

Early Science at Oxford.

February 8, 1683-4.—Mr. Desmasters gave us a farther account of ye expansion of Ice. He told us, that whereas the water he made use of lately (in some experiments of this kind, mention'd in the preceding Minutes) was a sort of rough pump-water, which he has found turn milky and turbid immediately upon ye affusion of oyl of tartar *per Deliquium*; and considering also, that ye Ice made of this Water was a sort of rarified white Ice, he was hereby inclined to try, whether River water (which would readily mix with oyl of Tartar, without ye least precipitation) would, upon freezing, be expanded to ye height of ye pump-water above mentioned. In order whereunto, he fill'd a glass tube of almost an inch diameter, with river water, to ye height of 6 inches (as he had done in ye former triall,) and then putting it to freeze in a mixture of snow, and salt, it gained but $\frac{3}{8}$ of an inch, after it was frozen; whereas ye pump-water got $\frac{3}{4}$ of an inch.

Dr. Plot shew'd us some *Rosemary balls*, which are of ye nature of Mr. Lister's Rust-balls, and were dug in Staffordshire, where they lye in lumps, in some of their Marl-pits. Part of this stone apply'd to ye Magnet, after an hour's calcination.

A letter from my Lord Bishop of Ferns and Leighlin, mentioned a discourse of his Lordship's, preliminary to ye Doctrine of Sounds included in his letter. We received also a discourse from Mr. William Molyneux, concerning an optical Problem, which was read, and transmitted to ye Royal Society; Mr. Bernard is desired to peruse, and consider it, as soon as it shall be returned from ye Royal Society, and give his thoughts of it to ye company.

February 9, 1685-6.—An Abstract of ye book of Fishes composed by Mr. Willoughby and Mr. Ray, printed by ye Royal Society, was read.—Mr. Cole of Bristol communicated an account of his observations on ye Purple Fish, for which the thanks of the Society were ordered.

February 10, 1684-5.—A Letter from Mr. Aston, dated Feb. 2, was read. It affirm'd (among other things) *That mortar is always without hair*; of ye truth of which we must own our selves not as yet satisfied.

Ordered—That Mr. Maunders, chaplain to Col. Luttrell, in Dorsetshire, Mr. Thomas, minister of Chard, and Dr. Turberville of Salisbury, be asked what information they can give of ye late cold wind, which proved so fatal in Wiltshire, and Dorsetshire, about last Christmas. Also that Mr. Maunders be desired, as his occasions will give him leave, to draw up, and send us, an account of ye *Laver*, an Herb growing on ye rocks near Dunster Castle.

An account of ye weather here at Oxford, December, January, and February last, taken by Mr. Walker, was by him presented to ye Society.

A letter from Mr. Cuninghame, dated St. Leonards College, Jan. 17, 1684-5, written to Mr. President, was read; It shewed his great readiness to procure us correspondents in Scotland; and contained a letter from ye reverend Dr. Skene, Provost of our holy Saviour's College, in St. Andrewes, to Mr. President, concerning ye establishing a Communication of matters Philosophicall, between this Society and ye learned Doctor, and his friends. It was ordered, that some of our Minutes be transcribed, to be sent ye Doctor, with the humble thanks of this Society for his compliance in this matter.

Mr. Standard of Merton communicated the results of his experiments on the weights of the several parts of Hens' eggs, weighed before and after boiling. The weighings were made with a pair of scales which turned with half a grain.

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Societies and Academies.

LONDON.

