Societies and Academies.

LONDON.

Faraday Society, July 6.—A. L. **Marshall**: The electrodeposition of zinc from sulphate solutions. With pure solutions, the efficiency of zinc deposition always increases with rising temperature; an explanation based on chemical polarisation is given. A convenient copper coulometer has been developed for measuring currents up to 15 amperes or more.—J. B. **O'Sullivan**: The application of the quinhydrone electrode to the measurement of P_H valves in solutions containing copper ions and other divalent ions. The quinhydrone electrode can be employed in many cases in which the ordinary hydrogen electrode cannot be used on account of its greater reducing power. This applies not merely to salts of copper, which are electro-positive towards hydrogen, but also to neutral or weakly acid solutions of the salts of such metals as tin, lead and nickel. The quinhydrone electrode is itself limited in its applicability by its reducing power. Thus it cannot be employed even in moderately acid solutions of the salts of mercury, silver or gold, which have normal electrode potentials of more than 0·7 volt.—F. M. **Cray** and G. M. **Westrip**: The preparation of solutions of standard hydrogen ion concentration and the measurement of indicator ranges in an acetone-water mixture. Solutions of standard hydrogen ion concentration ranging from P_H 12·5-2·0 have been prepared and calibrated by means of the quinhydrone electrode in a solvent containing 10 volumes of water in 100 of acetone-water. These solutions have been used in the measurement of the P_H ranges of a large number of indicators in the specified solvent. Their behaviour in these standard solutions is consistent with their P_H values, as determined by the quinhydrone electrode, within 0·1 P_H.

DUBLIN.

Royal Irish Academy, June 22.—A. K. **Macbeth** and J. **Craik**: Condensation reactions of indoxyl and 3-oxy(1)thionaphthen. In the course of some work, a trustworthy method of estimating 3-oxy(1)thionaphthen was found necessary, and its condensation reactions with several aldehydes were therefore examined in some detail. Typical condensation products were formed by the interaction of the thioindoxyl and anthraquinone-2-aldehyde, 5-nitroanthraquinone-2-aldehyde, 1-chloroanthraquinone-2-aldehyde, and isatin. The condensations take place quantitatively and the thioindogenides produced are characterised by their high melting points and marked insolubility in organic solvents. The reactions are therefore of value in estimating 3-oxy(1)thionaphthen. The indogenides obtained by the condensation of indoxyl with anthraquinone aldehydes were prepared for comparison with the series of thioindogenides: the latter were all found to be yellow-coloured compounds in contrast with the deep-red or brown products obtained in the former case.

EDINBURGH.

Royal Society, June 22.—W. H. **Lang**: Contributions to the flora of the Old Red Sandstone of Scotland. (*a*) On plant-remains from the fish-beds of Cromarty. (*b*) On a sporangium-bearing branch-system from the Stromness beds. Plant-remains from the grey clay or micaceous sandstones of the Cromarty fish-beds include more than eight distinct types of spores and two types of sporangia found free in the rock. Some features of the vegetative organs of *Thursophyton Milleri* are described, but nothing is yet known of the reproductive organs of this plant. The smooth, branched axes are referred to *Hostimella* sp. and some of them have axillary structures like those recorded for *Hostimella hostimensis* from Bohemia. Two types of plants with attached sporangia containing spores are named provisionally *Hostimella globosa* and *H. pinnata*. Large oval sporangia, borne on a raceme-like branch-system, from the Stromness beds of the same age are named *H. racemosa*.—F. A. E. **Crew**: Rejuvenation of the aged fowl through thyroid medication. Cock-feathered cocks become hen-feathered: the plumage of hen-feathered cocks and of hens is unaffected save that there is an increased melanism. The egg-yield is increased and old birds are rejuvenated.—A. Crichton **Mitchell**: On the changes in vertical force during the "sudden commencement" of a magnetic storm. The "sudden commencement" of the slight magnetic storm of Sept. 4, 1924, was observed at Eskdalemuir Observatory by means of a large coil laid horizontally on the ground, the current induced in the coil by the sudden change in vertical force being recorded photographically by a galvanometer in the circuit.

