assistance and the donations promised and received some Rs. 7,00,000 can be counted on. Further donations are urgently needed. Later the Vice-Chancellor said the University may congratulate itself upon a windfall that has come to it during the year. A sum of more than Rs. 75,000 has been received from the Queen Victoria Memorial Fund as an endowment for founding readerships for research work. The institution of university chairs was recommended by the Universities' Commission of 1904 for this very purpose, and it has been a cherished hope for many years that Allahabad University might be able to do something for the promotion of research among its graduate members. Hitherto, for lack of funds, nothing could be done. Now, however, a beginning can be made, and though it must be in a modest way at first, it inaugurates a new and important era in development; and as time goes on it will attract other benefactions, until the University has at length sufficient funds for research in all the directions of university study.

THE report on the work of the Department of Technology of the City and Guilds of London Institute for the session 1909-10 is now available. At the recent examinations 24,508 candidates were presented in technology from 418 centres in the United Kingdom, and of these 14,105 passed. By including the candidates from India and the colonies, and those for the teachers' certificates in manual training and domestic economy, the total number of examinees was 26,878. These figures show an increase on those of any previous year. In order to secure the expert advice of trade societies and professional bodies in the conduct of the department's educational work, the institute has arranged for the formation of advisory committees, consisting of persons interested in, and with a knowledge of, the technical details of different industries. The functions of each committee are to suggest improvements in the syllabuses of instruction, to recommend for appointment new examiners, and generally to advise on any matter connected with the course of instruction which may be referred to them by the institute. Reference has been made in former reports to the two main causes which impede progress in the technical instruction of artisans, and prevent the results of the teaching, now so liberally provided by local authorities, from being as satisfactory as might be desired. These causes are emphasised in the special reports of several of the institute's examiners. They are, first, the difficulty of finding competent teachers, and, secondly, the unduly large proportion of artisan students who enter technical classes without the preliminary knowledge necessary to take full advantage of the instruction they receive. While local authorities accept readily the advice and assistance of the department in their selection of teachers, and a higher standard of qualification is now more generally required, further improvement in this direction must be looked for if the money expended on technical instruction is to produce its best results. There can be no doubt that the teaching of technology has greatly improved during the past few years, but it must be noted that the examiners have still to direct attention repeatedly to the insufficient preliminary knowledge that some candidates possess.

SOCIETIES AND ACADEMIES.

LONDON.

Geological Society, November 23.—Prof. W. W. Watts, F.R.S., president, in the chair.—Dr. W. F. **Hume**: The effects of secular oscillation in Egypt during the Eocene and Cretaceous periods. There is evidence of the gradual advance of the Cretaceous sea from north or north-east over Egypt during Upper Cretaceous times. Four stages in this advance are indicated by the distribution of the Cretaceous deposits. The four phases are:—(*a*) A north Egyptian type, in which the Nubian Sandstone entirely underlies fossiliferous beds of Cenomanian age. This extends across Egypt from Sinai to Baharia Oasis. (*b*) A Wadi-Qena type, developed near the head of the valley of that name, characterised by the alternation of Nubian Sandstone with fossiliferous Cretaceous beds. (*c*) A central Egyptian or Hammama type, in which the Nubian Sandstone forms the greater portion of the Cretaceous series, only the Danian and Campanian beds being fossiliferous limestones or shales. The Campanian beds are characterised by the presence of phosphatic fish-beds. (*d*) A south Egyptian type has resemblances to the central Egyptian, but in the Campanian the phosphatic beds are inconspicuous. As regards the transition from the Cretaceous to the Eocene, the existence of two types of strata at the base of the Eocene is noted: the first, the Luxor type, being fossiliferous, and developed in the Western Desert; the second, or Qena type, being unfossiliferous, and composed of white limestone similar to the Danian white limestone below them, but structurally different. These variations may be due to fold-effects produced while the land was gaining on the sea at the beginning of Eocene times, the Qena limestones being remade Cretaceous material. Whereas in southern Egypt Lower Eocene strata directly overlie the Danian strata, in northern Egypt unconformities exist between the Middle Eocene and the Cretaceous beds. The palæontological differences between the Cretaceous and the Eocene are recorded, the principal feature being the sudden incoming of the foraminifera Nummulites and Operculina. The distribution, zonation, and variation of the Eocene series are considered. The apparent uniformity of the fossiliferous Lower Eocene strata wherever developed is noted. The lack of uniformity in the Middle Eocene strata. The nature of the Eocene beds between Baharia Oasis and the depressions of Moela and the Fayum are described, zoned, and compared with the Middle Eocene in other parts of Egypt. The influence of the gain of land over sea is traced through the Upper Moqattam beds. The Cretaceous period in Egypt is marked by the gradual gain of sea over land; during the Eocene land appears to have been steadily gaining on the sea, probably accompanied by gentle fold-movements, which account for the minor differences in the nature of the Eocene deposits.—A. R. **Horwood**: The origin of the British Trias. During the Triassic period in Britain, deposition, it is maintained, was brought about solely by the action of water, and the British Trias is a delta-system, for during Carboniferous, Permian, and Triassic times deposition was mainly in the same area. There is a gradation from the Bunter to the Rhætic. The Bunter is known to be of fluviatile origin, and there is a continuity from Lower to Upper Trias, with an unconformity due to the new mode of formation and change in sedimentation. Oscillation and overlapping are admittedly due to aqueous agency. The Triassic outcrop and the delta-area of the river Mississippi are closely similar. Coloration is original, from below upwards, and not coincident with bedding. The thickness of the Bunter is an argument for a subsiding area. The ferruginous types in the Carboniferous, Permian, and Trias are alike due to delta conditions. The Trias is horizontal now, as originally, away from any ancient hills which it covers. It is only the skerries that are rippled. Screes occur mainly to the south-west of submerged hills. Sandstones thin out eastward, marls westward, and the skerries are on the hills. Rock-salt and gypsum are also horizontal and continuous in a linear direction. The Keuper gradually merges into the Rhætic phase, and the latter into the Lias. Since the Bunter sediments came from the north-west into the Midlands, so probably did the Upper Trias. Local metamorphic and volcanic rocks may have provided some of the heavier minerals, but, as a whole, their source was more distant. The flora and fauna can be grouped in provinces around the delta-head of the Trias. These considerations point to an aqueous mode of sedimentation in a moist and equable climate.