Royal Society, January 29.—P. M. S. Blackett: The ejection of protons from nitrogen nuclei, photographed by the Wilson method. Photographs have been taken of more than 400,000 alpha-ray tracks in nitrogen, using an automatic form of the Wilson condensation apparatus. A source of thorium B + C₁ was used, giving a mixed beam of 8.6 and 5.0 cm. alpha particles. Among the tracks were found many normal forks due to the elastic collisions between alpha particles and nitrogen nuclei. In addition, eight forks were found of a strikingly different type. These abnormal forks represent the ejection of protons from nitrogen nuclei. Each track branches into two arms, one of which clearly represents the track of the proton. Since there is only one other arm to represent the tracks of both the residual nucleus and the alpha particle itself, the two particles must be bound together after the collision. When, therefore, a proton is ejected from a nitrogen nucleus by a fast alpha particle, the alpha particle itself is captured by the residual nucleus, forming a new nucleus which should have a mass of 17 and an atomic number 8.—R. E. Gibbs: The variation with temperature of the intensity of reflection of X-rays from quartz and its bearing on the crystal structure. Whilst the space group to which quartz belongs is known, the positions of the atoms in the molecule remain undetermined. The oxygen atoms cannot lie in the same basal planes as do the silicon, but must interleave them at a distance *d*. Of all the four unknown parameters, the variation of *d* alone will affect the intensity of reflection from the basal plane. Reflection intensities measured from 0° to 800°C. show that marked changes occur for all the planes at the transition point.—R. W. Gurney: (1) Ionisation by alpha particles in monatomic and diatomic gases. In the monatomic gases—xenon, krypton, argon, neon, and helium—the amount of ionisation increases with increasing atomic number, a result to be expected from their decreasing ionisation-potentials. In the diatomic gases—hydrogen, oxygen, and nitrogen—ionisation is less than in any of the monatomic gases, in spite of the high value of the ionisation-potential of helium. The ratio of the ionisation in the gases to that in air varies with the velocity of the alpha particles. The question is discussed whether the value (33 volts) found by Geiger for the average expenditure of energy per pair of ions in air is applicable to ionisation near the end of the range. (2) The stopping-power of gases for alpha particles of different velocities. Since the stopping-power of a substance varies with the velocity of the alpha particles traversing it, the value obtained for the stopping-power of a gas by a measurement made over the whole or a large part of the range, as has usually been done, is merely an average value. Small portions of the range are here selected, so that the relative stopping-power has been measured for alpha particles of high velocity, of low velocity, and of intermediate velocity, separately. The relative values of the atomic stopping-powers tend to converge at the end of the range.—W. E. Curtis: The Fulcher hydrogen bands. The Fulcher lines and Allen's additions to them have been examined with the view of finding a theoretical interpretation of them. The wave-numbers of two of the strongest lines require correction by about 0.5 cm.⁻¹. The differences are then sufficiently regular to provide a criterion for the genuineness of the extra lines, which are in the main confirmed. The arrangement is consistent

with the view that they originate from combinations of simultaneously occurring rotation and vibration changes. New values of the molecular moments of inertia concerned are obtained which probably refer to an "excited" molecule. The nuclear vibrations within the hydrogen molecule seem to be very nearly simple harmonic, which would account, in conjunction with the small moment of inertia, for the unique structure of the system as compared with other band systems. The two sets of Fulcher triplets apparently originate from two molecules essentially similar in structure.—W. L. Webster: The magnetic properties of iron crystals. The magnetic properties may be accounted for by the Weiss theory of molecular fields. The magnitude of the molecular field is found for two crystals, giving respectively 620 and 479 gauss. The magnitude of the component along any one of the crystal axes varies as $\cos^4(\psi)$, (ψ) being the angle between the axis and the direction of magnetisation. The molecular field is a stable property of the crystal, and is affected considerably by the presence of impurities.—A. E. Ingham and J. E. Jones: On the calculation of certain crystal potential constants and on the cubic crystal of least potential energy.—E. C. Stoner and L. H. Martin: The absorption of X-rays. Two beams, defined by two slit systems, one vertically above the other, are reflected by the same crystal into two ionisation chambers. The beams are first balanced. A sheet of the absorbing material is then placed in the path of the upper beam, and the beams rebalanced by moving a wedge of aluminium across the path of the lower beam. The well-known law $\tau/\rho = \text{const. } Z^4/\lambda^3$ holds only on the long wave-length side, or sufficiently far away on the short wave-length side of the K absorption discontinuity. Neither the formula of de Broglie nor of Kramers gives correctly the variation of the magnitude of the K group with atomic numbers. Measurements on the absorption co-efficients of uranium on each side of the three L absorption discontinuities show that the number of electrons associated with the L_3 level equals the sum of the numbers associated with the L_1 and L_2 levels. This is in agreement with Dauvillier's result for gold.—F. H. Schofield: The thermal and electrical conductivities of some pure metals. The maximum temperature used was 700°C . The thermal conductivity of aluminium increases with rising temperature, that of nickel decreases at first, and then above 500°C . increases. Copper, magnesium, and zinc showed, on the whole, slight decreases of conductivity with temperature. The values of Lorenz's function for copper, magnesium, and zinc were practically constant at all temperatures; that for aluminium showed a rise with increasing temperature; that for nickel showed a rise to 300°C ., above which temperature it remained nearly constant except for an abnormal value at 400°C .—M. de Sélincourt: On the effect of temperature on the anomalous reflection of silver. The existence of a well-defined band in the ultra-violet (about 40 \AA in width) at which the reflection co-efficient of silver is negligible, has been utilised to investigate the relation between the frequency of the free electrons which are responsible for the reflection and the mean distance between the particles of the metal. The point of minimum reflection has been determined by a photographic method at the four temperatures -183° , -79° , 16° and 150° ; the band is displaced in the direction of decreasing wave-length as the temperature is lowered, and is at the same time rendered sharper and narrower.—T. L. Ibbs: Thermal diffusion measurements. Mixtures of each of the following pairs of gases were used: hydrogen and carbon-

