

Societies and Academies.

DUBLIN.

Royal Dublin Society, June 26.—Report of the Irish Radium Committee for the year 1927. 14,306 millicuries of radon were issued during the year for therapeutic purposes. Reports are included from two of the largest users of radon recording the results of the treatment of 292 cases of malignant and non-malignant disease.—C. Boyle, M. Murphy, and H. A. Cummins: 'Blossom-wilt' of apple trees and 'wither-tip' of plum trees with special reference to two biologic forms of *Monilia cinerea* Bon. The results of culture and infection experiments using the 'wither-tip' and 'blossom-wilt' forms of *Monilia cinerea* show that the two forms are physiologically different. These results are in conformity with those of Wormald, and justify the distinction *forma mali* and *forma pruni* for the forms occurring on apple and plum respectively.—T. Dillon and E. F. Lavelle: A suggested method for the utilisation of seaweed. Seaweed might be utilised by throwing it into tanks near the shore and allowing it to decay, when the liquid running off would contain potash, iodine, and organic matter. A small-scale experiment with *Laminariae* showed satisfactory iodine recovery. The organic bodies obtained were acetic, propionic, and other acids. The advantages of the suggested process are: (1) winter tangle could be used, (2) the initial operations would be carried out on the spot, and (3) the organic matter would be recovered.—A. G. Leonard and P. F. Whelan: Spectrographic analyses of Irish ring-money, and of an alloy found in commercial calcium carbide. In some museum specimens of Irish ring-money the gold sheath is incomplete, a core of white metal being exposed in places. Examination of the spark spectrum showed that this core consists of remarkably pure tin. An alloy, found in calcium carbide, which showed great resistance to acids, was found to consist of iron, titanium, and silicon. Chemical analysis showed that the percentages of these elements were about 66, 22, and 11 respectively.—L. B. Smyth: *Salpingium palinosum*: A new carboniferous coral. This new genus and species of coral occurs in the carboniferous limestone of Hook Head, Co. Wexford, Ireland, at a level correlated with the C_1 sub-zone of Vaughan. It consists of a tube about 4 mm. in diameter, with strongly thickened walls. Simple tabulae occur at intervals of 2-4 mm., and septal striae are seen in places, being elsewhere presumably engulfed by stereoplasm. At irregular intervals the tube is surrounded by thin trumpet-like expansions, three or four times the diameter of the tube, bearing septal ridges. It is suggested that the structure is due to rejuvenescence. The affinities are doubtful.—L. P. W. Renouf: A preliminary account of Loughine (Lough Hyne), Co. Cork. Loughine or Lough Hyne, situated some sixty miles south-west of the city of Cork, though only a little more than a quarter of a square mile in area, presents many interesting features. It is land-locked except at the south-east corner, where the tide rushes in and out with great force through a narrow neck less than twenty yards in width, and on account of a deep sill it continues to ebb for more than three hours after the beginning of the flood tide from the Atlantic twelve hundred yards to the south. The lough attains a depth of twenty-nine fathoms. The Laminarian zone is practically absent, with the result that at neap tides, when on account of the sill the ebb from the lough is greatest, the Coralline zone is exposed, and a number of what are ordinarily deep-water forms are found in as little as two inches of water. Though the number of

species is not remarkable, many of them are represented by countless numbers of individuals, and at least one which appears to be new, for which the name *Ethropodium hibernicum* is tentatively suggested, has been discovered.

CAPE TOWN.

