

DR. REINHARD BRAUNS, ordinary professor and director of the mineralogical institute of Kiel University, has been appointed successor to Prof. H. Laspeyres, who retires from the chair of mineralogy and geology in the University of Bonn.

THE governors of the Borough Polytechnic recently received an offer from Mr. Edric Bayley of 5000l. towards the estimated cost of the completion of the premises of the polytechnic. The governors, therefore, asked the London County Council to assist them by making a grant of 7000l., and their request was granted at a meeting of the council on January 23. The cost of the scheme, exclusive of lighting, heating, and equipment, is estimated to be about 11,500l.

THE annual meeting of the Mathematical Association was held on January 26 at King's College, London. The association now consists of 419 members. Prof. G. H. Bryan, F.R.S., was elected president in succession to Prof. G. B. Mathews, F.R.S. During the course of an address, Prof. Mathews said he earnestly hoped that the new regulations proposed for the Cambridge tripos would be approved. He thinks it will be very unfortunate if, after adopting the principle of the change as the association has done, these regulations are shelved. He asked all those who are inclined, from sentimental or other reasons, to vote non-placet on this question to consider carefully whether it is right to do so after this matter has been carefully thought out for many months by men who are representative mathematicians and representative mathematical teachers at Cambridge. There is a strong desire at Cambridge to make the mathematical scheme there more living, on the one hand, and to bring it more into connection with the general science of mathematics on the other. After Prof. Mathews's address, papers were read by Prof. W. H. H. Hudson, on diagrams of arithmoids; by Prof. A. Lodge, on contracted methods in arithmetic; and by Mr. C. S. Jackson, on the elementary arithmetic of the theory of numbers.

THE current number of *Science Progress* contains an article by Sir Arthur Rücker, F.R.S., on the economics of university education. The essay provides an interesting criticism of Adam Smith's theories of education in the light of modern experience. Sir Arthur Rücker leads up to the general criticism that Smith's arguments appear to be based almost entirely on the view that a university is a place where instruction is bought and sold, not a place where professor and student are linked together as leader and follower in a common search after knowledge. Incidentally, opportunities are found to insist upon many aspects of education likely to be ignored by the public. Thus we read:—"as research is largely concerned with the elucidation of the results of hitherto neglected facts, it is found that for many objects mental dexterity can best be fostered by turning the attention of the abler student from the known to the unknown, from information to investigation." In the same number of the review Prof. H. E. Armstrong, F.R.S., writes on the reform of the medical curriculum, treating it as a problem of technical education. Prof. Armstrong says that, so far as chemistry is concerned, "the reform should take the direction of teaching the subject practically and with direct reference to its applications: as every branch of chemistry in turn must necessarily be laid under contribution, chemists need have no fear that their field of action will be thereby unduly limited."

THE annual prize distribution and conversazione of the Northampton Institute, Clerkenwell, E.C., was held on January 25 and 26. The prizes were distributed by Mr. Evan Spicer, chairman of the London County Council, who in his address to the students made special mention of the importance of the engineering work which was being done at the institute, and of the unique character of the work in technical optics. In regard to the latter he remarked that it had received the most sincere recognition of our Continental rivals, inasmuch as work of a similar character was being started in France and Austria. The principal, in his report, referred to the present need of additional accommodation, notwithstanding the fact that the institute has this session occupied the buildings of the British

Horological Institute for its technical optics work. In the display of instruments made in the various laboratories on both evenings, there were several interesting items. A wireless telephone system was made to work successfully across the courtyard, and some interesting experiments were shown with the electric arc used as a telephone receiver, and with the effect of light on selenium cells. There was also an interesting display by the Postal Telegraph Department of some of the newest developments in telegraphy, both of the ordinary kind and wireless telegraphy, a complete De Forest set of the latter being at work. The 75-ton testing machine and the 50-h.p. experimental engine were on view for the first time in the mechanical laboratories, and there was also a new 25-K.V.A. alternator built in the institute with special modifications for experimental purposes, from which some interesting results may shortly be anticipated.

