

Societies and Academies.

ROME.

Royal National Academy of the Lincei, June 1.—**F. Severi**: The whole of the singular points of an analytical function of several variables.—**Guido Fubini**: Further with regard to the canonical cluster.—**Q. Majorana**: Optical telephony by means of ultra-violet or infra-red rays. Improved results have now been obtained as a result of modification of the arrangement of the apparatus. By means of filtered infra-red light from a 500-watt incandescent lamp, telephonic communication has been established between stations ten kilometres apart, excellent reproduction of the words being obtained.—**L. Lombardi and Paolo Lombardi**: Behaviour of the moving-coil transformer in constant current circuits.—**A. Angeli**: The constitution and reactions of the diazo-hydrates. Hantzsch's views on the structure of the diazo-hydrates are refuted, Swietoslawski's thermochemical data being quoted in support of the structures advanced by the author.—**G. Tizzoni and G. De Angelis**: Immunity against cancer conferred on animals by phenolate auto-vaccine. The results of numerous experiments on white mice show that immunity against Ehrlich's adenocarcinoma may be attained by the use of phenol, which converts the cancerous matter into vaccine. The phenol is administered in 0.5 per cent solution for a period of 24-72 hours, the immunity appearing 11 days later and persisting for more than 4 months.—**Giuseppe Levi**: A differentiation of nerve cells.—**G. Levi and G. C. Dogliotti**: The structure of adipose cells. The adipose cells of the adult rat exhibit a very thin cytoplasmic film containing a largenumber of chondriosomes in the form of granules and short rods, the view that adipose cells are composed of an adipose drop contained in a reticular envelope being hence inadequate.—**M. Kourensky**: Riccati's equation.—**Pia Nalli**: A generalised displacement in Riemannian spaces.—**U. Cassina**: The conception of vectors.—**B. Segre**: Continuous systems of plane curves with tacnode.—**E. Čech**: A characteristic property of Fubini's surfaces.—**L. S. Da Rios**: Wings and helices.—**E. Fermi**: The motion of a body of variable mass.—**G. Viola**: Pendular oscillations in the elliptic elements of the variable *W Ursæ majoris*.—**M. Pierucci**: Concerning recent experiments on thin metallic films. Results lately obtained support the view that conductors electrically charged undergo a variation in resistance.—**D. Graffi**: Demonstration of the formula of retarded potentials by the method of functional operators.—**F. Neri**: The auto-excitation of auto-compensated asynchronous machines.—**Remo de Fazi**: Syntheses in organic chemistry by means of radiant energy (3). Acenaphthene and benzaldehyde. A benzene solution of benzaldehyde and acenaphthene, exposed in a sealed glass tube to sunlight for two years, yielded a trimeride and a tetrameride of benzaldehyde, stilbene, isostilbene, a resinous substance, and a compound formed by the condensation of one molecule of acenaphthene and one molecule of benzaldehyde with loss of one molecule of hydrogen.—**O. Scarpa**: Concentration, wholly metallic piles acting at variance with Volta's law. Measurements at constant temperature (18°) of the electromotive force of the cells, platinum-zinc amalgam-mercury-platinum, and platinum-cadmium amalgam-mercury-platinum, give values which vary linearly with the concentration of the amalgam in the case of zinc and almost linearly in that of cadmium within the limits of composition for which the amalgams exist as monophasic liquid systems.—**G. A. Barbieri**: Ferro-

cyanomolybdates and analogous compounds of ruthenium and osmium. When introduced into ammonium acetate solution, the reddish-brown, gelatinous precipitate obtained by the interaction of a molybdate and a ferrocyanide in acid solution is transformed into a canary-yellow, crystalline compound, $(\text{NH}_4)_3\text{Fe}(\text{CN})_6 \cdot 2\text{MoO}_3 \cdot 3\text{H}_2\text{O}$. The ready conversion of this into the silver compound, $\text{Ag}_3\text{Fe}(\text{CN})_6 \cdot 2\text{MoO}_3 \cdot \text{H}_2\text{O}$, points to the existence of the complex $[\text{Fe}(\text{CN})_6 \cdot 2\text{MoO}_3]$, the structure of the ammonium compound being probably