Royal Society of South Africa, May 16.—John F. V. Phillips: The influence of *Usnea* sp. (near *Barbata*, Fr.) upon the supporting tree. Work at the Research Station, Deepwalls, Knysna, on the relationship between *Usnea* and the *Podocarps* has shown that the lichen is definitely detrimental, in that its fungal component is parasitic upon the tissues external to (and sometimes internal to) the cork-cambium. Vigorous crowns may be infected as well as defective ones. The lichen cannot develop luxuriantly under the conditions of light, temperature, and humidity holding in undisturbed high forest, but grows apace when these factors are suddenly and severely altered by heavy exploitation.—J. S. Thomas: The action of ammonia on germanium tetrachloride: germanium imide. Ammonia reacts vigorously with germanium chloride, giving a white substance having a composition $\text{GeCl}_2\text{6NH}_3$. When treated with ammonia under pressure, a compound having the formula $\text{GeCl}_4\text{16NH}_3$ is produced, which may be a mixture of $\text{Ge}(\text{NH})_2$, with $4\text{NH}_4\text{Cl}$. An apparatus was constructed in which the preparation of the germanium chloride, treatment with ammonia, etc., could be carried out without at any period opening the vessel to the air. In this way a product was obtained the analysis of which corresponded to 99.2 per cent $\text{Ge}(\text{NH})_2$. The compound is a white powder which reacts very violently with water and combines directly with hydrogen chloride, forming the imide hydrochloride.—W. W. Southwood: Compounds of germanium tetrachloride with certain amines: (1) Compounds with aniline. The product formed by germanium chloride and aniline is a mixture of aniline hydrochloride and the substituted di-imide hydrochloride. (2) Compounds with ethylamine. Excess ethylamine distilled into GeCl_4 produced $\text{GeCl}_4\text{6C}_2\text{H}_5\text{NH}_2$. In ethereal solution the free substituted di-imide $\text{Ge}(\text{NC}_2\text{H}_5)_2$ was obtained. The compound containing six molecules of amine has a high dissociation pressure, and yielded the substituted di-imide hydrochloride.—James Moir: Colour and chemical constitution (Part 24). A complete investigation of the triphenylcarbinol or 'aniline' dyes. There are 23 possible dyes and these possess in all 75 absorption bands in solutions of differing reaction (pH). A theory and method of calculation from chemical constitution are put forward explaining nearly seventy of the bands.—Letitia Starke: The spermatogenesis of *Holopterna alata*. The somatic number of chromosomes is 20, the reduced number 10. There is slight heteromorphism, but an XY pair is not recognisable. As in other Hemiptera, there is a diffuse stage intercalated in the heterotype prophase.

COPENHAGEN.

Royal Danish Academy of Science and Letters, Mar. 13.—C. Juel: 'Elementary' curves and surfaces. An 'elementary' curve in space is a closed continuous curve composed of a finite number of arcs of the third order; for example, certain curves of the fourth order. It can exist non-analytically. An 'elementary' surface similarly is composed of a finite number of parts of the second or third order; for example, a cyclic ovaloid. Certain conditions of continuity being given, it can only exist algebraically.

April 27.—D. la Cour: Recent research in Greenland on terrestrial magnetism. For the study of the

magnetic field of the earth and certain relationships between the earth and the sun, research on magnetic variations near the magnetic pole are of particular interest. Long series of observations in Arctic regions are required and, at the suggestion of the International Union of Geodesy and Geophysics, Denmark established a magnetic observatory at Godhavn two years ago for this purpose. This observatory is farther north than any other, and by its special equipment for measuring the vertical intensity, will produce most valuable results. The observations so far show a characteristic diurnal variation of the magnetic elements, and indicate a relationship between magnetism and rotation of the earth and between the magnetism and rotation of the sun.—Oluf Thomsen: The existence of four blood-groups in man, illustrated by 275 descendants of 100 *AB*-matings (and 78 children with only one *AB*-parent). The object was to discover if Bernstein's hypothesis of three allelomorph genes for blood-groups (*A*, *B*, *R*) is correct. The results are in accord with those to be expected on Bernstein's theory and completely inconsistent with the hypothesis of two independent gene-pairs. The latest modification of Bernstein's hypothesis (by Furuhata, Ichida, and Kishi) will not withstand serious criticism.

SYDNEY.

