Societies and Academies.

LONDON.

Optical Society, Oct. 10.—T. H. Court and Moritz von Rohr: Development of the telescope (1675–1830). J. Lipperhey was the first to construct a practical telescope for military use in 1608. Galileo developed this type for astronomical purposes. The Capuchin Father v. Schyrle in 1645 printed, in the form of a cryptogram, rules for making an erecting eyepiece made of three collective lenses. Starting from this point the authors trace the development of the telescope in England down to 1830. The invention of the achromatic objective is attributed to Chester Moor Hall in 1733. He kept his invention secret, but it leaked out, and was patented by John Dollond, whose elder son, Peter, brought successful actions for infringement against London opticians. New light is thrown on this celebrated invention and on many others by a careful examination of the instruments and documents in the well-known Court Collection.

ROME.

Royal National Academy of the Lincei, June 16.—E. Almansi: The motion of a body of variable mass.—**Q. Majorana:** Absorption of ultra-violet or infra-red rays by cloud. In connexion with the author's two systems of optical telephony by means of ultra-violet or infra-red rays, laboratory tube experiments fail to reveal any sensible absorption of the radiant energy when the tube is filled with either dry or wet air, provided that this is perfectly clear. Under certain cloudy conditions it appears that infra-red rays may be transmitted twice as far as ultra-violet rays.—**S. Franchi:** A new facies of Upper Trias in the Italian Maritime Alps.—**G. Levi:** Supposed specific cytological characters of the cytoplasm of the sexual cells. No constant specific differences exist, in the vertebrates, between the chondriome of the gonocytes and ovocytes on one hand and that of the somatic cells on the other.—**M. Picone:** The isolated singularity of harmonic functions.—**A. de Mira Fernandes:** Christoffel's quadruple tensor and Riemann's tensor.—**F. Sbrana:** Geodetic curvature and parallelism on a surface.—**G. Mazzone-Sangiorgi:** The prime elements of a new general theory for the motion of waters and other fluids (1).—**E. Gugino:** Theorem of the maximum kineto-dynamic effect in relation to the principle of Hertz's directism.—**P. Emanuelli:** The galactic pole and the circumpolar galactic region.—**A. Carrelli:** The longitudinal distribution of photo-electrons.—**A. Tulli:** Further contribution to the study of the mummification of the ancient Egyptians: chemical analysis of a mummy from the Vatican Museum. Analysis of the tissues near one of the vertebræ of the neck of this mummy demonstrated the absence of natron, heavy metals, and arsenic. Treatment with light petroleum, alcohol, and water successively gives 6·2, 12·0, and 23·6 per cent of matters soluble in these solvents. The use of gum-resins is indicated.—**P. Saccardi:** Melanins from adrenaline. When a faintly alkaline solution of the melanin-like substance, obtained by the oxidation of adrenaline with chlorine water, is administered subcutaneously to the rabbit, it causes decided melanuria, characteristic melanoderma and trichoderma, and browning of the subcutaneous connective tissue at the injection area. These results furnish evidence of the analogy in constitution between pyrroles, natural melanins, and adrenaline black, and indicate that, in definite physiological and pathological conditions, adrenaline may give rise to melanins.