A SCHEME for the organisation of a central lecture theatre for London, on the model of the Berlin "Urania," is being developed by a representative committee, which includes Sir William Ramsay, Sir W. Huggins, and others. A meeting was held last week, under the presidency of Sir William Ramsay, to hear an explanation of the scheme by Mr. Albert Wollheim. The chairman said he had given two lectures at the Berlin "Urania," and was much struck with the crowds that visited the institution and constantly occupied themselves gaining knowledge of scientific facts. Mr. Wollheim explained that the statutes of the Berlin institution exclude the possibility of the undertaking being exploited commercially; all surplus profits, after the distribution of a 5 per cent. maximum dividend, are devoted to the purchase of apparatus or to building extensions or carried to a reserve fund. The proposed London "Urania" would not clash with the work of the learned societies, but would promote their membership. Illustrated popular lectures would be given on subjects of interest to the public in a building centrally situated and easily accessible. In the summer months the "Urania" would be utilised as a centre for educational visits to museums, gardens of scientific societies, and so on. An educational information bureau, a library, and a publication department would be features of the institution. It is interesting in this connection to recall a similar scheme for a civic museum recently outlined before the Sociological Society by Mr. Huntly Carter. It may be hoped that the promoters of these ideas will join hands and cooperate in providing London with a valuable adjunct to its existing educational facilities.

## SOCIETIES AND ACADEMIES.

LONDON.

**Linnean Society, December 20, 1906.**—Lieut.-Col. Prain F.R.S., vice-president, in the chair.—*Exhibits.*—Two specimens of albino woodlice, *Oniscus asellus*, Linn.: W. M. Webb.—Photograph and dried specimens of *Fockea capensis*, Endl., a plant of considerable interest on account of its great rarity and its apparently great longevity: N. E. Brown.—*Papers.*—Report on the botanical collections made by Dr. W. A. Cunnington in lakes Nyasa, Tanganyika, and the Victoria Nyanza, 1904-5: Dr. A. B. Rendle. Dr. Cunnington spent about three weeks on and about Lake Nyasa, nearly nine months at Lake Tanganyika, and less than a fortnight on the west of the Victoria Nyanza. His object was to make as complete a collection as possible of the plants and animals, especially from Lake Tanganyika, with the view of solving the "Tanganyika problem"—whether the fauna and flora of this lake indicate a former marine connection. The flowering plants, fern allies, and Characeæ, numbering about forty-five species, were, for the most part, well-known and widely-distributed forms, such as *Najas marina*, species of *Potamogeton*, *Pistia Stratiotes*, *Ceratophyllum demersum*, *Myriophyllum spicatum*, *Jussiaea repens*, *Trapa natans*, and *Chara zeylanica*, with others restricted to tropical or subtropical Africa, such as *Ottelia*, *Boottia scabra*, and species of *Utricularia*. In no case was there any suggestion of marine conditions, either past or present, in the representatives of the flora.

The plankton and fresh-water algæ, of which an account was given by Mr. G. S. West, yielded remarkably rich results, due partly, no doubt, to the paucity of our previous knowledge of the microscopic flora of these lakes, especially in the case of Tanganyika. Mr. West's list contains about 400 species, a large proportion of which are new, including one new genus of Palmellaceæ. A few species from Tanganyika showed a striking affinity with marine forms, indicating that at some period the water of this lake had a considerable degree of salinity; but, as Dr. Cunningham explained, this did not involve a previous marine connection, but might be explained by an increase in saline matter in the water due to the damming of the outlet from the lake. This damming was perhaps a periodical occurrence, since Stanley, thirty years ago, described the lake as with no outlet, while a few years later Mr. Hore, visiting the same spot as Stanley, found the water rushing through the present outlet towards the Congo.—A new and abnormal species of *Rhipicephalus*: W. F. Cooper and L. E. Robinson.

