported in suspension in its waters was 1,506,000 tons. During 1915 the run off of the river was much larger and the alluvial matter transported amounted to 3,644,000 tons. ED. PAREJAS: Some species of *Actiniscus* of the Upper Cretaceous of Brasses (Préalps médianes) and of the island of Elba. The author describes a fauna of *Actiniscus* observed in the red layers (Upper Cretaceous) of Brasses (Haute Savoie) and in a limestone of the Colle Reciso (Elba). The species *Actiniscus quinarius* and *A. Stella* have been found. The following species and varieties are new: *A. cruciatus*, *quinarius* var., *Stella Ehrenb.* var., *Colleti* var., *Chaïci*, *ilvensis*, *decapetalus* and *Verandi*. G. TIERCY: (1) The function introduced in the calculation of the distribution of the temperatures in the interior of a star. The numerical variation of this function has been given in a preceding note; it is now given as an algebraical function of the radius. An empirical solution, numerically satisfactory, has been found. (2) Remarks on a particular model of the

temperature distribution in a star. The author discusses a consequence which can be drawn from a formula given by J. H. Jeans for expressing the radiative viscosity of stellar matter. G. TIERCY and A. GROSREY: The width of the spectrograms of $F5$ and $G0$ stars. A discussion, as for other types previously studied, of the variation of the width of a spectrum as a function of the magnitude of the star and the time of exposure.

LENINGRAD

Academy of Sciences (*C.R.*, n.s., 2, No. 6). I. M. VINOGRADOV: A new solution of Waring's problem. N. KOSHLIAKOV: Some identities in the analytical theory of numbers. L. LEIBENSON: Theory of the movement of petroleum in the stratum. V. T. MITKEVITCH: Some fundamental statements relating to the domain of physics. A. KRASIN: Influence of illumination on dielectric losses in rock salt irradiated with X-rays. The illumination increases the angle of losses by more than 12 per cent. N. DANKOV and A. KOTCHETKOV: On limiting dimensions for particles of catalysts. The maximum catalytic activity occurs with particles of 40 and 50 Å., and absence of catalytic effect is to be expected close to 20 Å. F. FEDOROV, I. MOTCHAN, S. ROGINSKIJ and A. SCHECHTER: Synthesis of ammonia by collision between positive ions. The action of positive ions consists in producing a new active form of nitrogen, not yet studied in detail. N. PETINOV: Grain quality control of irrigated wheats of the Transvolga areas. The quality of grain of irrigated wheats is not inferior to that of non-irrigated wheats. An increase in the protein content of the grain with a simultaneous increase in the yield can be obtained by regulating the watering. I. E. FIMOV: The distribution of organic remains in the roofing of coal measures of the Donetz basin. The following five successive facies are established by studying the fauna and flora of the respective strata; the continental or coal facies; the facies overlying the coal (with vegetable remains); the facies of anthracosids; the marine argillaceous facies; and the facies impregnated with hydrogen sulphide. L. LUNGERSHAUSEN: Stratigraphy of the "Balta" stratum. B. ZENKOVITCH: Some data on whales of the Far East. The food of the Californian grey whale (*Rhachianectes glaucus*, Cope) consists of the sea-bottom crustaceans living in the shallow parts of the continental shelf, mainly *Amphipoda*. There were no females amongst 57 sperm whales (*Physeter macrocephalus*, L.) caught in the Russian Far Eastern waters in 1933. Weights of *Balaenoptera physalus* and *Megaptera nodosa* are given.

MELBOURNE

Royal Society of Victoria, June 14. A. B. EDWARDS: Tertiary dykes and volcanic necks of South Gippsland, Victoria. A suite of dykes with a prevalent north-westerly strike, was intruded into the Jurassic sediments of South Gippsland in Lower Oligocene time. The suite comprises trachyandesites, analcite-olivine-dolerites, olivine-analcite-basalts, monchiquite-basalts, monchiquites, and possibly olivine-nephelinites. When arranged in this order of increasing basicity they exhibit chemical and petrological gradation into the adjacent types, and are considered to have been derived from a common magma, of a composition about that of the olivine-analcite-basalt.