ADELAIDE.

Royal Society of South Australia, May 14.—L. Keith **Ward**: Notes on the geological structure of Central Australia. The salient features of both the fundamental complex forming the core of the MacDonnell Ranges and of the sediments deposited upon these foundations in the central portion of Australia are described. The palæontological and stratigraphical data, when correlated, are regarded as proof of the exclusion of the supposed Cambrian system from the central area and the existence of an immensely thick series of Ordovician sandstones and limestones. These are overlain, in the southern part of the Northern Territory, by beds comprising glacial tillites—presumably of Permo-Carboniferous age. Then follow successively Jurassic sands, Lower and Middle Cretaceous shales, and recent deposits of fluviatile and æolian origin. A dense crust of chalcedonic silica caps alike the Ordovician, Permo-Carboniferous, and Cretaceous rocks. Glacial action in Upper Cretaceous time was widespread through the northern part of South Australia. The correlation of the formations described with those of adjoining regions is discussed, and the evolution of the structure outlined. The great central depression of Australia exerted an important influence on the development of the drainage system.

CAPE TOWN.

Royal Society of South Africa, May 20.—S. H. **Haughton**: Tracks of animals preserved in the Ecca Shales of the Cape Province. The specimens are from two localities in the Ecca Beds, one in the Zak River area, Calvinia, and the other from the cutting (Ecca Pass) on the road from Grahamstown to Fort Beaufort, localities separated by a distance of 350 miles. The tracks include numerous crustacean foot-prints and the trails of worms. The vertebrate tracks consist in part of small groups of four-toed so-called "amphibian" prints, which lack a heel-pad; in part, doubtfully, of oval impressions with a finely corrugated surface, as if due to the impress of a skin-covered "hoof-like" foot; and in part of a series of peculiar parallel sinuous lines, possibly made by ventral spines of a fish armed after the fashion of the Carboniferous and Permian Acanthodes.—J. H. **Power**: Notes on the habits and life-histories

of certain little-known Anura with descriptions of the tadpoles. *Cassina Senegalensis*, *Phrynomantis bifasciata*, and *Bufo carens*, collected by Lobatsi, are described. The tadpole of Cassina was observed to devour mosquito eggs.—F. von **Huene**: Some additions to the knowledge of Procolophon, Lystrosaurus, Noteosuchus, and Cistecephalus. An impression of the skin surrounding the parietal foramen of a specimen of Procolophon shows small polygonal pits bounded by thick meandering walls. The large parietal foramen possibly contained a functional organ. The skull of Lystrosaurus contains a transverse bone (ectopterygoid) in the same position as in Dicynodon.—K. H. **Barnard**: Report on a collection of Crustacea from Portuguese East Africa. The present collection contains 57 species, of which 14 have been previously recorded. The capture of a crayfish of the genus Palinustus, hitherto known only from the West Indies, and of three Indo-Pacific forms not reported since their discovery by the *Challenger*, are the most striking results. Two new varieties and two new species are described.—J. **Groves** and Edith L. **Stephens**: New and noteworthy S.A. Charophyta. South Africa is rich in endemic types belonging to the group, some of them of outstanding beauty and interest, and this paper describes six of these new species.—W. J. **Hodgetts**: Contributions to our knowledge of the freshwater algæ of Africa. No. 6: Some freshwater algæ from Stellenbosch. 184 species are recorded, and nine species, eight varieties, and several forms are described as new. The most striking feature of the collection is the relatively large number (53) of species of desmids, a group rather scantily represented in collections from other parts of South Africa.—F. G. **Cawston**: Some observations of the radulæ of freshwater Mollusca. The cones and cusp-formation of the radulæ of freshwater mollusca which serve as intermediate hosts for Trematoda in South Africa are described.