January 17.—Prof. W. A. Herdman, F.R.S., president, in the chair.—*Platanthera chlorantha*, Custor, var. *tricalcarata*: W. Botting Hemsley. The specimen had been found at Pax, Sherborne, Dorset, by Miss D. R. Wilson, who sent it to Kew; the ten flowers on the spike were modified as described, the paired sepals were spurred, and the lip was uppermost, that is, the usual twist of the ovary was absent.—Acanthaceæ of insular Malaya: the late Mr. C. B. Clarke. This paper was complementary to a similar one, drawn up for the "Materials for a Flora of the Malay Peninsula," now in course of issue by Sir George King and Mr. Gamble. The paper includes in its area Malaya exclusive of the peninsula itself.—An isopod, *Tachaea spongillicola*, n.sp., of the family Corallanidæ, distinguished from its near ally, the marine *Tachaea crassipes*, Schiödte and Meinert, by having the terminal joint of the maxillipeds, not smaller, but considerably larger than either of the two preceding joints: Rev. T. R. R. Stebbing.—A new British terrestrial isopod: A. Patience. The species in question, which Mr. Patience has named *Trichoniscus Stebbingi*, n.sp., was first obtained by him in a field near Alexandra Park, Glasgow, in company with *T. pygmaeus*, Sars, and *Trichoniscoides albidus* (Budde-Lund), and subsequently in some numbers in one of the propagating houses of the Glasgow Botanic Gardens.

**Society of Chemical Industry.** January 7.—Mr. R. J. Friswell in the chair.—The sixth International Congress of Applied Chemistry at Rome: W. F. Reid (see NATURE, vol. lxxiv., p. 65, May 17, 1906).—The determination of higher alcohols in spirits, part i., the "ester-iodine" method: C. H. Bedford and R. L. Jenks. The authors point out the defects of the Allen-Marquardt process for the estimation of higher alcohols in potable spirits. Dunstan and Dymond (*Pharm. Journ.*, 3, xix., 741) have shown how to determine organic nitrites by allowing them to act on an acid solution of potassium iodide in a flask void of oxygen, and then titrating the liberated iodine with thiosulphate. This serves as the basis of the authors' method. Details are given for the extraction and esterification of the total higher alcohols, and the subsequent decomposition of the esters by iodine. Beckmann's method of esterification (one part of sodium nitrite and two parts of acid potassium sulphate powdered together) is employed. Results are given showing the accuracy of the method. An analysis can easily be carried out in a day.—The determination of indigotin in commercial indigo: C. Eergtheil and R. V. Ewigge. The authors criticise Bloxam's method for the determination of indigotin (*Journ. Soc. Chem. Ind.*, 1906, xxv., 735), and point out that low results are obtained. The error is due to the factor on which the calculation is based, and the loss of indigotin which invariably occurs in salting out and filtering the sulphonic acid salt. A series of determinations was carried out by the authors' method (*Journ. Soc. Chem. Ind.*, 1906, xxv., 729) and by Bloxam's method (*loc. cit.*), and they are of opinion that the latter does not appear to be trustworthy either in application to pure indigotin or to commercial indigo. The method is cumbersome, and inapplicable to work in the indigo districts of India owing

to the low temperature at which it is necessary to work, and the large amount of ice required for this purpose.