ROME

Royal National Academy of the Lincei, May 6. P. ALOISI: Questions of Tuscan, especially Elban, geology (2). MARIA CIBRARIO: Certain theorems of the existence and unicuity for the equation $xu_{xx} + u_{yy} + 2u_x = 0$. B. FINZI: Integration of the indefinite equations of the mechanics of continuous systems (2). G. PERETTI: Groups of electromagnetic waves in anisotropic media. According to the most general hypothesis of a medium which is magnetically isotropic and electrically anisotropic (for example, a crystalline medium), there exist, besides groups of electromagnetic waves of the first order, also groups of the second and third orders. J. J. PLACINTEANU: The wave equation of a body of variable mass. Application to radioactivity. G. L. ANDRISSI: Determination of latitude in prime vertical. A. CAVINATO: The use of the prism for the determination of the principal refractive indexes of crystals (1). Various methods, and the calculation of the errors involved, are discussed. V. CARMINATI: Cariometric determinations on the liver of rats inoculated with the nucleoproteins of calf thymus (2). Parenteral administration of the nucleoproteins of calf thymus produces a distinct increase in the nuclear dimensions of rat liver. C. GUARESCHI: First experimental results on the centrifugation of the chrysalis of *Lina populi* and of *Pieris brassicae*. GIUSEPPINA DRAGONE TESTI: Germination of embryos of grain outside the seeds. A. DE-AGAZIO: Action of histamine, ephedrine, caffeine and camphor on the isolated heart of *Bufo vulgaris* (3).

SYDNEY

Royal Society of New South Wales, August 1. G. J. BURROWS and R. H. PARKER: Some tetra-covalent platinum compounds derived from tertiary arsines. The authors describe the preparation of compounds of platinum chloride and platinum bromide with phenyl dimethyl arsine and with diphenyl methyl arsine. The derivatives are stable, crystalline, non-polar compounds with definite melting points of the type R_2PtCl_2 , where R represents a molecule of the arsine. It was not found possible to separate any of the compounds into isomeric forms by means of solvents. Evidence of *cis-trans* isomerism was afforded by the behaviour on heating to the melting point. As a result of this treatment, the compounds appeared to change into forms having the same composition but solubilities different from those of the original compounds. F. P. DWYER and D. P. MELLOR: An X-ray study of opals. Powder photographs of opals which have been formed under different geological conditions fall into either one of the two classes: (a) those showing a well-defined diffraction pattern characteristic of β -cristobalite, (b) those showing a broad band in the position of the most intense line of either α - or β -cristobalite. Opals of the former class have been associated with lava flows at some time during their geological history, while those of the latter class have been associated with ground water only. It is considered that silica gel possesses a pseudo-crystalline structure—most probably α -cristobalite—and that under the influence of hot magmatic waters, inversion to β -cristobalite, followed by crystal growth, has occurred. The remarkable persistence of the β -form of cristobalite seems to be dependent on its low temperature of formation.

Forthcoming Events

[Meetings marked with an asterisk are open to the public.]

Monday, Oct. 15

UNIVERSITY OF LEEDS, at 5.15.—Prof. C. Burt: "The Backward Child."*

Tuesday, Oct. 16

UNIVERSITY COLLEGE, LONDON, at 5.—Prof. L. J. Henderson: "Physiological Equilibrium" (succeeding lectures on October 17 and 18).*

EUGENICS SOCIETY, at 5.15—(at the Linnean Society, Burlington House, London, W.1).—Prof. F. C. S. Schiller: "Ant-Men or Super-Men."*

KING'S COLLEGE, LONDON, at 5.30.—H. R. Lupton: "Pumping Machinery as Developed to meet Modern Conditions" (succeeding lectures on October 23 and 30).*

INSTITUTION OF ELECTRICAL ENGINEERS, at 5.30.—Dr. W. Estorff: "Extra High Tension Engineering Practice (200 KV and upwards) with Special Reference to Power Transmission and Control" (succeeding lectures on October 17, 19, 22, 24 and 26).*

Thursday, Oct. 18

CHEMICAL SOCIETY, at 8—(at the Royal Institution, London, W.1).—Prof. P. M. S. Blackett: "Induced Radioactivity."

Friday, October 19

NORTH-EAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS, at 6—(in the lecture theatre, Literary and Philosophical Society, Newcastle-upon-Tyne).—Annual General Meeting. John T. Batey: Presidential Address.

SCOTTISH NATIONAL CONFERENCE ON THE PLACE OF BIOLOGY IN EDUCATION, Oct. 19.—Organised by the British Social Hygiene Council. To be held at City Chambers, Edinburgh.