—**D. Bigiavi:** Reactions of the diazohydrates. The Angeli-Cambi formula for the diazohydrates furnishes an explanation of the transformation of iso- into normal diazohydrate, which resembles the Beckmann conversion, since it consists in the migration of the oxygen atom from nitrogen to nitrogen; in the former change, when induced by hydrochloric acid, the intermediate formation of diazonium chloride is probable. The fact that the sodium salt of an isodiazohydrate does not react with β-naphthol, arsenite, etc., whereas the free isodiazohydrate immediately reacts, has an analogy in the different behaviour of sodium nitrite and nitrous acid towards phenols, etc., and that of benzaldoxime and its sodium salt towards potassium cyanide.—**M. Lecat:** Azeotropy in binary systems containing a hydroxylated compound.—**G. Bini:** Certain characteristics of the Red Sea with regard to the nitrogen cycle. The waters of the Red Sea contain relatively high proportions of ammonia, owing partly to the paucity of vegetation, especially of the fixed variety, and partly to putrefaction of the abundant marine animals, this being favoured by the marked alkalinity and by the high temperatures of the water and air. Large amounts of nitrites are present in certain regions, these being derived from animal putrefaction and from the action of denitrifying bacteria on nitrates. The latter were not found in any of the water samples analysed and are doubtless absorbed by the dentrifying bacteria; to this action is due, in large part, the scarcity of vegetation.—**A. Ferrari and F. Giorgi:** The crystalline structure of bromides of bivalent metals. The following bromides have crystalline structures of the cadmium iodide type, their characteristics being: $CoBr_2$, $a = 3{\cdot}685 \pm 0{\cdot}005$ A., $c = 6{\cdot}120$ A., $c : a = 1{\cdot}66$, density $= 5{\cdot}072$; $FeBr_2$, $a = 3{\cdot}740 \pm 0{\cdot}005$ A., $c = 6{\cdot}171$ A., $c : a = 1{\cdot}65$, density $= 4{\cdot}790$; $MgBr_2$, $a = 3{\cdot}815 \pm 0{\cdot}005$ A., $c = 6{\cdot}256$ A., $c : a = 1{\cdot}64$, density $= 3{\cdot}876$; $MnBr_2$, $a = 3{\cdot}820 \pm 0{\cdot}01$ A., $c = 6{\cdot}188$ A., $c : a = 1{\cdot}62$, density $= 4{\cdot}549$. Cadmium bromide, however, exhibits a rhombohedric cell of the magnesium chloride type, with the dimensions, $a = 7{\cdot}72 \pm 0{\cdot}01$ A., $\alpha = 61° 40'$; this cell contains four molecules and the calculated density is 5·36, the observed value being 5·192.—**M. Fenoglio:** Petrographical studies on the Canavese zone: Belmonte granite.—**A. Bianchi:** Petrographical notes on the region of the Aurine Alps and of the Vedrette Giganti (Upper Adige) (1).—**L. Bucciante:** Duration of survival of the different tissues of hens' embryos with which incubation has been interrupted.—**L. Bucciante and E. De Lorenzi:** Correlation of the number and magnitude of single types of retinic neurones in animals of different body size.—**G. Lentati:** Investigations on the histogenesis of the islets of Langerhans in *Ovis aries L.*—**G. D'Anneo:** A plurisegmental central preparation of *Bufo vulgaris*.—**A. Galamini:** Further investigations on the food value of the potato for albino rats. While a daily ration of 50 gm. of boiled potato and 4 gm. of butter keeps albino rats alive, it is insufficient for normal growth in a growing rat. The addition, after 120 days, of 1-2·5 gm. of fibrin caused normal increase in weight. Alcohol or Osborne's salt mixture also improves the food value of the diet, the adult rat then increasing in weight; if these additions are discontinued, the gain in weight is lost.—**S. Ranzi:** Embryonic growth of the cephalopods.