Linnean Society of New South Wales, May 30.—F. A. Craft: The physiography of the Cox River basin. Cox's River rises near Wallerawang and Lithgow, and pursues a winding course to join the Wollondilly River in Burragorang Valley. Along the course of the main river and certain of its tributaries there are remarkable ancient valleys, which have been trenched by deep modern canyons. Three of these valleys are recognised, namely, Lithgow-Wallerawang (3100 feet); Kanimbla (2200 feet); and Kowmung (500 to 2800 feet). To the north of Cox River the average elevation is 3300 feet; to the south, the plateau area around Jenolan averages 4000 feet. The plateau has been elevated in stages; the uplift is of a complex nature, involving an earlier northern and a later southern and western phase; and there have been great changes in stream-flow since the commencement of uplift.—R. J. Tillyard: The larva of *Hemiphysbia mirabilis* (Odonata). Full-grown larvæ of this tiny damselfly, considered to be the most archaic type of Odonata at present existing, were discovered last November in a backwater of the Goulburn River at Alexandra, Vic. The most interesting characters are the primitive mandibles showing characters suggestive of Mayfly larvæ; the trifid hypopharynx; the remarkably composite type of labial mask, which shows Lestid and Synlestid affinities and is the only mask known to possess both glossæ and paraglossæ; the primitive gizzard; the Synlestid type of caudal gills; and, above all, the extraordinary scheme of wing-tracheation, which differs from that of all other Odonata in possessing no tracheal supply for the interpolated veins, and no anal trachea.—Ida A. Brown: The geology of the south coast of New South Wales (Part 1). The palæozoic geology of the Moruya district. The metamorphosed sediments of the district consist of apparently unfossiliferous slates, phyllites, and quartzites, which were folded and faulted about meridional axes probably at the close of the Silurian period. In late (?) Devonian time this series was intruded by a composite batholith, which is elongated in a direction of structural weakness running north-north-west and south-south-east, and produced well-marked contact metamorphic effects in the invaded sediments. The igneous rocks comprising the batholith form a complete subalkaline or

calcic igneous complex, and include three main plutonic types—diorite-gabbro, tonalite-granodiorite, and biotite-granite—which were injected in order of decreasing basicity and increasing alkalinity.

VIENNA.

Academy of Sciences, Mar. 8.—O. Deutschberger: The compounds participating in the composition of the residual carbon and residual nitrogen in blood, especially the oxyprotein acids. More than half of the carbon in dealbuminated blood appears unexplained. The oxyprotein acids form barium salts soluble in water but insoluble in alcohol. These substances represent break-down products of albumen. Analyses were made of defibrinated horse blood. The atomic ratios of the total oxyprotein acid fraction gave $C_{100}H_{144}N_{34}$.—E. Steinach and H. Kun: The secretion of the male gonad and its dependence on the hormone of the frontal lobe. Experiments on infantiles, eunuchoids and seniles (Part 2). The pituitary extract of bull and cow is alike active; it influences infantile testicles and ovary, it is not sex-specific. Active extract can be obtained from urine of pregnancy. But pituitary extract is not itself a sexual hormone, it does not work on castrates and it cannot replace the sexual hormones: it is only an activator of the sex-glands. Occasional eunuchoid rats were sexually developed after pituitary injections; aged male rats were sexually reactivated.—J. Schaffer: The so-called proliferous atrophy of fatty tissue. Examination of the epiglottis of a menagerie elephant which died of starvation during the War.—M. Kohn and R. Kramer: Halogenated *o*-anisidine (Communication 30 on bromo-phenols).—M. Kohn and R. Kramer: On 3, 4, 5-trichloro-phenol (Communication 31).—M. Kohn and M. K. Feldmann: Preparation of 2, 6-dibrom-*m*-xyloquinone from symmetrical xylenol (Communication 32).—M. Kohn and E. Gurewitsch: Chloro- and bromo-pyrogallol-ether (Communication 33).—A. Smekal: Diffusion and recrystallisation. Recrystallisation is a stabilisation procedure which takes place in certain temperature ranges by the diffusion of free ions in the gaps of the crystal lattice. The possibility of diffusion can be examined by electric conductivity measurements.—F. M. Exner: The circulation of cold and warm air between high and low latitudes. The deviations of the daily temperatures from the average temperatures of the same places for 90 winter days and for 129 places of the northern hemisphere were plotted. This led to the detection of streams of cold or warm air from higher to lower latitudes or vice versa.—J. Mayer and O. Hiedl: The absolutely smallest discriminants of biquadratic number-bodies.—N. Hofreiter: A new reduction theory for definite quaternary quadratic forms.—K. W. F. Kohlrausch: Energy losses and ionisation in the passage of α - or β -particles through matter. An attempt to determine the dependence of (1) loss of velocity, (2) range, and (3) differential ionisation upon the velocity of the particles and upon the material.—E. Tschermak: Hybridisation results in lentils and beans.—O. Dischendorfer: Condensation of aldehydes with phenols (2). On *m*-nitrobenzal-di- β -naphthol.