Official Publications Received

GREAT BRITAIN AND IRELAND

Technical Publications of the International Tin Research and Development Council. Series A, No. 1: The Electrodeposition of Tin from Sodium Stannate Solutions with the Use of Insoluble Anodes. By A. W. Hotherhall, S. G. Clarke and D. J. Macnaughtan. Pp. ii+101-124. Series A, No. 3: A Microscopic Examination of Iron-Tin Reaction Products. By Dr. W. D. Jones and W. E. Hoare. Pp. 4+2 plates. Series A, No. 4: The Corrosion of Tin and its Alloys. Part 1: The Tin-Rich, Tin-Antimony-Copper Alloys. By Dr. T. P. Hoar. Pp. 201-214+2 plates. Series A, No. 5: The Electro-Chemical Behaviour of the Tin-Iron Couple in Dilute Acid Media. By Dr. T. P. Hoar. Pp. 472-482. Series A, No. 8: The Improvement of White Bearing Metals for Severe Service; Some General Considerations. By D. J. Macnaughtan. Pp. 285-299+1 plate. Series A, No. 9: The Behaviour of White Bearing Metals when subjected to various Deformation Tests. Part 1: Indentation Tests, by A. S. Kenneford and Dr. Hugh O'Neill; Part 2: Tensile Tests, by R. Arrowsmith; Part 3: Pounding Tests, by H. Greenwood. Pp. 301-339+6 plates. Series A, No. 10: Some Properties of Tin containing small amounts of Silver, Iron, Nickel or Copper. By Prof. D. Hanson, E. J. Sandford and H. Stevens. Pp. 341-357. Series C, No. 1: The Féry-Carbone Dry Tin Accumulator. By Prof. C. J. V. Féry. Pp. 5. (London: International Tin Research and Development Council.)

Sir John Cass Technical Institute. Syllabus of Classes, Session 1934-35. Pp. 116. (London.)

Experimental Researches and Reports published by the Department of Glass Technology, The University, Sheffield. Vol. 16, 1933. Pp. iii+180+3 plates. (Sheffield.) 7s. 6d.

Board of Education: Science Museum. Technical Pamphlet No. 2: The Automatic Telephone; a Brief Description of the Processes involved in making a Call on the Automatic Systems of the British Post Office. By W. T. O'Dea. Pp. 13+5 plates. (London: H.M. Stationery Office.) 6d.

The Edinburgh and East of Scotland College of Agriculture. Calendar for 1934-1935. Pp. 93. (Edinburgh.)

Proceedings of the Royal Society of Edinburgh. Vol. 54, Part 2, No. 15: The Structure and Relationships of Lamellibranchs possessing a Cruciform Muscle. By Alastair Graham. Pp. 158-187. (Edinburgh: Robert Grant and Son; London: Williams and Norgate, Ltd.) 2s. 6d.

OTHER COUNTRIES

Agricultural Experiment Station of the Rhode Island State College. Bulletin 244: A Hemophilic Bacillus as the Cause of an Infectious Rhinitis. By J. P. Delaplaine, L. E. Erwin and H. O. Stuart. Pp. 12. (Kingston, R.I.)

Exhibition of First Editions of Epochal Achievements in the History of Science (on Display at the University Library). Pp. 48. (Berkeley, Calif.: University of California Press; London: Cambridge University Press.) 30 cents; 1s. 6d.

The Journal of the Indian Mathematical Society. Vol. 20: Silver Jubilee Commemoration Volume. Pp. x+248+2 plates. (Trichinopoly: Indian Mathematical Society.)

Punjab Irrigation Research Institute. Research Publication, Vol. 6, No. 1: A Gravitational Survey of the Sub-Alluvium of the Jhelum-Chenab-Ravi Doabs, and its Application to Problems of Water-logging. By B. H. Wilsdon and Dr. N. K. Bose. Pp. 44+17 plates. (Calcutta: Punjab Irrigation Research Institute.) 5 rupees; 7s. 6d.

Summary Proceedings of the Twenty-eighth Meeting of the Indian Central Cotton Committee, Bombay, held on the 29th and 30th January 1934. Pp. 84. (Bombay.)

The Indian Forest Records. Vol. 20, Part 8: Immature Stages of Indian Coleoptera, 15 (Scolytidae). By J. C. M. Gardner. Pp. 17+2 plates. (Delhi: Manager of Publications.) 8 annas; 10d.

Department of Agriculture: Straits Settlements and Federated Malay States. General Series, No. 17: Fodders and Feeding Stuffs in Malaya. By C. D. V. Georgi. Pp. iii+35. (Kuala Lumpur.) 50 cents.

Forest Bulletin No. 84: The Identification of the Commercial Timbers of the Punjab. By K. Ahmad Chowdhury. Pp. vii+70+23 plates. (Delhi: Manager of Publications.) 3 rupees; 5s. 3d.

Publications of the South African Institute for Medical Research. Vol. 6, No. 33: Entomological Studies; Studies on Insects of Medical Importance in South Africa. By Dr. Botha De Meillon. Pp. 249-308. (Johannesburg.)