The corresponding ruthenocyanomolybdate and osmiocyanomolybdate have analogous formulæ.—**G. R. Levi and A. Baroni**: Diethyl triselenide, sulphodiselenide, and selenodisulphide. Diethyl triselenide, $(\text{C}_2\text{H}_5)_2\text{Se}_3$, is obtained by the action of selenium oxychloride on selenomercaptan or by that of selenium on diethyl diselenide; diethyl sulphodiselenide, $(\text{C}_2\text{H}_5)_2\text{Se}_2\text{S}$, by the action of mercaptan on selenium chloride or oxychloride, or that of selenium on diethyl disulphide, and diethyl selenodisulphide, $(\text{C}_2\text{H}_5)_2\text{SeS}_2$, from either selenomercaptan and thionyl chloride or sulphur and the diselenide. The progressive replacement of the sulphur of these compounds by selenium is accompanied by marked increases in the densities and refractive indices.—**L. De Caro**: Molecular weight of myoprotein, determined by Du Noüy's surface tension method. Determinations of the surface tension of the myoprotein of the dog dissolved in water in presence of a trace of sodium hydroxide show that the static surface tension, before reaching the corresponding dynamic value, exhibits three characteristic minima at the dilutions 1:37000, 1:55000, and 1:80000. On the assumption that these minima correspond with the formation of monomolecular layers of different orientations, the dimensions of the molecular parallelepiped are calculated to be 225.6, 151.7, and 104.3 Å. respectively. The volume of the molecule is thus 3569513×10^{-24} c.c., its mass 2644084×10^{-24} gm., and the molecular weight 1602843, but other considerations indicate that the last figure is too high for anhydrous myoprotein. Approximately, however, the proportion of myoprotein in muscle suffices to cover the total surface of the myofibrils with a monomolecular layer.—**G. Quagliariello**: Sodium, potassium, calcium, and magnesium in muscular fluid and in its ultra-filtrate. Examination of the muscular fluid of the dog shows that the whole of the sodium in the fluid, together with about two-thirds of the potassium and three-fifths of the calcium and magnesium pass through a collodion ultra-filter.—**L. Maddalena**: Geological results of the boring of the tunnel of the direct Bologna-Florence line through the Tuscan-Bolognese Apennines.—**G. Martino**: Behaviour of the phosphogens in muscular tetanus.—**M. Tirelli**: Tropism phenomena in the larvæ of *Bombyx mori*.

CAPE TOWN.

Royal Society of South Africa, Aug. 21.—**C. K. O'Malley**: On the cleaning up of civilisation.—**J. H. Ferguson**: On living leucocytes. A drop of human blood examined by the dark-ground illumination method in a warm-chamber at 37° C. shows: (1) Colloidal particles and 'hæmokonia' in Brownian movement in the plasma; (2) Red cells; (3) White cells. The leucocyte nucleus exhibits a fundamental degree of lobulation for each cell. Nucleoli are prominent only in young cells. The cytoplasm shows a clear structureless hyaloplasm containing oscillating refractile particles or granules of various kinds. Mitochondria and vacuoles are noted.—**B. F. J.**

Schonland: A proposed method of locating underground water and some experiments thereon. A beam of short Hertzian waves incident at an angle of 45° upon the interface between dry earth or rock and underground water should undergo reflection, and calculation for a wave-length of two metres indicates that the reflected intensity should amount to about 50 per cent of the incident intensity. Apparatus for the production and detection of such beams is described, measurements being made with a portable galvanometer, on a wave-length of 1.8 metres. Interference between direct and reflected radiation has been observed, which suggests a possible modification of the method.

SYDNEY.

Linnean Society of New South Wales, Aug. 28.—W. W. Froggatt: Notes on gall-making coccids and descriptions of new species. Description of a new species of *Apiomorpha* found on *Eucalyptus pilligensis*, and three new species of *Opisthoscelis* found on other Eucalypts.—W. Greenwood: The food plants or hosts of some Fijian insects (3).—I. V. Newman: The life-history of *Doryanthes excelsa* (2). The gametophytes, seed production, chromosome number and general conclusion. The germination of the spores is described with special reference to the part played therein by vacuolation of the cytoplasm. By using its cellulose plugs for identification, the pollen tube is traced from the stigma to the synergids. Fertilisation and triple fusion, though not observed, are inferred. The chromosome number is: haploid 22, diploid 44, triploid (endosperm) 66. *Doryanthes excelsa* is concluded to be primitive among the Amaryllidaceæ and even in the Agavoideæ group of the family.