Mar. 15.—J. Pollak, E. Gebauer-Fülnegg, and E. Blumenstock-Halward: The action of chloro-sulphonic acid on phenols.—J. Pollak and E. Blumenstock-Halward: The determination of the constitution of β -naphthol-disulpho-chloride.—J. Pollak, E. Riesz, and Z. Kahane: Amino-thio-phenol derivatives.—E. Späth and F. Wessely: The active components of genuine coto bark. The constitution of cotoine.—E. Späth and G. Burger: A synthesis of pyridin derivatives.—F. Sigmund: Catalytic hydration of the nucleus of aromatic and fatty aromatic aldehydes in

the form of their acetals (1). Hexa-hydro-phenyl-acetaldehyde-dimethyl-acetal.—F. Schiller: The fruit of *Viscum album* and *Loranthus europæus* and the production of bird-lime. *Viscum* does not yield a sufficiently sticky material, *Loranthus* does; it contains caoutchouc.—O. Gugenberger: Contributions to the geology of Asia Minor with special reference to the Anatolian lias.—F. Hölzl and F. Viditz: The alkylation of hexa-cyano-chromic acid.—E. Rona: The preparation of polonium from radium compounds and active lead salts. Precipitation with hydrogen sulphide.—S. Meyer: The disintegration constant of actinium. The half period is 13.4 years.—K. Fritsch: Observations on flower-visiting insects in Styria, 1907.—A. Winkler: Studies on the interior Alpine tertiary deposits and their relations to the *Augenstein* fields of the northern Alps.—A. Kieslinger: The Lavant valley disturbance and its relation to the tectonics of the eastern Alps.

April 26.—R. Wegscheider and J. Mehl: Systems Na_2CO_3 - NaHCO_3 - H_2O . Two double salts were found, one of them anhydrous Na_2CO_3 , 3 NaHCO_3 . Experiments were tried at various temperatures up to 94.5° , and with addition of 24 gm. common salt to 100 gm. water.—A. Kailan and Y. M. Diab: Velocity of esterification of mono-amino-benzoic acid and of the 1- and 2-pyridin carboxylic acids in glycol and glycerine.—A. Kailan and E. Krakauer: Velocities of esterification of the nitro-benzoic acids in ethylene-glycol and of the naphthoic acids in glycerine.—J. Kozeny: On developed turbulence.—F. Feigl and H. Gleich: Relations between atom grouping and specific affinity (7). Metallic salts of imid-azol derivatives.—F. Feigl and E. Bäcker: Addition compounds of thallium dienoil salts with carbon disulphide (8).—F. Feigl and A. Deutsch: Silver and mercury salts of amido-benzothiazol.—F. Feigl and E. Chargaff: The reactivity of iodine in organic solvents.—G. Machek and A. Graf: The course of the Friedel and Craft reaction in anthraquinone—1, 2-dicarboxylic acid anhydride.—V. F. Hess and O. Mathias: Atmospheric electricity (70). Researches on oscillations in the cosmic ultra-gamma-radiation on the Sonnblick (3100 metres) and in the Tyrol.—E. Guth: Maxwell's equations and Dirac's quantum theory of the electron.—F. Heritsch: Tectonic questions in the Carnic carboniferous.—F. Heritsch: Notes on the lower Permian in the Carnic Alps.—F. Werner: Contributions to the knowledge of the fauna of Greece, especially of the Aegean Islands.—R. Ebner: Coleoptera, C. (Scientific results of the zoological expedition to the Anglo-Egyptian Soudan undertaken by F. Werner, 1914, No. 24).—A. Rollett: The acid constituents of sandarac resin.—M. Kuban: Potassium and rubidium radiation.—M. Blau: Photographic intensity measurements of polonium preparations.—S. Wolff: The ultra-violet spectrum of radium emanation. More than 100 new lines between 3600A. and 2400A. are recorded.—R. Schumann: Some new investigations on fluctuations of polar altitude.—V. Oberguggenberger: Contribution to the establishment of a standard system of effective wave-lengths.—A. Steuer: A new *Paracincta* from the South Atlantic.—K. Ehrenberg: *Ursus Deningeri* and *Ursus spelæus*. A comparison of skull, jaw, and teeth of the Mixnitz cave bears with Reichenau's specimens in the Mainz museum.