WASHINGTON, D.C.

National Academy of Sciences (*Proc.*, Vol. 15, No. 8, Aug. 15).—**E. B. Babcock and J. L. Collins:** Does natural ionising radiation control rate of muta-

tion? (see NATURE, Aug, 10, 1929, p. 227).—**R. J. Anderson**: Chemical investigation of biologically active lipoids of tubercle bacilli. Lipoid fractions from tubercle bacilli all give rise to tubercular tissue, due apparently to the presence of certain new liquid saturated fatty acids. The most active acid is dextrorotatory and has been named phthioic acid; its formula is $C_{26}H_{52}O_2$, and it is thus an isomer of cerotic acid.—**Th. Dobzhansky**: A homozygous translocation in *Drosophila melanogaster*. Certain of the progeny of flies treated with X-rays, though normal in appearance, show linkage of genes of the third group with those of the fourth.—**Francis Bitter**: Magnetic susceptibility of nitric oxide at 296° K. and 216° K. Four parallel pyrex cylinders were suspended in a cluster by a quartz fibre; two opposite tubes were filled with air (paramagnetic) and the other two and the surrounding space with nitric oxide. The displacement of the system in an inhomogeneous magnetic field was measured.—**R. C. Gibbs, H. E. White, and J. E. Ruedy**: Hyper-fine structure in spectral lines—especially those of singly ionised praseodymium.—**Alexander Goetz and Maurice F. Hasler**: A method of producing long single-crystals of metal and a study of the factors influencing crystal orientation and perfection. Molten metal (bismuth) was sucked into a carefully cleaned glass tube 15-20 cm. in length, through the fine-pointed end from which crystallisation started. The tube and metal crystal are then reheated above the melting-point of the metal, and sufficiently to soften the glass, and the whole drawn out to the required length and diameter, the conditions of cooling being maintained as constant as possible. The orientation of the crystal axes seems to be such that the strains imposed by crystallisation are a minimum.—**J. C. Boyce and K. T. Compton**: Higher spark spectra of neon and argon in the extreme ultra-violet. An electrodeless ring discharge was used.—**Gerald L. Pearson**: Relative probabilities of the ionisation of K and L electrons of equal ionisation energy.—**J. B. Scarborough**: The invalidity of a commonly used method for computing a certain probable error.—**Miguel A. Basoco**: On certain Fourier series expansions of doubly periodic functions of the third kind.—**G. A. Miller**: Automorphism commutators.—**John D. Elder**: Arithmetised trigonometrical expansions of doubly periodic functions of the third kind.—**Worth H. Rodebush**: The entropy of hydrogen. The data previously obtained at low temperatures must have referred to a non-equilibrium mixture of the two molecular species now recognised.—**P. W. Bridgman and J. B. Conant**: Irreversible transformations of organic compounds under high pressures (Preliminary paper). Pressures up to 12,000 atmospheres were used for periods up to 56 hours. Certain substances were partially polymerised; isoprene and dimethyl butadiene became jelly-like solids which, on standing in air, shrunk by evaporation of the liquid hydrocarbon, leaving a rubber-like solid. Carboxy-hæmoglobin under pressure gives a precipitate resembling the 'denatured' substance obtained by the action of alcohol.—**Elery R. Becker and Ralph C. Everett**: Progress report on weight increases in lambs with and without rumen Infusoria. Lambs freed from rumen Infusoria showed considerably bigger increases of weight.—**Elery R. Becker and T. S. Hsiung**: The method by which ruminants acquire their fauna of Infusoria, and remarks concerning experiments on the host-specificity of these protozoa. Infection is spread by mouth contamination. Infusoria from the stomach of goat, cow, or sheep show no host-specificity within these hosts, but those from colon or fæces of horse will not develop in the rumen of goats.

Official Publications Received.

BRITISH.

Journal of the Royal Microscopical Society. Series 3, Vol. 49, Part 3, September. Pp. xvi+211-318. (London.) 10*s.* net.

Report for 1928 on the Lancashire Sea-Fisheries Laboratory at the University of Liverpool and the Sea-Fish Hatchery at Piel. No. 37. Edited by Prof. James Johnstone and R. J. Daniel. Pp. 182+4 plates. (Liverpool.).

The Year's Photography, 1929–1930. Pp. 25+xlix+90 plates. (London: Royal Photographic Society.) 2*s.* 6*d.*

Hull Museum Publications. No. 158: The Evolution of the Miners' Safety Lamp, and Record of Additions. Edited by T. Sheppard. Pp. 24. No. 159: Archery Medals and Memoranda. By T. Sheppard. Pp. 16. No. 160: Illustrated Guide to the Facsimile of the Bayeux Tapestry. Edited by T. Sheppard. Pp. 19. (Hull.)

Dominion Museum. Bulletin No. 13: The Whare Kohanga (The 'Nest House') and its Lore; comprising Data pertaining to Procreation, Baptism and Infant Betrothal, etc.; contributed by Members of the Ngati-Kahungunu Tribe of the North Island of New Zealand. By Elsdon Best. Pp. 72. (Wellington, N.Z.: W. A. G. Skinner.) 4*s.*; paper, 2*s.* 6*d.*

Chelsea Polytechnic, Manresa Road, Chelsea, S.W.3. Prospectus of Day and Evening Classes for Men and Women, Session 1929–30. Pp. 68. Chelsea College of Physical Education. Prospectus, Session 1929–30. Pp. 10. Chelsea School of Art. Prospectus, Session 1929–30. Pp. 8. Chelsea School of Cookery, Housecraft and Dressmaking. Prospectus, Session 1929–30. Pp. 8. Chelsea School of Pharmacy. Prospectus, Session 1929–30. Pp. 18. Chelsea School of Chiropody. Prospectus of Day and Evening Classes, Session 1929–30. Pp. 8. (London.)

The Journal of the Royal Horticultural Society. Edited by F. J. Chittenden. Vol. 54, Part 2, September. Pp. iv+253-460+lxxxv-cxliv+xxii+49 plates. (London.) 7*s.* 6*d.*

Royal Commission on National Museums and Galleries. Final Report, Part 1: General Conclusions and Recommendations, dated 20th September 1929. (Cmd. 3401.) Pp. 93. (London: H.M. Stationery Office.) 2*s.* net.