Royal Society of New South Wales, Sept. 4.—A. R. Penfold and F. R. Morrison: The occurrence of a number of varieties of *Eucalyptus dives* as determined by chemical analyses of the essential oils (Pt. 3). The present investigation is confined to an examination of specimens from Victoria. The type yielding an oil containing 50 per cent of piperitone is the predominating tree in many important areas, whilst in others such as at Blackwood, only var. *A* containing 5 per cent of piperitone was observed. In other localities where it was previously difficult to account for oils containing only 26-36 per cent of piperitone, careful field observations showed both the type and var. *A* were growing together. Samples of leaves and terminal branchlets, and the results of the examination of the essential oils obtained therefrom confirmed the field observations.

Official Publications Received.

BRITISH.

- Journal of the Chemical Society: containing Papers communicated to the Society. September. Pp. iv+1847-2172+x. (London.)
 Madras Fisheries Department. Administration Report for the Year 1927-28. By Dr. F. H. Gravely. (Report No. 1 of 1929, Madras Fisheries Bulletin, Vol. 23.) Pp. vii+86+4 plates. (Madras: Government Press.) 14 annas.
 Indian Journal of Physics, Vol. 4, Part 4; and Proceedings of the Indian Association for the Cultivation of Science, Vol. 13, Part 4. Conducted by Sir C. V. Raman. 15: Bibliography of 150 Papers on the Raman Effect. By Dr. A. S. Ganesan. Pp. 281-348. (Calcutta.) 1.8 rupees; 2s.
 The Indian Lac Association for Research. Bulletin No. 2: Physical Properties of Shellac Solutions, Part 2. By M. Rangaswami and M. Venugopalan. Pp. 17+6 plates. (Ranchi.)
 Transactions of the Institute of Marine Engineers, Incorporated, Session 1929. Pp. 553-620. (London.)
 The National Institute of Poultry Husbandry (Harper Adams Agricultural College), Newport, Salop. A Progress Report of Instructional and Experimental Work in Poultry and Rabbit Husbandry. Pp. 72. (Newport, Salop.)
 The Edinburgh and East of Scotland College of Agriculture. Calendar for 1929-1930. Pp. 96. (Edinburgh.)

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County Council of the West Riding of Yorkshire: Education Committee. Report on the Examination for County Minor Scholarships, 1928. Pp. 29. (Wakefield.)

Tanganyika Territory: Geological Survey. Annual Report, 1928. By Dr. E. O. Teale. Pp. 48+4 plates. (Dodoma.) 4s.

The Quarterly Journal of the Geological Society. Vol. 85, Part 3, No. 339, September 23rd. Pp. cxxix-cxli+223-388. (London: Longmans, Green and Co., Ltd.) 7s. 6d.

Colony of the Gambia. The Annual Report of the Department of Agriculture for the Year 1928-9. Pp. 54. (London: The Crown Agents for the Colonies.) 5s.

Observations made at the Royal Observatory, Greenwich, in the Year 1927 in Astronomy, Magnetism and Meteorology, under the direction of Sir Frank Dyson. Pp. viii+A108+B16+Cix+Cl39+D62+E46+18. (London: H.M. Stationery Office.) 37s. 6d. net.

Progress of Education in India, 1922-27. Ninth Quinquennial Review. By R. Littlehales. Vol. 1. Pp. vii+287+xvii. 1.10 rupees; 2s. 9d. Vol. 2: Appendices and Tables. Pp. iv+235. 2.10 rupees; 4s. 9d. (Calcutta: Government of India Central Publication Branch.)

Far Eastern Association of Tropical Medicine. Transactions of the Seventh Congress held in British India, December 1927. Edited by Lt.-Col. J. Cunningham. Vol. 2. Pp. xvi+871+26 plates. (Calcutta: Thacker's Press and Directories, Ltd.)

Durban Corporation. Museum Report for the Municipal Year ended 31st July 1928. Pp. 4. (Durban.)

The Scottish Association for the Deaf. First Annual Report (1928-29). Pp. 19. (Glasgow.)

Annual Report for the Year 1928 of the South African Institute for Medical Research, Johannesburg. Pp. 87+2 plates. (Johannesburg.)

FOREIGN.

Bulletin of the National Research Council. No. 71: Bibliography of Bibliographies on Chemistry and Chemical Technology. First Supplement 1924-1928. Compiled by Clarence J. West and D. D. Berolzheimer. Pp. 160. (Washington, D.C.: National Academy of Sciences.) 1.50 dollars.