WASHINGTON, D.C.

National Academy of Sciences (*Proc.*, Vol. 14, No. 5, May).—J. R. Oppenheimer: On the quantum theory of the autoelectric field currents. An expression obtained for the field necessary to make an electron leave the nucleus leads to very low values of the ionising potential for electrons in metal (the work function).

It is concluded that the 'autoelectrons' are only given off from a wire at points where the field strengths are abnormally high. This is in agreement with the experimental finding that craters surrounded by protuberances of the necessary order of magnitude occur on the wire.—Edwin H. Hall: (1) The Fermi statistical postulate; examination of the evidence in its favour. While Pauli's 'equivalence principle' as applied to the electrons within an atom may be accepted, Fermi's extension of it to all the molecules of an ideal gas is regarded as not yet justified.—(2) Sommerfeld's electron-theory of metals. A critical discussion of the theory as applied to various electrical effects.—(3) Electron 'free path' and supra-conductivity in metals. A special meaning is given to the so-called mean free path of the electron-gas particles in a metal; it is assumed that the path of an electron is not necessarily a straight line and that it is terminated by collision and capture by a positive ion. This leads to reasonable explanations of specific heat and the relation of conductivity to temperature using classical formulæ.—Elmer Dershem: Dispersion of long wave-length X-rays in platinum and calcite. The spectrograph and other apparatus were mounted in a large evacuated bowl, thus permitting of great wave-length resolution. The beam of X-rays was collimated by two slits, reflected from a mirror surface of platinum or calcite and on to a gypsum crystal, the effect being recorded on a photographic plate. The maximum angle at which reflection occurred was measured. With the wave-lengths used, dispersion for platinum increases with wave-length; calcite showed anomalous dispersion near a *K*-absorption limit.—L. DuSault and Leonard B. Loeb: Mobilities of gaseous ions in SO_2 and SO_2 - H_2 mixtures. Mobilities were observed in sulphur dioxide at atmospheric and lower pressures; they appear to decrease slightly with pressure, but this is probably due to higher purity of the gas used in the low pressure experiments. In mixtures with hydrogen, the negative mobility is always less than the positive; positive mobilities so high as 22 cm./sec. per volt/cm. were observed with low concentration of the purer sulphur dioxide.—R. Cumming Robb: Is pituitary secretion concerned in the inheritance of body-size? Comparison of the weights of the pituitary bodies in giant (Flemish) and dwarf (Polish) male rabbits and their hybrids shows no characteristic difference which can be correlated with differences in growth rate. In common with other organs, the pituitary maintains a rectilinear logarithmic relationship to body weight, suggesting that all these organs are regulated by a common growth reaction.—Cecilia H. Payne: On the contours of stellar absorption lines, and the composition of stellar atmospheres. The *H* and *K* lines of ionised calcium and the Balmer lines of selected stars show differences from class to class and from super-giant to dwarf within the same spectral class. The observations are in general agreement with Unsöld's formula, which can therefore be used virtually to weigh the atmospheres of individual stars.—George R. Putnam: (1) Regional isostatic reduction of gravity determinations. The departures from complete local compensation must be considered in a complete reduction of gravity observations. A regional reduction gives anomalies in better accord with observations and may be represented as a warped surface lying between the earth's surface and the average level of the region. Regional compensation extends 100 miles from a station and further for great mountains.—(2) Proof of isostasy by a simple gravity reduction method. The computation is based on the attraction of indefinitely extended horizontal plates and gives a fair approximation to the value of gravity

reduced to sea-level. The method was used by the author in 1895.—**Marston Morse**: Singular points of vector fields under general boundary conditions.—**E. T. Bell**: Remark on the number of classes of binary quadratic forms of a given negative determinant.—**Harry Merrill Gehman**: (1) Concerning certain types of non-cut points, with an application to continuous curves.—(2) Concerning irreducible continua.—**Julian Coolidge**: Criteria for the simplification of algebraic plane curves.