ROME.

Royal Academy of the Lincei, May 2.—Guido **Fubini**: Varieties with collinear plane sections.—Gino **Fani**: The surfaces of space S_3 with collinear plane sections.—S. **Pincherle**: Certain functional transformations.—Leonida **Tonelli**: Green's theorem.—M. La **Rosa**: Experimental foundations of the ballistic principle applied to the velocity of light.—M. **Cisotti**: Dynamic effect of a current flowing between a cylinder and an undefined plane wall.—O. M. **Corbino** and E. **Persico**: Influence of a magnetic field on the action of a three-electrode lamp.—Luigi **Fantappiè**: Linear analytic functionals and their singularity.—Luigi **Fantappiè**: The derivation of analytic functionals.—S. **Finikoff**: The principal surfaces of Bianchi's rectilinear congruences.—Letterio **Laboccetta**: Analytic representation in finite form of the functions the diagrams of which consist of a succession of arcs of different lines varying according to a definite law from one interval to the next.—D. J. **Struik**: Rigorous determination of the periodic irrotational waves in a channel.—R. **Serini**: Capacity of the electric condenser with infinitely thin circular plates.—F. De **Carli**: The capacity for reaction in the solid state of anhydrides and metallic oxides. The reactivity of anhydrides with metallic oxides in the solid condition is general and varies with the nature of the reacting oxides, being most marked with oxides of the alkaline earth metals and also with boric, molybdic, tungstic, vanadic, and silicic anhydrides.—Emilio **Oddone**: Alterations caused in isobaric configurations by calming of the air.—G. **Brunelli**: Autotomy of the posterior lobe of the vitellin sac in *Salmo salar*, L.—Silvio **Ranzi**: An organ of sense derived from the first epibranchial placoid of Selachi.—Filippo **Eredia**: Forecast of the almond crop of any season on the basis of the air temperature and rainfall in the three months January to March inclusive.—Primo **Dorello**: The functions of the peduncle, diverticulum, and Swammerdam's vesicula in the genus Helix.

May 17.—Guido **Fubini**: An observation of the transcendent $d(z)$ of Pincherle.—Francesco **Severi**: Theory of the correspondence between algebraic curves.—U. **Cisotti**: Dynamic effect of a current circulating round a cylinder in a tunnel.—Fil. **Bottazzi** and L. De **Caro**: Variations produced in the electrical resistance of the muscles by various physical and chemical agents. The results are given of investigations on the influence of temperature on the electrical resistance of muscle and essentially connective membranes, and on the isoelectric point of muscular colloids.—Seb. **Timpanaro**: Experiments on floating laminæ.—G. **Scagliarini**: Additive compounds of stannic iodide and organic bases.—P. **Comucci**: Azurite from Pistello (Elba).—G. **Brunelli**: Significance of the oily drops in the egg of Teleostei and location of the oxidases.—G. **Amantea**: Investigations on the spermatic secretion. xvi. Collection of the sperm and elimination of the spermatozoa of the pigeon.—Umberto **D'Ancona**: Double innervation of the muscles of the decapod crustaceans.—V. De **Laurenzi**: Parotid secretion in man caused by various peripheral factors.—Nazzareno **Grisogani**: Rhythm of the parotid secretion in man, and gustatory and olfactory sensations.—Cesare **Artom**: Abnormal segmentation at the commencement of development in the egg of Cagliari's *Artemia salina diploide*.

SYDNEY.