**Geological Society,** January 9.—Sir Archibald Geikie, Sec.R.S., president, in the chair.—The Cretaceous formation of Bahia (Brazil) and the vertebrate fossils contained therein: J. Mawson and Dr. A. S. Woodward. This paper relates to a series of estuarine and fresh-water deposits originally described to the Geological Society by the late Samuel Allport in 1859. The results of thirty years' collecting of fossils are summarised, and the distribution of the formation, so far as determined, is marked on a map. The strata are disturbed by numerous dislocations and discordant dips, and no regular succession of zones or horizons can be discovered. All the more important vertebrate fossils collected are now in the British Museum (Natural History). From these a few remains of new species are selected for special description. A mandibular symphysis of a very large crocodile, with a long garial-like snout, belongs to one of the Goniopholidæ. Some dinosaurian vertebræ seem to belong to the iguanodont group. A large fish-skull represents a new genus allied to *Macropoma*, and indicates a species five or six times as large as any cœlacanth previously discovered. The discussion of a complete list of the fossil Vertebrata proves that the formation is of Cretaceous age, and suggests that it may be Lower Cretaceous, as supposed by Hartt.—A new dinosaurian reptile from the Trias of Lossiemouth, Elgin: Dr. A. S. Woodward. Mr. William Taylor, of Elgin, recently discovered two skeletons of a small new reptile in the Triassic sandstone of Lossiemouth. Two imperfect skeletons of the same species are also shown on a slab of the same sandstone in the British Museum (Natural History). The head and trunk measure only 4 inches in length, but there is a very long and slender tail. The head is relatively large, and resembles that of *Ornithosuchus* in many respects, but the fossils do not exhibit any teeth. The author concludes that this must have been a running or leaping reptile, and that it represents a new genus of Dinosauria related to the American Triassic *Hallopus*.

**Faraday Society,** January 15.—Sir Joseph Swan, F.R.S., past-president, in the chair.—The application of the electron theory to electrolysis: E. E. Fournier d'Albe. The electron theory, by postulating the existence of material carriers of all electric charges, is practically an extension of the ionic theory to solids and gases, and it thus brings into line the processes of metallic and electrolytic conduction. The author directed attention to the importance of making further studies of mobility and quantitative determinations of the hydration of ions as a preliminary for determining the sizes of the ions and of their actual constitutions based on kinetic principles.

**Royal Meteorological Society,** January 16.—Annual general meeting.—Presidential address, weather in war time: R. Bentley. The address showed how, on more than three hundred occasions, the course of history was greatly influenced by weather conditions.

#### EDINBURGH.

**Royal Society,** December 17, 1906.—Prof. Gray, vice-president, in the chair.—The hæmo-renal salt index as a test of the functional efficiency of the kidney: Dr. Dawson Turner. The hæmo-renal salt index is defined to be the ratio of the electrical resistance of the blood to the electrical resistance of the urine. In health this ratio should be 4 or 5. When the index increases it indicates that the blood contains fewer salts or is richer in corpuscles, or that the urine contains more salts, or that all these changes exist together. With low resistance of the urine the functional activity of the kidneys is increased. Several medical cases were referred to, and it was pointed out that the method would probably prove to be of great value in surgery. With the apparatus which had been devised the measurements could be rapidly made on very small quantities of both blood and urine. The method was another example of the application of precise scientific measurement to clinical medicine and surgery, and showed the importance of a medical student being trained in medical experimental physics.—Relation between magnetisation and electric conductivity in nickel at high temperatures: Dr.

C. G. **Knott**. The point of special interest was the manner in which the increase of conductance due to the application of a field transverse to the direction in which the conductivity was being measured first diminished steadily with rise of temperature until it reached a minimum at about  $280^{\circ}$  C., then rose abruptly to a maximum at  $310^{\circ}$  C., and finally fell off to zero at  $350^{\circ}$  C.—The relation between normal take-up or contraction and yarn-number for the same degree of twist in twisted threads: T. **Oliver**. In a former paper the relation between the take-up in the second twisting of a two-ply yarn and the amounts of first and second twistings was studied experimentally and analytically. The present paper considered the relation when, with the same twistings, different sizes of thread were used. This at once brings in the "yarn number," which cannot be taken in the same way as wires are gauged, but must depend on the relation of length to weight. Experimental results were obtained for two distinct sets of cases, according as the component threads were of the same diameter or of different diameters. Formulæ were established with which the experimental results were compared, and considering the complexities of the problem the comparison was sufficiently satisfactory.—The superposition of mechanical vibrations (electric oscillations) upon the magnetisation, and conversely, in iron, steel, and nickel, part ii.: J. **Russell**. In this continuation of a difficult piece of work the author discussed the discrepancy between his former results and those obtained by Dr. Eccles, and expressed his opinion that the latter investigator had not taken sufficient precaution in reducing the metal to exactly the same magnetic state before each experiment. It is only by means of a succession of gradually diminishing reversals that we can be certain that the magnetised substance is brought back to a definite condition time after time.