Official Publications Received.

BRITISH.

- Harper Adams Agricultural College, Newport, Salop. Pp. 80. Report of the Advisory Department, 1927-1928. (Advisory Report No. 3.) Pp. 24. The National Institute of Poultry Husbandry. Pp. 48. (Newport, Salop.)
- Ceylon Journal of Science, Section A: Botany; Annals of the Royal Botanic Gardens, Peradeniya. Edited by A. H. G. Alston. Vol. 11, Part 1, May 25th. Pp. 111. (Peradeniya: Department of Agriculture; London: Dulau and Co., Ltd.) 3 rupees.
- Report of His Majesty's Astronomer at the Cape of Good Hope to the Secretary of the Admiralty for the year 1927. Pp. 11. (Cape of Good Hope.)
- Southern Rhodesia. Report of the Director, Geological Survey, for the Year 1927. Pp. 18. (Salisbury.)
- Proceedings of the Society for Psychical Research. Part 107, Vol. 38, July. Pp. 49-101. (London: Francis Edwards, Ltd.) 2s.
- Abstracts of Dissertations approved for the Ph.D., M.Sc., and M.Litt. Degrees in the University of Cambridge for the Academic Year 1926-1927. Published by Authority. Pp. 90. (Cambridge: At the University Press.)
- Hull Museum Publications. No. 153: Hull and the Fishing Industry. By T. Sheppard. (Commercial Museum Handbooks, No. 2.) Pp. 15. No. 154: Early Means of Transport in the East Riding. By T. Sheppard. Pp. 36. (Hull.)
- Speech delivered by Marcus Garvey at Royal Albert Hall, London, England, on Wednesday evening, June 6th, 1928, in setting forth 'The Case of the Negro for International Racial Adjustment' before the English People. Pp. 31. (London: Universal Negro Improvement Association.)
- Air Ministry. Aeronautical Research Committee: Reports and Memoranda. No. 1115 (Ae. 288): The Importance of 'Streamlining' in relation to Performance. By Prof. B. M. Jones. (T. 2519.) Pp. 15+2 plates. 9d. net. No. 1134 (Ae. 304): Wind Tunnel Tests with High Tip Speed Airscrews. The Characteristics of Airscrew Section R. and M. 322. No. 4 and R.A.F. 32. By W. G. A. Perring. (T. 2563.) Pp. 8+3 plates. 6d. net. (London: H.M. Stationery Office.)
- Annual Report of the Auckland Institute and Museum for 1927-28, adopted at the Annual General Meeting held on 21st May 1928. Pp. 39. (Auckland, N.Z.)
- Cambridge Observatory. Annual Report of the Observatory Syndicate, 1927 May 19-1928 May 18. Pp. 3. (Cambridge.)
- The Newcomen Society for the Study of the History of Engineering and Technology. Transactions, Vol. 6, 1925-1926. Pp. xi+240+24 plates. (London.) 28s.
- Loughborough College, Leicestershire. Calendar, Session 1928-29. Pp. xiv+228+71 plates. (Loughborough.) 2s. 6d. net.
- University of Cambridge: Solar Physics Observatory. Fifteenth Annual Report of the Director of the Solar Physics Observatory to the Solar Physics Committee, 1927 April 1-1928 March 31. Pp. 6. (Cambridge.)
- The North of Scotland College of Agriculture. Guide to Experiments and Demonstration Plots at Craibstone, 1928. Pp. xii+60. Bulletin No. 35: Trials of Weed Killers on Garden Paths. By Alfred Hill. Pp. 6. (Aberdeen.)
- University College of Wales, Aberystwyth. Reports submitted to the Court of Governors, October 19th, 1927. Pp. 114. (Aberystwyth.) 1s.
- The Institute of Chemistry of Great Britain and Ireland. Register of Fellows, Associates and Students, corrected to 30th April 1928. Pp. 388. (London.)
- City and Guilds of London Institute. Report of the Council to the Members of the Institute, to be presented at the Yearly Meeting in May 1928. Pp. xlix+78. (London: Gresham College.)
- The British Institute of Philosophical Studies. Annual Report and Statement of Accounts for the Year ended 31st March 1928, to be presented at the Third Annual General Meeting of the Members to be held at the Royal Society of Arts, 18 John Street, Adelphi, London, W.C.2, on Monday, 16th July 1928, at 5.30 o'clock. Pp. 20. (London.)
- Indian Central Cotton Committee: Technological Laboratory. Bulletin No. 16, Technological Series No. 11: Technological Reports on Standard Indian Cottons, 1928. By A. James Turner. Pp. vi+118. (Bombay.) 2 rupees.
- City of Norwich. The Report of the Castle Museum Committee to the Council, 1927. Pp. 22. (Norwich.)
- Air Ministry. Aeronautical Research Committee: Reports and Memoranda. No. 1120 (Ae. 298): Analysis of Experiments on an Airscrew in various Positions within the Nose of a Tractor Body. By C. N. H. Lock. (T. 2507.) Pp. 20+8 plates. 1s. net. No. 1135 (Ae. 305): The Effect of Compressibility on the Lift of an Aerofoil. By H. Glauert. (T. 2518.) Pp. 8+1 plate. 6d. net. (London: H.M. Stationery Office.)
- British Empire Cancer Campaign. Annual Report of the Grand Council presented at the Meeting held at the House of Lords, 9.7.28. Pp. 141. (London.)