Linnean Society of New South Wales, April 29.—G. H. **Hardy**: Australian Mydaidæ (Diptera). A descriptive and synonymic catalogue of the dipterous family Mydaidæ, containing two genera and nine described species recognised as valid.—J. R. **Malloch**: Notes on Australian Diptera, No. v. Keys are presented for the recognition of the genera of Muscidæ known from Australia, together with a key for the species of Helina, of which four are described as new.—F. G. **Clapp**: A few observations on the geology and geography of North-west and Desert Basins, Western Australia.—A. H. K. **Petrie**: An ecological study of the flora of Mount Wilson, Part II. The Eucalyptus forests. The Eucalyptus forests form the main plant-covering of the sandstone plateau, and also occur on the outskirts of the basalt residuals. Discussing the ecology of Eucalyptus forests, special reference is made to their relation to fires. Further observations are also recorded on the stratum-societies of the junction flora, with a special discussion of the status of the Pteridium society.

Royal Society of New South Wales, May 6.—C. **Anderson**: The Australian fauna (Presidential address). The fauna has often been described as the most interesting and important in the world. Australia became separated from other continental masses in late Cretaceous or very early Tertiary times, and, protected by their isolation from the competition of later and higher forms, the animals of Australia are in many instances archaic survivals, which are closely related to forms long since extinct

in other lands. The dispute as to the route whereby the marsupials and other forms entered Australia will probably be settled only by further discoveries, particularly in palæontology.

VIENNA.

Academy of Sciences, May 7.—Ph. **Furtwängler**: On minimal bases for bodies of rational functions.—F. **Hemmelmayr** and T. **Meyer**: The influence of various substitutes on the tenacity of the carboxyl group in substituted aromatic acids, the influence of a second carboxyl group and the relative activity of chlorine and bromine.—C. **Diener**: Geological investigations on the Millibrunnkogel near Aussee in Styria.—A. **Blumenstock**: On the preparation of stearolacton.—J. **Lindner** and A. **Siegel**: The course of the chinaldin synthesis in the tetralylamines, 7, 8-tetra-methylen-chinaldin.—J. **Lindner** and M. **Staufer**: The course of chinaldin synthesis in β-amino-tetralin.—G. **Weissenberger**, F. **Schuster**, and H. **Pamer**: On organic molecular compounds. (xiii.) Studies on the calculation of vapour pressure curves.—K. **Mayrhofer**: Representation of a complex of rays by a dual quadratic differential form.

WASHINGTON, D.C.

National Academy of Sciences (Proc., Vol. 11, No. 5, May).—W. C. **Boeck** and J. **Drbohlav**: The cultivation of *Endamœba histolytica*. An organism from human fæces, which agrees with *E. histolytica* in movements, nutrition, morphology, and pathogenicity, has been cultivated on Locke egg-serum and Locke egg-albumin. *E. histolytica* in culture feeds on bacteria and blood corpuscles, if they are present. The cultured organisms were as pathogenic to kittens as fresh material.—S. F. **Chiang**: The rat as a possible carrier of the dysentery amœba. Rats can be infected with *E. histolytica* of human origin by feeding material containing cysts. Infection is transmitted readily from rat to rat by association in the same cage, and may persist for four months. Apparent varieties of *E. histolytica* occur spontaneously in laboratory rats. The rat may therefore be a possible carrier of the causal organism of amœbic dysentery.—L. P. **Eisenhart**: Linear connexions of a space which are determined by simply transitive continuous groups.—J. W. **Alexander**: Note on a theorem by H. Kneser.—L. **Ingold**: Associated types of linear connexion.—J. M. **Thomas**: Conformal correspondence of Riemann spaces.—C. **Barus**: Pinhole probe measurements of the phase change of the telephonic end plates, acting on a closed cylindrical air column in longitudinal acoustic vibration.—E. B. **Wilson**: On the Boltzmann equation $\rho = \rho_0 \exp.(-w/kt)$.—H. **Kahler**: The band spectra of crystals and complex gases.—E. B. **Wilson** and W. J. **Luyten**: The frequency distribution of some measured parallaxes and of the parallaxes themselves. 313 determinations of parallaxes of stars between magnitudes 5 and 6 were used. On probability paper, the distribution gives a straight line within the errors of sampling. Graphs are given of the frequency distribution on a parallax base.—E. W. **Brown**: The effect of varying mass on a binary system. If rate of change of momentum equals force, angular momentum remains constant while a real velocity increases, and, unless the two masses are equal, the velocity of the centre of mass increases. The hypothesis thus provides for increase of velocity of the star with age (Russell's scheme of evolution) and the velocity of a single star relative to the centre of mass of the whole stellar system will decrease.