Union of South Africa: Department of Mines: Geological Survey. The Geology of the Country between Springs and Bethal; an Explanation of Sheet No. 51 (Bethal). By F. A. Ventner, with a Chapter on Underground Water Supplies, by H. F. Frommurze. Pp. 87. (Pretoria: Government Printer.) 5s. (including Map).

Hamburger Sternwarte in Bergedorf. Zweites Bergedorf Sternverzeichnis 1930.0. Nachtrag enthaltend die mittleren Orter von 671 Sternen (Eros-Anhaltsternen 1. Ordnung für die Opposition 1930-31) nach photographischen Aufnahmen mit dem AG-Astrographen in den Jahren 1930 und 1931. Herausgegeben von Dr. Richard Schorr. Pp. ii+81-92. (Bergedorf.)

The Indian Forest Records. Vol. 20, Part 7: Methods of Testing the Susceptibility of Timbers to Termite Attack. By Cedric Dover and R. N. Mathur. Pp. iii+20. 5 annas; 6d. Vol. 20, Part 9: Entomological Investigations on the Spike Disease of Sandal, (24) Pentatomidae (Hemipt.). By N. C. Chatterjee. Pp. ii+31. 10 annas; 1s. 6d. (Delhi: Manager of Publications.)

Records of the Survey of India. Vol. 25: Surveys in Swat, Chitral and Gilgit and neighbouring Territories carried out by 'A' Survey Company from 1925 to 1931. By Lieut.-Col. C. G. Lewis. Pp. vi+47. (Dehra Dun: Survey of India.) 1.8 rupees; 2s. 6d.

Gold Coast Colony. Report on the Gold Coast Survey for the Year April 1933 to March 1934. Pp. ii+16+2 plates. (Accra: Government Printing Office; London: Crown Agents for the Colonies.) 2s.

Commonwealth of Australia: Bureau of Meteorology, Melbourne. Bulletin No. 18: Foreshadowing Monsoonal Rains in Northern Australia. By H. M. Treloar. Pp. 29. (Melbourne: Government Printer.)

A Further Account of the Anti-Tsetse Campaign in Tanganyika Territory by Officers of the Tsetse Research Department. Pp. 32. (Shinyanga: Department of Tsetse Research.)

Tanganyika Territory: Department of Agriculture. Annual Report, 1933. Pp. ii+118. (Dar es Salaam: Government Printer.) 2s. 6d.

Uganda Protectorate. Annual Report and Bulletin of the Geological Survey Department for the Year ended 31st December 1933. Pp. 93. (Entebbe: Geological Survey.) 4s.

Fiskeridirektoratets Skrifter, Serie Havundersøkelser (Report on Norwegian Fishery and Marine Investigations). Vol. 4, No. 9: Animal Plankton of the Norwegian Coast Waters and the Open Sea. 1: Production of *Calanus finmarchicus* (Gunner) and *Calanus hyperboreus* (Krøyer) in the Lofoten Area. By Jacob D. Semme. Pp. 163. (Bergen: A.-S. John Griegs Boktrykkeri.)

Geophysikalisches Institut der Universität, Leipzig. Über Niederschlagsperioden in den gemässigten Zonen der Erde: eine Bestätigung der Ergebnisse Defants in der Abhandlung: Die Veränderungen in der allgemeinen Zirkulation der Atmosphäre in den gemässigten Breiten der Erde (Wiener Sitzungsberichte 121, I, 1912). Von Dr. Walter Preusche. Pp. iv+72. Ein Beitrag zur 16 jährigen Klimaschwankung. Von Gerhard Seidel. Pp. iii+58. Veröffentlichungen des Geophysikalischen Instituts der Universität Leipzig. Serie 2: Spezialarbeiten aus dem Geophysikalischen Institut. Band 6, Heft 2: Einfluss der Grosstadttrübung auf Sicht und Sonnenstrahlung. Von Fritz-Holm Bielich. Pp. 69-119. (Leipzig.)

CATALOGUES

Astronomical and Optical Instruments. (Publication No. 9.) Pp. 68. (Newcastle-on-Tyne: Sir Howard Grubb, Parsons and Co., Ltd.) Recent Developments in the Electrodeposition of Nickel. By A. W. Hotherhall. (Nickel, L5). Pp. 12. (London: The Mond Nickel Co., Ltd.)

Books for Everybody at Reduced Prices. (Catalogue 437.) Pp. 48. (Cambridge: W. Heffer and Sons, Ltd.)

pH Acidity and Alkalinity. (Folder No. 42.) Pp. 6. (London: Cambridge Instrument Co., Ltd.)

The Wild-Barfield Heat-Treatment Journal. Vol. 1, No. 2, September. Pp. 15-27+v. (London: Wild-Barfield Electric Furnaces, Ltd.)