Board of Education. Prospectus of the Royal College of Art, S. Kensington, London. Session 1928-1929. Pp. v+28. (London: H.M. Stationery Office.) 4d. net.

International Geographical Union. Programme for the International Geographical Congress, London, July 14-17, and Cambridge, July 18-25, 1928. Pp. 16. (Cambridge.)

FOREIGN.

- Annuaire de l'Observatoire Royal de Belgique. Par P. Stroobant. 96^{me} année, 1929. Pp. iii+160. (Uccle.)
- Bibliothèque de l'Observatoire Royal et de l'Institut Royal Météorologique de Belgique à Uccle. Catalogue alphabétique des livres, brochures et cartes, préparé et mis en ordre par A. Collard. Tome 3: Accroissements de 1913-1922. Pp. 432+xlvi. (Uccle.)
- Unione Astronomica Internazionale. Immagini spettroscopiche del bordo solare osservate a Catania, Zurigo e Zò.Sè negli anni 1923 e 1924 pubblicate per Cura del R. Osservatorio astronomico di Arcetri. Pp. 10+14 tavole. (Firenze.)
- Publications of the Washburn Observatory of the University of Wisconsin. Vol. 15, Part 1: Photo-Electric Photometry of Stars, by Joel Stebbins; Vol. 15, Part 2: Photo-Electric Studies of Four Variable Stars, by Charles Morse Huffer. Pp. 135. (Madison, Wis.)
- University of California Publications. Publications of the Lick Observatory, Vol. 16: Stellar Radial Velocities. Pp. v+xlv+399+plates. (Berkeley: University of California Press; London: Cambridge University Press.)
- Proceedings of the United States National Museum. Vol. 73, Art. 4: New Helminth Parasites from Central American Mammals. By Emmett W. Price. (No. 2723.) Pp. 7+2 plates. Vol. 73, Art. 7: A new Fossil Reptile from the Triassic of New Jersey. By Charles W. Gilmore. (No. 2728.) Pp. 8+3 plates. (Washington, D.C.: Government Printing Office.)
- Department of the Interior: U.S. Geological Survey. Bulletin 788-F: Topographic Instructions of the United States Geological Survey. F: Map Compilation from Aerial Photographs. By T. P. Pendleton. Pp. iii+379+419. 15 cents. Bulletin 796-D: Geology and Oil and Gas Prospects of North-Eastern Colorado. By Kirtley F. Mather, James Gillyly and Ralph G. Lusk. (Contributions to Economic Geology, 1927, Part 2.) Pp. iv+66-124+plates 14-18. 20 cents. (Washington, D.C.: Government Printing Office.)
- Department of the Interior: U.S. Geological Survey. Water-Supply Paper 577: Plants as Indicators of Ground Water. By Oscar Edward Meinzer. Pp. v+95+12 plates, 25 cents. Water-Supply Paper 596-G: Chemical Character of Waters of Florida. By W. D. Collins and C. S. Howard. (Contributions to the Hydrology of the United States, 1927.) Pp. iv+177-233. (Washington, D.C.: Government Printing Office.)
- Smithsonian Institution. Explorations and Field-Work of the Smithsonian Institution in 1927. (Publication 2967.) Pp. iv+188. (Washington, D.C.: Smithsonian Institution.)