January 7.—Prof. Crum Brown, vice-president, in the chair.—Notes on aboriginals of the northern territory of South Australia: Dr. W. Ramsay **Smith**. The paper contained a detailed discussion of several of the peculiar rites and customs of the Australian aboriginals, such as the scars on shoulder, breast, arms, and abdomen. Evidence was adduced that these scars had definite signification, implying, perhaps, the number of children borne, the number still alive, the death of a near relative, or the widowhood of the individual bearing the scars. Other points taken up were the character of the dentition, the grasping power of the great toe, the rite of sub-incision, and the interpretation of the carved message-sticks.—Exhibition of the skeletons of monkeys showing effects produced by improper feeding: Prof. D. J. **Cunningham**. The skeletons and skulls in the university anatomical museum frequently showed abnormalities, such as excessive bending or softening or a certain roughness on the surface. Many of the specimens had been purchased from travelling menageries, and there seemed to be little doubt that the effects were due to improper feeding and bad ventilation.—The partition of heat energy in the molecules of gases: Dr. P. **Ehrenfest**.—Vibrating systems which are not subject to the Maxwell-Boltzmann law. Second paper: Dr. Wm. **Peddie**. These two papers were sequels to Dr. Peddie's first paper, certain results in which were criticised and to some extent modified. Dr. Peddie also gave a purely mathematical discussion of the problem in distribution devised by Lord Kelvin as a test-case for the proof or disproof of the Boltzmann-Maxwell doctrine. This was the problem of the motion of a particle within a circular region the rim of which consisted of a series of semi-circular corrugations. Although in the long run the time integral of the kinetic energy of the component motion parallel to any fixed direction would in this case be the same for all directions, the time integrals of the two components, radial and transversal, according to polar coordinates, would not be the same, thus disproving the Boltzmann-Maxwell law.—Note on cases of contour zones of molecular arrangement from surface disturbance: Dr. James **Hunter**. When a piece of fine-grained stone which has been used for polishing splits, an inspection of the new surfaces shows a distinct zone running approximately parallel to the cylindrical surface of the stone disc. Outward towards the circumference, the texture of the stone

is radial, suggesting radial arrangements of the molecules, while inside there is no trace of this arrangement. Similar contours appear in other cases, such as when glass is cut by a diamond or by the cutting-wheel. It was interesting to observe how different the patterns of the markings were in these two instances.