dioxide, hydrogen and nitrogen, nitrogen and carbon-dioxide, hydrogen and argon, helium and argon. The apparatus consists essentially of a small cold vessel maintained at uniform temperature, joined by a connecting tube to a larger vessel the temperature of which can be raised as required to about 300°C . Thermal diffusion produces a difference in the distribution of the components of the mixture on the hot and cold sides, and the resulting change in composition on the cold side is measured directly by means of a katharometer, the open cell of which forms part of the cold side. There is a general tendency for the gas with the heavier molecules to diffuse towards the cold side. The total separation is nearly proportional to $\log T_1/T_2$ (where T_1 is the absolute temperature of the hot side, and T_2 the absolute temperature of the cold) in all cases.

Optical Society, December 11.—J. Guild: (1) An equipment for visual spectro-photometry. The equipment for visual spectro-photometry designed by the author and installed in the Optics Division of the National Physical Laboratory. The basis of measurement is Talbot's law as applied to rotating sectors. By employing a series of sectors the whole range of effective transmission from 100 per cent. to 0.01 per cent. is covered by a series of fixed points, each of which corresponds to a transmission about 90 per cent. of the next higher, with only a few sectors none of which is below 1 per cent. in its effective transmission. The gaps between the fixed points are covered by photometric wedges calibrated in terms of the sector discs. The field of the instrument is of the Lummer-Brodhun contrast pattern. (2) Transformation of trichromatic mixture data. Algebraic methods of transforming colour mixture equations from one trichromatic system to another are described. Measurements made in terms of the arbitrary working primaries of any trichromatic colorimeter can be transformed into any system of standard primaries or vice versa, without auxiliary measurements other than can be made on the instrument itself used in the normal manner.—L. C. Martin: A simple microphotometer. The addition of a few auxiliary parts, including a photometric comparison cube, permits an ordinary microscope to be used for finding the average density over a very small area of a photographic plate by visual methods. The instrument is useful with spectrograms and star images.

January 15.—W. H. Steavenson: A peep into Sir William Herschel's workshop. See NATURE, July 5, 1924, p. 21.—P. P. Schilovsky: Slow speed precision training gear governed from a distance. The increase in precision in the training of telescopes, microscopes, etc., is possible only if an electrical device, controlled from a distant station, is applied to the moving parts. The angular velocity of the training motor must correspond with that of the handle of the manipulator. Standard motors in which the speed of rotation depends upon load and output cannot be used; the only system available is one where the manipulator can revolve the magnetic field of a motor's element in strict conformity with the speed and direction of a distant device at the governing station.