Air Ministry: Aeronautical Research Committee. Reports and Memoranda. No. 1224 (Ae. 379): On the Flow of Air adjacent to the Surface of an Aerofoil. By Dr. N. A. V. Piercey and Dr. E. G. Richardson. (T. 2694.) Pp. 23+15 plates. (London: H.M. Stationery Office.) 1*s.* 3*d.* net.

Proceedings of the Royal Irish Academy. Vol. 39, Section B, No. 2: The Glacial Retreat in Iar Connacht. By Prof. J. Kaye Charlesworth. Pp. 95-106+1 plate. (Dublin; Hodges, Figgis and Co.; London: Williams and Norgate, Ltd.) 6*d.*

FOREIGN.

U.S. Department of Agriculture. Farmers' Bulletin No. 1582: Protection of Log Cabins, Rustic Work and Unseasoned Wood from Injurious Insects. By R. A. St. George. Pp. ii+20. 5 cents. Farmers' Bulletin No. 1601: Collection and Preservation of Insects for Use in the Study of Agriculture. By Margaret C. Mansuy. Pp. ii+20. 5 cents. (Washington, D.C.: Government Printing Office.)

Smithsonian Institution: United States National Museum. Bulletin 147: Archeological and Historical Investigations in Samaná, Dominican Republic. By Herbert W. Krieger. Pp. iv+91+27 plates. (Washington, D.C.: Government Printing Office.) 40 cents.

Department of Commerce: Bureau of Standards. Research Paper No. 81: Note on a Mercury Spark Gap for Instantaneous Photography. By L. F. Curtiss. Pp. 53-55. 5 cents. Research Paper No. 89: The First Spectrum of Krypton. By William F. Meggers, T. L. de Bruin and C. J. Humphreys. Pp. 129-162+4 plates. 15 cents. (Washington, D.C.: Government Printing Office.)

Ministry of Agriculture, Egypt: Technical and Scientific Service. Bulletin No. 89: The Natural Crossing of Cotton Flowers in Egypt; its Distribution in Time and Space, and its Cause. By Dr. W. Lawrence Balls, assisted by Dr. J. Templeton, C. H. Brown, M. Kilani and others. Pp. 27. (Cairo: Government Press.) 5 P.T.

Cornell University Agricultural Experiment Station, Ithaca, New York. Bulletin 478: An Economic Study of Farm Buildings in New York. By I. F. Hall. Pp. 87. Bulletin 481: The Clover-Flower Midge (*Dasyneura leguminicola* Lintner). By Lawrence Paul Wehrle. Pp. 35. Bulletin 485: Farm-Property Taxation in New York. By Irving J. Call. Pp. 49. Bulletin 488: A Study of some Factors affecting Seed-Stalk Development in Cabbage. By Julian C. Miller. Pp. 46. (Ithaca, N.Y.)

Koninklijk Magnetisch en Meteorologisch Observatorium te Batavia. Jaarverslag 1928. Pp. 25. (Weltevreden: Landsdrukkerij.)

Smithsonian Miscellaneous Collections. Vol. 82, No. 1: Absorption Lines of the Infra-red Solar Spectrum. By C. G. Abbot and H. B Freeman. (Publication 3026.) Pp. 17+5 plates. (Washington, D.C.: Smithsonian Institution.)

Proceedings of the American Philosophical Society held at Philadelphia for Promoting Useful Knowledge. Vol. 68, No. 2. Pp. 69-161. (Philadelphia.)

State of Illinois. Department of Registration and Education: Division of the Natural History Survey. Bulletin, Vol. 18, Article 1: The Native and Naturalized Trees of Illinois. By Robert Barclay Miller and L. R. Tehon. Pp. 339 (98 plates). (Urbana, Ill.)

CATALOGUES.

Fine Filtration and Ultra Filtration. Pp. 32. Catalogue of Scientific Text Books. Pp. 19. (London: A. Gallenkamp and Co., Ltd.)

Catalogue de livres anciens et modernes rares ou curieux relatifs à l'Orient. (No. 11.) Pp. 199-274. (Paris: Libr. Adrien-Maisonneuve.)

The Librarians' Catalogue of Periodicals, Journals and Transactions of the Learned Societies, Library Editions and Standard Books in all Departments of Literature, English and Foreign, including Books for the Collector and Student. (Catalogue 334.) Pp. 98. (Cambridge: W. Heffer and Sons, Ltd.)