## PARIS.

Academy of Sciences, January 21.—M. Henri Becquerel in the chair.—A proposed system of classification for the bibliography of subjects bearing on seismology: G. **Bigourdan**.—An expedition of Commandant Chaves in Africa: **Prince Albert I. of Monaco**. An outline of the magnetic work done on this expedition, and an account of the comparison of the instruments used with those at Cape Town.—The resistance and elastic equilibrium of tubes round which an elastic wire is wound: A. **Jacob**.—Communications were received from M. Milan Stefanik and M. Janssen stating that observations of the solar eclipse of January 14 had been prevented by clouds.—The approximation of functions by limited trigonometrical series: Maurice **Fréchet**.—Helices of propulsion: P. **Teoucalas** and J. **Vlahavas**.—Propulsive helices: F. **Ferrier**.—Measurements of the Zeeman effect on the blue lines of zinc: P. **Weiss** and A. **Cotton**. The lines studied were the three 4810.71, 4722.26, and 4680.33, in a magnetic field the strength of which varied between 25,500 and 36,000 Gauss. Contrary to the results of Reese and Kent, the distance between the two magnetic components was found to be proportional to the intensity of the field, the results being in complete accord with the simple relations which Runge and Paschen have discovered.—The modifications which the absorption bands of tysonite undergo in a magnetic field: Jean **Becquerel**.—The preparation of pure helium by filtration of gases from cleveite through a wall of silica: Adrien **Jaquero** and F. Louis **Perrot**. In a previous paper the authors have shown that the helium thermometer with a fused quartz bulb was useless on account of the readiness with which the gas penetrated the walls at a high temperature. On the other hand, it was found that silica is quite impermeable to all other gases at about  $1000^{\circ}$  C., with the exception of hydrogen and possibly carbon monoxide. In the present paper application is made of these facts to the preparation of pure helium from cleveite. Using a bulb of 42 c.c. capacity, the method described gives a yield of about 1 c.c. of pure helium per hour. The gas obtained in this way was found by spectroscopic examination to be free from nitrogen, the only gas present besides helium being a minute trace of hydrogen, possibly derived from the electrodes of the tube.—The absence of nutrition in the formation of the artificial plants of Leduc: MM. **Charrin** and **Goupil**. Experiments are described showing that the word nutrition is misapplied when used in connection with these phenomena.—The mechanism of the synthesis of some quinoline derivatives: L. J. **Simon**.—The conditions of stability of the carbamines: H. **Guillemand**.—The synthesis of derivatives of cyclohexane: 3:3-dimethyl- and 3:3:6-trimethyl-cyclohexanones: G. **Blanc**. The author has described in an earlier paper the synthetical preparation of  $\beta\beta$ -dimethyl- and  $\beta\beta\epsilon$ -trimethyl-pimelic acids. These acids are converted into the corresponding anhydrides by treatment with acetic anhydride, and these, slowly distilled under ordinary atmospheric pressure, split up quantitatively into carbon dioxide and the cyclohexanone.—The synthesis of natural erythrite: M. **Lespieau**. The preparation of an inactive erythrolactone has been described in an earlier paper; this lactone treated with brucine, and the product submitted to fractional crystallisation, has yielded a levorotatory lactone and natural erythrite.—The symbiosis of the fig and blastophaga: Leclerc **du Sablon**.—The presence of formaldehyde in green plants: G. **Kimpffin**. As a reagent for detecting formaldehyde, the author uses methylpara-amidometa-cresol, and shows that the reaction is distinctive. This reagent has the advantage that it does not destroy vegetable tissue.—The active substances of *Tephrosia Vogelii*: M. **Hanriot**. By methods given in detail, the author has isolated a volatile liquid, tephrosal, of the composition  $C_{10}H_{14}O$ , and a crystalline substance, tephrosine, of the formula  $C_{31}H_{28}O_{10}$ .—The formation and distribution of an

essential oil in a living plant: Eug. **Charabot** and G. **Laloue**. An examination of the plant *Artemisia absinthium*.—The pharmacodynamical action of a new alkaloid contained in the root of fresh valerian: J. **Ohevalier**.—The formation of the skeleton in some of the hexacorals: Armand **Krempf**.—The part belonging to the anastomotic branch of the spinal in the physiological properties of the pneumo-gastric or pneumo-spinal nerve: F. X. **Lesbre** and F. **Maignon**.—Some new experiments concerning the pathology of pulmonary anthracosis: G. **Kuss** and E. **Lobstein**. Further experiments bearing on the criticisms of MM. Calmette, Grysez, and Vansteenbergh. The conclusions drawn from this work are that ordinary pulmonary anthracosis, as arising in ordinary life, is produced by inhalation and not by deglutition.—The evolution of the Cerithiidae in the Middle and Upper Eocene of the Paris basin: Jean **Boussac**.