Official Publications Received.

Joint Board of Research for Mental Diseases: City and University of Birmingham. Annual Report of the Laboratory for Year ending March 1925. Pp. 11. (Birmingham.)

Papers from the Geological Department, Glasgow University. Vol. 7, 1924. Pp. iv+302. (Glasgow: Jackson, Wylie and Co.)

Proceedings of the American Academy of Arts and Sciences. Vol. 60, No. 1: The Geology of Ascension Island. By Reginald A. Daly. Pp. 80+21 plates. (Boston, Mass.) 3 dollars.

University College of South Wales and Monmouthshire: Faculty of Science. Information regarding Courses and Careers open to Students of Science. Pp. 22. (Cardiff.)

His Majesty's Stationery Office, 1786–1925. Brief Guide to Government Publications. Pp. 34. (London: H.M. Stationery Office.) 3*d* net.

Publikace Pražské Státní Hvězdárny (Publications de l'Observatoire National de Prague). No. 1: Troisième étude sur l'appareil circumzénithal. 1ère partie: Sur le principe et sur les développements possibles de l'appareil. Par Fr. Nušl. Pp. 20. No. 2: Troisième étude sur l'appareil circumzénithal. 2ème partie: Construction de l'appareil; modèle transportable 1922. Par Josef Jan Frič. Pp. 19. No. 3: Comparaison mondiale des pendules; fractionnaire. Par Fr. Nušl. Pp. 10. (Prague.)

Publications of the Kapteyn Astronomical Laboratory at Groningen. No. 36: The Number of Stars between definite limits of Proper Motion, Visual Magnitude and Galactic Latitude for each Spectral Class. By Prof. Dr. P. J. van Rhijn. Pp. 16. No. 37: Comparison between Trigonometric, Spectroscopic and Mean Statistical Parallaxes. By Prof. Dr. P. J. van Rhijn. Pp. iii+31. No. 39: The Proper Motions of 656 Stars, derived from Plates taken at the Helsingfors Observatory, measured and discussed by W. J. Klein Wassink. Pp. 25. (Groningen: Hoitsema Bros.)

Government of Madras: Local Self-Government Department (Public Health). Chemical Examiner, Madras, Annual Report, 1924. Pp. 14. (Madras.)

Norman Lockyer Observatory. Director's Annual Report, April 1, 1924–March 31, 1925. Pp. 8. (Sidmouth.)

The Norman Lockyer Observatory, Salcombe Hill, Sidmouth. Council's Report and Accounts, and List of Council, Staff, Members, etc., June 1925 (as adopted at Annual General Meeting, June 11th, 1925). Pp. 8. (Sidmouth.)

Catalogue of Indian Insects. By T. Bainbridge Fletcher. Part 7: Lasiocampidæ. Pp. 29. 10 annas; 1*s*. Part 8: Amatidæ (Syntomidæ). Pp. 35. (Calcutta: Government of India Central Publication Branch.)

Transactions of the South Indian Branch of the British Medical Association. Vol. 17, No. 3. Pp. 105-161. (Madras.)

Department of the Interior: Bureau of Education. Bulletin, 1925, No. 6: High School Education of the Farm Population in selected States. By E. E. Windes. Pp. 24. (Washington: Government Printing Office.) 5 cents.

The Rockefeller Foundation: a Review for 1924. By George E. Vincent. Pp. 48. (New York City.)