- United States Department of Agriculture. Technical Bulletin No. 61: Wild Birds introduced or transplanted in North America. By John C. Phillips. Pp. 64. 10 cents. Farmers' Bulletin No. 1561: The Porto Rican Mole Cricket. By W. A. Thomas. Pp. ii+9. 5 cents. (Washington, D.C.: Government Printing Office.)
- Proceedings of the United States National Museum. Vol. 73, Art. 11: A Prehistoric Pit House Village Site on the Columbia River at Wahluke, Grant County, Washington. By Herbert W. Krieger. (No. 2732.) Pp. 29+7 plates. (Washington, D.C.: Government Printing Office.)
- Scientific Papers of the Institute of Physical and Chemical Research. No. 159: The Photogalvanic Cell furnished with Silver Iodide Electrodes, and its Application to Photometry and Illuminometry. By Satoyasu Iimori and Toshimasa Takebe. Pp. 131-160+plate 15. 45 sen. No. 140: Über die Stereoisomerie des 8-Oxydekahydrochinolins und seiner Derivate. Von Shin-ichiro Fujise. Pp. 161-171. 20 sen. No. 141: Quantitative Determination of Haemoglobin by means of the Silver Iodide Photogalvanic Cell. By Koichi Uchiyama. Pp. 173-184. 20 sen. (Tokyo: Iwanami Shoten.)
- University of Illinois: Engineering Experiment Station. Bulletin No. 177: Embrittlement of Boiler Plate. By Prof. Samuel W. Parr and Frederick G. Staub. Pp. 67. 40 cents. Bulletin No. 178: Tests on the Hydraulics and Pneumatics of House Plumbing, Part 2. By Prof. Harold E. Babbitt. Pp. 62. 35 cents. (Urbana, Ill.)
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- University of California Publications in American Archaeology and Ethnology. Vol. 23, No. 8: Pottery-making in the South-west, By E. W. Gifford. Pp. 353-378. (Berkeley, Cal.: University of California Press; London: Cambridge University Press.) 25 cents.
- Berichte der Naturforschenden Gesellschaft zu Freiburg i Br. Band 23, Heft 2. Pp. ii+93+48+24+45+6. (Freiburg i Br.: Speyer und Kaerner.)
- Proceedings of the American Academy of Arts and Sciences. Vol. 63, No. 1: Magnetostriction Oscillators. An Application of Magnetostriction to the Control of Frequency of Audio and Radio Electric Oscillations, to the Production of Sound, and to the Measurement of the Electric Constants of Metals. By George W. Pierce. Pp. 47+3 plates. 90 cents. Vol. 63, No. 2: A Dynamic Study of Magnetostriction. By K. Charlton Black. Pp. 49-66. 45 cents. (Boston, Mass.)
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- Department of the Interior: Bureau of Education. Bulletin, 1927, No. 41: Accredited Higher Institutions. Pp. v+40. (Washington, D.C.: Government Printing Office.) 10 cents.

CATALOGUE.

Recent Work on Absorption Spectrography: a Bibliography selected by Dr. Wallace R. Brode. Pp. 8. (London: Adam Hilger, Ltd.)