## GÖTTINGEN.

**Royal Society of Sciences.**—The *Nachrichten* (physico-mathematical section), parts iii. and iv. for 1906, contains the following memoirs communicated to the society:—

May 12.—The motion of an electron under the influence of a longitudinally directed force: Paul **Hertz**.

March 31.—Physics without apparatus; attraction and repulsion of unelectricified bodies. Electrical experiments with a polished table surface: W. **Holtz**.

May 5.—The imaginary zeros of the hypergeometric function: A. **Hurwitz**.

June 16.—Calorimetric studies, i., specific heats of pure alcohol, and of mixtures of alcohol and water: E. **Bose**.

July 28.—Calorimetric studies, ii., thermal anomalies in alcoholic mixtures; iii., relations between the foregoing results (i. and ii.): E. **Bose**.—Seismic records in Göttingen during 1905: G. **Angenheister**.

May 19.—A characteristic property of the *Klassenkörper* (Abelian functions): Ph. **Furtwängler**.

October 27.—Statistical review of the local and remote earth tremors recorded at the Samoa Observatory during 1905: F. **Linke**.

July 28.—Principles of a general theory of linear integral equations: D. **Hilbert**.

## DIARY OF SOCIETIES.

## THURSDAY, JANUARY 31.

ROYAL SOCIETY, at 4.30.—On the Two Spectra of the Elements as Evidence of the Composite Nature of the Atoms: Prof. W. N. Hartley, F.R.S.—On the Explosion of Pure Electrolytic Gas: Prof. H. B. Dixon, F.R.S., and L. Bradshaw.—The Fixing of Gaseous Mixtures by Compression: L. Bradshaw.—A Recording Calorimeter for Explosions: Prof. B. Hopkinson.—On the Discharge of Negative Electricity from Hot Calcium: Dr. F. Horton.

ROYAL INSTITUTION, at 2.—Standards of Weights and Measures: Major Percy A. Macmahon, F.R.S.

## FRIDAY, FEBRUARY 1.

ROYAL INSTITUTION, at 9.—The Methods of Combating the Bacteria of Disease in the Interior of the Organism: Sir Almroth E. Wright, F.R.S.

GEOLOGISTS' ASSOCIATION, at 7.30.—President's Address: On the Constitution and Management of Scientific Societies.

## MONDAY, FEBRUARY 4.

LONDON INSTITUTION, at 5.—Through Savage Europe: Harry de Windt. SOCIETY OF ARTS, at 8.—Gold Mining and Gold Production: Lode Mining: Prof. J. W. Gregory, F.R.S.

SOCIETY OF CHEMICAL INDUSTRY, at 8.—(1) The Chemical Composition of some Motor Tyre Rubbers; (2) On the Composition of some New Crude Rubbers: Dr. P. Schidrowitz and F. Kaye.

VICTORIA INSTITUTE, at 4.30.—The Bible Pedigree of the Nations: M. L. Rouse.

## TUESDAY, FEBRUARY 5.

ROYAL INSTITUTION, at 3.—Survivals from the Past in the Plant World: Prof. A. C. Seward, F.R.S.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Modern Motor Vehicles: Col. R. E. B. Crompton, C.B.

ZOOLOGICAL SOCIETY, at 8.30.—On the Fœtus of the Giraffe: Prof. E. Ray Lankester, F.R.S.—On New or Rare Cumacea from the Collection of the Copenhagen Museum. Part i.: Dr. W. T. Calman.—Description of a New Amazonian Tree-Frog with Peculiar Breeding Habits: Dr. E. A. Goeldi.

## WEDNESDAY, FEBRUARY 6.

SOCIETY OF PUBLIC ANALYSTS, at 8.15.—Annual General Meeting. Presidential Address.—(1) Mineral Acids in Vinegar; (2) The Composition of English Fermentation Vinegar: F. D. Ratcliff.—The Detection of Cane Sugar in Milk: W. H. Anderson.