Aristotelian Society, January 5.—G. Dawes Hicks: The dynamic aspect of Nature. The view that "force," in the sense of strain or stress, is a subjective phenomenon is devoid of justification. As it is requisite to distinguish the *perception* of a colour from the *colour*, so it is requisite to distinguish the *perception* or *feeling* of a strain from the *strain* which

we perceive or feel. Though the sun is not *conscious* of a strain when it pulls the earth, it does not in the least follow that in doing so it is not subject to a strain. On the other hand, one may legitimately argue that the "mind" or "self" is as such neither subject to a strain, in the sense in which that term is used of material things, nor to be conceived as putting forth energy. In willing, as indeed in cognising, the "mind" is certainly active, but the activity is not analogous to what is signified by the phrase "exertion of force." Further, there is no ground for the contention that what we are cognisant of as "force" or "energy" is confined to organic phenomena, a supposition which would necessitate a theory of vitalism cruder than any hitherto suggested. The truth rather is that modern physics, with its conception of "lines of force" and its doctrine of energy, presupposes the reality of the factors of stress and strain in the physical world. The concept of either "force" or "energy" as an entity *per se* is doubtless a pseudo-concept; but the notion of mass and energy as inseparably combined would seem to be a necessity for physical theory. The attempt to conceive of energy as the one physical reality and of matter as a derivative therefrom results simply in the materialisation of energy. A quantum of energy becomes to all intents and purposes a materialised body, although matter is supposed to be dispensed with. The paper concluded by criticising certain consequences which have been thought to follow from the general theory of relativity.

Mineralogical Society, January 20.—K. Yardley: An X-ray examination of calcium formate. The orthorhombic bipyramidal unit cell contains 8 asymmetric molecules. The dimensions are $a = 10.19 \text{ \AA}$, $b = 13.41 \text{ \AA}$, $c = 6.27 \text{ \AA}$. The structure is founded on the Bravais lattice Γ_0 , and belongs to the space-group Q_0^5 .—John Parry and F. E. Wright: Afwillite, a new hydrous calcium silicate from Dutoitspan mine, Kimberley, South Africa. This mineral was found by Mr. A. F. Williams as large water-clear crystals. These are monoclinic. Analyses give the formula $3\text{CaO} \cdot 2\text{SiO}_2 \cdot 3\text{H}_2\text{O}$ or $2\text{H}_2\text{CaSiO}_4 \cdot \text{Ca}(\text{OH})_2$. It has a slight alkaline reaction and is completely decomposed by dilute hydrochloric acid. Optical and crystallographic data are given in detail.—P. N. Chirvinsky: Tyuyamunite from the Tyuya-Muyun radium mine in Fergana. A review is given of the literature on the copper, vanadium, and uranium ores at this locality. The mineral tyuyamunite, $\text{CaO} \cdot 2\text{UO}_3 \cdot \text{V}_2\text{O}_5 \cdot m\text{H}_2\text{O}$, is related to carnotite, having calcium in place of potassium. The microscopical characters of the minute orthorhombic crystals are described.—L. J. Spencer: International agreement in mineralogical and crystallographical nomenclature. With a small amount of "give and take" in different countries much greater uniformity could be attained for mineral names. For international purposes the correct spelling of the printed word is of more importance than the correct pronunciation. There is no necessity to provide well-established mineral-names with the termination *ite*. The Millerian notation for crystal planes is the best for international use. The principal optical directions are conveniently given by α , β , γ , corresponding with the three principal indices of refraction.

EDINBURGH.

Royal Society, January 12.—E. Leonard Gill: The Permian fish, *Dorypterus*. The external covering of *Dorypterus* consisted only of a series of large scales

protecting the belly, of a curious cord-like row of spindle scales and a few scales upon the tail. The bony structures of the few examples which have been preserved, show that it belonged to the coral-fish type, that its body was exceedingly compressed and roughly circular in outline, and that its jaws, differing from those of any other known fish from the earlier deposits, show it to have developed a highly specialised mode of feeding. Its flattened body, comparative lack of scales, and limited amount of muscular tissue, necessitated that exceptional support should be derived from the bony skeleton, and hence the median plane has become filled with a development of bony spines and fin-supports, such as is scarcely equalled in any other fish. In this and other respects it shows general and remarkable convergence of adaptation to modern flattened fishes of the "John Dory" type, while in the placing of its paired fins its aspect is also modern. The investigation demands the formation of a new family for "*Dorypterus*," and a readjustment of its recognised place in the scale of fish evolution.—E. A. Baker: The law of blackening of the photographic plate at low densities. This investigation was undertaken at the Royal Observatory, Edinburgh, in order to supply the necessary physical data for a photometric study of stellar spectra. Such a study leads to the characteristic curve of radiative intensity of each star, and the determination of its temperature. But a prerequisite is the conversion from density on the photographic plate to the intensity of the illumination, for any wave-length. The instrument for measuring density is a photometer, constructed by the author, on the principle devised by Koch, in which the obscured and unobscured beams pass to two photo-electric cells and their effects are balanced against one another. The production of standard deposits representing definite ratios of the incident light was effected by means of screens pierced by standard apertures, registering upon the same spot and exposed separately or together. The values for different wave-lengths were secured by suitable colour filters. These are at present confined to the violet and the red, the filters not being sufficiently selective in the green. The results are expressed in the form of the determination of certain coefficients, equivalent to, and superseding the current statements of the inertia of the plate, development constant, and the departure from reciprocity indicated by Schwarzschild's index.—E. L. Ince: The vibrations of a stretched membrane with a particular law of density. Membranes the density of which diminishes according to the square of the distance from a fixed point were considered. The boundary is either circular, elliptical, or rectangular. For particular values of the constants the problem is simpler than in the case of uniform density. These simple cases are considered, and the problem is then dealt with more generally by an appeal to the Sturmian theory of differential equations.