Scientific Papers of the Institute of Physical and Chemical Research. No. 200: The Internal Strain of Uniformly Distorted Aluminium Crystals. By Keiji Yamaguchi. Pp. 151-169+plates 4-8. 45 sen. No. 201: Beiträge zur Chemie der Viskose. Von Gen-itsu Kita und Rikimatsu Tomihisa. Pp. 171-192. 30 sen. No. 202: Absorption of Ha Line. By Toshio Takamine and Taro Suga. Pp. 193-197+plate 8. 20 sen. No. 203: The Raman Spectra of Calcite, Aragonite and Water Solution of Potassium Carbonate. By Masamichi Kimura and Yōichi Uchida. Pp. 199-204. 15 sen. (Tōkyō: Iwanami Shoten.)

Japanese Journal of Astronomy and Geophysics: Transactions and Abstracts. Vol. 7, No. 1. Pp. ii+45+10. (Tokyo: National Research Council of Japan.)

The Science Reports of the Tōhoku Imperial University, Sendai, Japan. Second Series (Geology), Vol. 11, No. 3: Tertiary Foraminiferous Rocks of the Philippines. By Hisakatsu Yabe and Shōshirō Hanzawa. Pp. 54+13 plates. (Tōkyō and Sendai: Maruzen Co., Ltd.)

Conseil Permanent International pour l'Exploration de la Mer. Rapports et procès-verbaux des réunions, Vol. 69: Vergleich der Fangfähigkeit verschiedener Modelle von Plankton-netzen. Von Cl. Künne. Pp. 37. 1.50 kr. Faune ichtthyologique de l'Atlantique nord. Publiée sous la direction de Prof. Joubin. No. 1. 24 planches. (Copenhague: Andr. Fred. Høst et fils.)

New York Academy of Sciences. Scientific Survey of Porto Rico and the Virgin Islands. Vol. 10, Part 2: The Fishes of Porto Rico and the Virgin Islands. Branchiostomidae to Sciaenidae. By J. T. Nichols. Pp. 161-295. (New York City.)

Technical Books of 1928: a Selection. Twenty-first Issue. Pp. 28. (Brooklyn, N.Y.: Pratt Institute Free Library.)

Berichte über die Verhandlungen der Sächsischen Akademie der Wissenschaften zu Leipzig, Mathematisch-physische Klasse. Band 80, 1928, Heft 7 (Schlussheft). Pp. xxxvii+497-507. (Leipzig: S. Hirzel.) 1-50 gold marks.

Instituts scientifiques de Buitenzorg: "s Lands Plantentuin". Treubia: recueil de travaux zoologiques, hydrobiologiques et océanographiques. Vol. 7, Livraison 4, Avril. Pp. 331-455+plates 6-9. (Buitenzorg.) 2.50 f.

CATALOGUES.

- Small Electric Furnaces for Laboratory and Works. (List No. 75E.) Pp. 20. (London: A. Gallenkamp and Co., Ltd.)
 Pituitary (Posterior Lobe) Extract B.D.H. Pp. 12. (London: The British Drug Houses, Ltd.)
 Microscopes and Accessories, 1930. Pp. 103. (London: C. Baker.)
 Cambridge Gas Analysers, Electrical Type. (List No. 144.) Pp. 24. (London: Cambridge Instrument Co., Ltd.)

Diary of Societies.

FRIDAY, OCTOBER 18.

- ROYAL COLLEGE OF PHYSICIANS OF LONDON, at 4.—Sir Wilmot Herringham: Harveian Oration.
 ROYAL COLLEGE OF SURGEONS OF ENGLAND, at 5.—Sir Arthur Keith: Demonstration of Specimens of Trephining—Ancient and Modern.
 INSTITUTION OF MECHANICAL ENGINEERS, at 6.—Dr. D. Adamson: Presidential Address.
 ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN (Informal Meeting of Pictorial Group), at 7.
 WEST OF SCOTLAND IRON AND STEEL INSTITUTE (at Royal Technical College, Glasgow), at 7.—R. Hamilton: Presidential Address.
 SOCIETY OF CHEMICAL INDUSTRY (South Wales Section) (at Royal Metal Exchange, Swansea), at 7.30.—Dr. A. C. Edwards: The Chemistry of Tinplate Manufacture.
 BRITISH ELECTRICAL DEVELOPMENT ASSOCIATION (at Royal Society of Arts), at 7.30.—Miss G. Burlton: Personal Salesmanship in the Electrical Industry.