SOCIETY OF ARTS, at 8.—The Principles and Practice of Insurance, and their Modern Developments: T. E. Young.

GEOLOGICAL SOCIETY, at 8.—Note on the Cervical Vertebra of a Zeuglodon from the Barton Clay of Barton Cliff (Hampshire): Dr. C. W. Andrews,

F.R.S.—On the Origin and Age of the Plateaus around Torquay (South Devon): A. J. Jukes-Browne.

ENTOMOLOGICAL SOCIETY, at 8.—Notes on the Indo-Australian Papilionidæ: Percy I. Lathy.

## THURSDAY, FEBRUARY 7.

ROYAL SOCIETY, at 4.30.—*Probable Papers*: The Influence of Increased Barometric Pressure on Man, No. 3. The Possibility of Oxygen Bubbles being set free in the Body: Leonard Hill, F.R.S., and M. Greenwood, jun.—On the Combining Properties of the Oposonin of an Immune Serum: Prof. R. Muir and W. B. M. Martin.—Experiments made to determine the Condition under which "Specific" Bacteria derived from Sewage may be present in the Air of Ventilating Pipes, Drains, Inspection Chambers, and Sewers: Major W. H. Horrocks, R.A.M.C.—Observations on the Life-History of Leucocytes, Part ii., On the Origin of the Granules: C. E. Walker.

ROYAL INSTITUTION, at 3.—Standards of Weights and Measures: Major P. A. Macmahon, F.R.S.

LINNEAN SOCIETY, at 8.—*Papers*: New Plants from Malaya: Dr. Otto Stapf.—Tertiary Foraminifera of Victoria: the Balcombian Deposits of Port Phillip: F. Chapman.—*Exhibitions*: Specimens of *Chara ornithopoda*: H. and J. Groves.—Some Observations of Climbing Plants (with lantern-slides): Rev. John Gerard.—Herbarium formed by A. Ruperti, 1698-1700: W. Rose Smith.

CHEMICAL SOCIETY, at 8.30.—On the Rapid Electroanalytical Deposition and Separation of Metals, Part i., The Metals of the Silver and Copper Groups and Zinc: H. J. Sand.—The Alkaloids of Ergot: G. Barger and F. H. Carr.—Influence of Substitution on the Formation of Diazo-amines and Amino-azo-compounds, Part vi., the Partially Methylated 4:6-Diamino-*m*-xylenes: G. T. Morgan and F. M. G. Micklethwait.—(1) The Reaction of Hydroxylaminodihydroumbellulone Oxime; (2) The Constitution of Umbellulone, Part ii., the Reduction of Umbellulonic Acid: F. Tutin.—Studies on Optically Active Carbinols, Part v., The Aryl Esters and the Amides of  $\gamma$ -Menthylcarbamic Acid: R. H. Pickard and W. Oswald.—Some Constituents of Natural Indigo, Part i.: A. G. Perkin and W. P. Bloxam.—The Occurrence of Isatin in some Samples of Java Indigo: A. G. Perkin.—(1) On the Absorption Spectra of Benzoic Acid, the Benzoates and Benzamide; (2) The Absorption Spectra of Phthalic, *iso*-Phthalic and Terephthalic Acids: Phthalic Anhydride and Phthalimide: W. N. Hartley and E. P. Hedley.—*acy*-Trimethyl- and *acy*-Tetramethyl-tricarballic Acids and  $\alpha\alpha$ -Dimethylbutane  $\alpha\beta$ -Tricarboxylic Acid: H. Henstock and C. H. G. Sprankling.—A Reaction of Certain Colouring Matters of the Oxazine Series: J. F. Thorpe.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Investigations on Light Standards and the Present Condition of the High-Voltage Glow Lamp: C. C. Paterson (Conclusion of Discussion).—Comparative Life Tests on Carbon, Nernst, and Tantalum Incandescent Lamps using Alternating Currents: H. F. Haworth, T. H. Matthewman, and D. H. Ogley.

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