VIENNA.

Academy of Sciences, November 20.—J. Kaess: Fermat's great theorem and its solution.—A. Rollett and A. Schmitt: On β -amylin from Manila elemi-resin (third contribution).—K. Stosius and E. Philippi: The course of the action of ammonia on cinnamic acid ethyl ester.—M. Nicolic: The influence of light on the germination of *Phacelia tanacetifolia*. The germinating power of the seeds is in part completely destroyed, in part hindered, by continued illumination. The retarding action of light increases with the strength of the illumination.—F. Dormann:

The epidermal glands and excretion of resin in *Alnus viridis*.

November 27.—The vice-president announced the death of Sir Archibald Geikie, honorary member of the Academy.—S. Meyer: Communications of the Radium Institute, No. 171. Coefficients of atomic magnetism for the rare earths. New determinations with the purest material from C. Auer-Welsbach and for hafnium from G. Hevesy. Cassiopeium and hafnium are as diamagnetic as lanthanum and zirconium. Tetravalent præsodymium has nearly the same atomic magnetism as trivalent cerium, and tetravalent cerium nearly the same as trivalent lanthanum. The results are important for the co-ordination of electronic orbits in Bohr's atomic model.—J. Kaess: Construction of the angle 1° with compasses and ruler.—G. Weissenberger, F. Schuster, and N. Mayer: On the molecular compounds of the phenols, VI. The behaviour of naphthols, tetrahydronaphthol, and allied compounds.

December 4.—H. Pettersson: Communication of the Radium Institute, No. 172. The field of force of the atomic nucleus and Coulomb's law. Experiments seem to show that α -particles shot at the nucleus of certain elements are not reflected but remain at the nucleus. This, as well as the results obtained by Bieler, can be explained by considering the electrostatic induction between α -particle and nucleus on the basis of Coulomb's law.—J. Kaess: Division of a circle into 7 and into 9 parts by ruler and compasses.—L. Holzer: Estimation of the units in a cubic number-body (Zahlkörper).—F. Raas: The crystal form of the orthoclases. The growth velocities of single crystal surfaces are given numerically as relative central distances.—R. Mueller, E. Pinter, and K. Pretz: The electrochemistry of non-aqueous solutions, Communication VI. Experiments on the electrolytic deposition of some metals from solutions in amyl alcohol, acetonitrile, aniline, and chinoline.—B. Guth: On the chemistry of the higher fungi, Communication XVIII. Investigations on the muscarine problem.—J. Zellner: On the chemistry of heterotrophic phanerogams, Communication V. The parasite *Prosochanche Burmeisteri* contains special tannoids.—J. Pia: Remains of a land plant in the Noetsch coal strata in the eastern Gailtal Alps. A new fern, *Gymnoneuropteris*.

Official Publications Received.

United States Department of Agriculture. Department Bulletin No. 1235: Life History of the Codling Moth in the Yakima Valley of Washington. By E. J. Newcomer and W. D. Whitcomb. Pp. 77+3 plates. (Washington: Government Printing Office.) 15 cents.