Transactions of the Royal Society of Edinburgh. Vol. 53, Part 3, No. 32: The Continuity of the Vertebrate Nervous System; Studies on Lepidosiren Paradoxa. By Frances M. Ballantyne. Pp. 663-670+6 plates. (Edinburgh: R. Grant and Son; London: Williams and Norgate, Ltd.) 3*s*.

The Rowett Research Institute. Collected Papers. Vol. 1. Edited by Dr. John Boyd Orr. Pp. 575. (Aberdeen: Reid Library of the Rowett Research Institute.) 21*s*.

Uganda Protectorate. Annual Report of the Geological Survey Department for the Year ended 31st December 1924. Pp. 13. (Entebbe.)

Denkschriften der Schweizerischen Naturforschenden Gesellschaft: Mémoires de la Société Helvétique des Sciences Naturelles. Band 59 (Vol. 59): Beiträge zur Kenntnis der Skelettbildung bei domestizierten Säugetieren auf Grund röntgenologischer Untersuchungen; Anlage und Entwicklung des Knochenskelettes der Vorder- und Hinterextremität des Hausrindes (Bos taurus L.). Von Max Küpfer und Hans R. Schinz. Pp. viii+133+28 Tafeln. Band 60, Abh. 1 (Vol. 60, Mém. 1): Die Hemipterenfauna des Schweizerischen Nationalparkes (Heteropteren und Cicadinen). Von Dr. B. Hofmänner. Pp. xii+174+2 Tafeln. Band 61, Abh. 1 (Vol. 61, Mém. 1): Die Magdalénien-Station bei Ettingen (Baselland). Von Fritz Sarasin und H. G. Stehlin. Mit einem Nachtrag zur Faunula der Magdalénien-Station am Schlossfelsen von Thierstein, von H. G. Stehlin. Pp. vi+137+16 Tafeln. (Zürich: Gebrüder Fretz A.-G.)

The Journal of the Ipswich and District Natural History Society. Vol. 1, Part 1, June. Edited by Henry Ogle. Pp. viii+68. (Ipswich.)

The Institution of Gas Engineers. Eleventh Report of the Gas Investigation Committee: Aeration and Air Injection, Part 2. Pp. 63-108. Twelfth Report of the Gas Investigation Committee: Waste Heat Boilers. Pp. 109-168. Institution Gas Research Fellowship, 1924: The Gasification of Coke in Steam, with Special Reference to Rates of Gasification and the Composition of the Gas. By Dr. S. Pexton and Prof. J. W. Cobb. Pp. 292-325. (London.)

University of California Publications in Zoology. Vol. 27: A Synopsis of the Amphibia of California. By Tracy I. Storer. Pp. v+342+18 plates. (Berkeley, Calif.) 4.50 dollars.

Bulletin of the Experimental Station of the Hawaiian Sugar Planters' Association. Entomological Series, Bulletin No. 17: The Field Rat in Hawaii and its Control. By C. E. Pemberton. Pp. v+46. (Honolulu.)

Rainfall in Chôsen (Korea). Compiled by the Meteorological Observatory of the Government-General of Chôsen. Pp. 186+27 maps. (Zinsen, Chemulpo.)

Koninklijk Magnetisch en Meteorologisch Observatorium te Batavia. Verhandelingen No. 8: Het Klimaat van Nederlandsch-Indië (The Climate of the Netherlands Indies). Door Dr. C. Braak. Deel 1 (Vol. 1), Algemeene Hoofdstukken (General Chapters), Aflevering 8 (Part 8). With English Summaries. Pp. iii+499-528+249-272. Verhandelingen No. 13: Isomagnetics for the Netherlands East Indian Archipelago, Epoch 1925.0. By Dr. S. W. Visser. Pp. ii+18+4 plates. Verhandelingen No. 16: Some Researches into the Propagation of Seismic Long Waves. By Dr. S. W. Visser. Pp. ii+24. (Batavia.)