Department of the Interior: Bureau of Education. Bulletin, 1924, No. 26: Statistics of State Universities and State Colleges for Year ending June 30, 1923. Prepared under the Supervision of Frank M. Phillips. Pp. 15. (Washington: Government Printing Office.) 5 cents.

Chemistry in the Service of the State. Pp. 31. (Madison, Wis.: Department of Chemistry, University of Wisconsin.)

Dove Marine Laboratory, Cullercoats, Northumberland. Report for the Year ending June 30th, 1924. Edited by Prof. Alexander Meek. Pp. 121. (Cullercoats.) 5s.

Proposed National Institute for Research in Colloid Chemistry. The Need for such an Institute, the Plan for its Operation, an Argument for its Location, Letters of Commendation. Pp. 104. (Madison, Wis.: University of Wisconsin.)

University of Birmingham: Executive Board of Mining Research. Report on the Work of the Mining Research Laboratory, 1921-1924. Pp. 32. (Birmingham.)

Scientific Papers of the Institute of Physical and Chemical Research. Vol. 1, No. 12, March: Spectra of Constricted Arc of Metals. By Toshio Takamine and Mitsuharu Fukuda. Pp. 207-216+plates 5-8. 45 sen. Vol. 1, No. 13, August: The Fine Structure of Mercury Lines and the Isotopes. By Hantaro Nagaoka, Voshikatsu Suguira, and Tadao Mishima. Pp. 217-258+plates 9-18. 2 yen. (Tokyo: Institute of Physical and Chemical Research, Komagome, Hongo.)

Department of Agriculture. Science Bulletin No. 33: Report on the Cost of Production of Maize Investigation for the Season 1921-22. By E. Parrish. Pp. 46. (Pretoria: Government Printing and Stationery Office.) 6d.

The Marine Biological Station at Port Erin (Isle of Man), being the Thirty-eighth Annual Report of the former Liverpool Marine Biology Committee, now the Oceanography Department of the University of Liverpool. Drawn up by Prof. Jas. Johnstone. Pp. 47. (Liverpool: University Press of Liverpool, Ltd.; London: Hodder and Stoughton, Ltd.) 1s. 6d. net.

The Botanical Society and Exchange Club of the British Isles. Vol. 7, Part 1: Report for 1923. By G. Claridge Bruce. Pp. 306+6 plates. (Arbroath: T. Bunce and Co.) 10s.

Osmania University, Hyderabad: Publications of the Nizamiah Observatory. Astrographic Catalogue 1900-0, Hyderabad Section, (Part 2). Dec. -20° to -24° , from Photographs taken and measured at the Nizamiah Observatory, Hyderabad, under the Direction of T. P. Bhaskaran. Vol. 5: Measures of Rectangular Co-ordinates and Diameters of 88,444 Star-images on Plates with Centres in Dec. -21° . Pp. xxxix+290. (Nizamiah: Osmania University.) 15 rupees; 20s. net.

Trinidad and Tobago. Council Paper No. 105 of 1924. Agricultural Credit Societies: Report by the Registrar of Agricultural Credit Societies for the Year ended 30th June, 1924. Pp. 8. (Port-of-Spain.) 4d.

Bulletin of the American Museum of Natural History. Vol. 51, Art. 7: The Pectoral Limb of *Eryops* and other Primitive Tetrapods. By Roy Waldo Miner. Pp. 145-312. (New York.)

Department of the Interior: Bureau of Education. Bulletin, 1923, No. 55: Bibliography of Educational and Psychological Tests and Measurements. Compiled by Margaret Doherty and Josephine MacLachy under the Direction of B. R. Buckingham. Pp. ix+233. (Washington: Government Printing Office.) 25 cents.

Fifty-fifth Annual Report of the Trustees of the American Museum of Natural History for the Year 1923. Pp. xxiv+269+13 plates. (New York City.)

Conseil Permanent International pour l'Exploration de la Mer. Rapports et procès-verbaux des réunions. Vol. 35: Rapport Atlantique 1923 (Travaux du Comité du Plateau Continental Atlantique) (Atlantic Slope Committee). Publié avec l'aide de Dr. Ed. Le Danois. Pp. 55+11 planches. (Copenhague: Andr. Fred. Høst et fils.)

Methods and Problems of Medical Education. (Second Series.) Pp. 11+118. (New York: The Rockefeller Foundation.)

Diary of Societies.

SATURDAY, FEBRUARY 7.

ROYAL SOCIETY OF MEDICINE (Otolaryngology Section), at 10.30 A.M.—L. Colledge: Demonstration of Kinematograph Pictures of Cases of Facial Paralysis treated by Nerve Anastomosis.—G. J. Jenkins: Septicæmia as a Complication of Middle-ear Infection.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Dr. E. H. Fellowes: The Elizabethan Ayre.

GILBERT WHITE FELLOWSHIP (at 6 Queen Square, W.C.), at 3.—Dr. J. R. Leeson: The Evolution of Man.

INSTITUTE OF BRITISH FOUNDRYMEN (Lancashire Branch) (at Grand Hotel, Manchester), at 4.—V. C. Faulkner: A Psychological Examination of Foundry Life.

HULL ASSOCIATION OF ENGINEERS (at Hull Municipal Technical College), at 7.15.—J. Sim: Recent Developments in Marine Auxiliaries.

MONDAY, FEBRUARY 9.

ROYAL IRISH ACADEMY (at Dublin), at 4.15.

ROYAL SOCIETY OF EDINBURGH, at 4.30.—W. L. Calderwood: The Relation of Sea Growth to the Spawning Frequency in *Salmo salar*.—Prof. F. J. Cole: A Monograph on the General Morphology of the Myxinoidei Fishes based on a study of Myxine. Pt. 6: The Blood Vascular and Lymphatic Systems.—Sir Thomas Muir: The Theory of Compound Determinants from 1900 to 1920.

VICTORIA INSTITUTE (at Central Buildings, Westminster), at 4.30.—Prof. A. T. Clay: The Amaru.

BIOCHEMICAL SOCIETY (in Biochemical Department, University College), at 5.—H. J. Channon: Cholesterol Synthesis in the Animal Body.—G. A. Harrison and H. J. Channon: Observations on the Composition of Subcutaneous Fat in Cases of Sclerema Neonatorum.—C. R. Harington: 3:4:5 Tri-iodophenyl-pyrrolidone-carboxylic Acid.—J. C. Drummond and K. H. Coward: (a) Further Observations on the Chemical Nature of the Vitamin Fraction of Cod Liver Oil; (b) Ultra-violet Radiation and Growth.—S. Tsubura: Comparison of the Reducing Properties of Plain and Striated Muscle.—Dr. P. Haas and T. G. Hill: An Oxygen Absorbing Mechanism in *Mercurialis perennis* and Accompanying Colour Changes.—A. Wormall: The Tyrosinase-tyrosine Reaction: the Theory of Deamination.—F. C. Hapgood and H. S. Raper: The Supposed Deaminating Action of Tyrosinase on Amino Acids.—C. Rimmington and H. D. Kay: The Phosphorus of Caseinogen (Preliminary Communication).

ROYAL COLLEGE OF SURGEONS OF ENGLAND, at 5.—Prof. V. E. Negus: Some Disorders of the Larynx.

INSTITUTION OF ELECTRICAL ENGINEERS (Informal Meeting), at 7.—Capt. P. P. Eckersley and others: Discussion on Broadcasting.

INSTITUTION OF MECHANICAL ENGINEERS (Graduates Section), at 7.—K. Rowell: Recent Developments in Solid Injection Oil Engines.

INSTITUTE OF METALS (Scottish Local Section) (at 39 Elmbank Crescent, Glasgow), at 7.30.—J. A. Gardner: Methods of Keeping Foundry Records.

ROYAL SOCIETY OF MEDICINE (Epidemiology and State Medicine, Comparative Medicine, Disease in Children Sections), at 8.—Dr. Robertson, Dr. Niven, and others: Special Discussion on the Control of Tuberculosis and the Milk Supply.

SURVEYORS' INSTITUTION, at 8.

ROYAL GEOGRAPHICAL SOCIETY (at Eolian Hall), at 8.30.—J. M. de Navaro: Ancient Trade Routes in Europe.

MEDICAL SOCIETY OF LONDON (at 11 Chandos Street, W.), at 8.30.—Sir Thomas Horder, Bart., and others: Discussion on the Treatment of Lymphadenoma.