Physical Society, November 25.—Prof. H. L. Callendar F.R.S., president, in the chair.—Dr. A. **Russell**: The electric stress at which ionisation begins in air. Prof. J. B. Whitehead has published the values of the electric stress at which ionisation begins in air. His electrodes consisted of a metal tube and a cylindrical wire coaxial with it. Alternating pressures were employed, and the inner wires had diameters from 0·089 to 0·475 cm. If a be the radius of the inner wire, the expression $32+13{\cdot}4/\sqrt{a}$ gives all Whitehead's experimental results for the maximum electric stress in kilovolts per centimetre with a maximum inaccuracy of less than 1 per cent. Experiments show that the electric stress at which ionisation occurs is independent of the metals used for the electrodes

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and of the inner radius of the outer tube. It depends on the radius of the inner wire. Steinmetz's experimental results on the sparking distances between parallel rods are in substantial agreement with Whitehead's figures. An empirical formula based on experimental results published by Kowalski and Rappel is given for the sparking voltages between equal spherical electrodes. The electric stress at the moment of discharge has a minimum value when the distance between the electrodes is a certain function of their radius. Great stress is laid on the currents of electrified air which stream round the electrodes before the discharge takes place. These currents often modify the values obtained for the disruptive stress at the moment of discharge. The similarity between the formulæ for the temperature gradient at the surface of a hot wire cooling in air and the empirical formula for the potential gradient at the surface of an electrified wire when ionisation is taking place at its surface is pointed out.—Prof. R. J. **Strutt**: The afterglow of electric discharge. When the electric discharge has passed at low pressure through certain gaseous mixtures, a luminosity survives for some seconds after the discharge has been turned off. An improved method of experimenting on the phenomena was introduced by Dewar. A powerful air-pump is used to draw a regulated current of gas through the vacuum tube. A continuous removal of the gas from the region of discharge is effected, and the afterglow which it emits, in passing through another vessel on its way to the pump, can be examined continuously and at leisure. There has been difference of opinion as to whether pure oxygen shows a glow or not. The glow, if any, is certainly exceedingly faint. With air a bright yellow glow is obtained, which is improved by enriching the air with oxygen. Pure nitrogen gives no glow whatever. Previous experimenters have connected the glow with ozone, though without expressing definite views as to what part ozone played. The evidence for this has been that the glow is only obtained where oxygen is present, and that it is destroyed by heat. Additional evidence has been obtained. (1) The glow cannot survive passage through a tube cooled in liquid air. This is regarded as due to condensation of ozone. (2) It is destroyed by passage over oxides of copper, manganese, and silver. Ozone is known to be destroyed by these substances. (3) While the glowing gas oxidises bright silver, the gas current beyond the point at which the glow has died out does not do so. Disappearance of the glow is simultaneous with disappearance of ozone from the gas. The glow involves consumption of ozone. It is natural to regard it as a flame of low temperature, arising from the oxidation of some other body by ozone. Experiments were made to determine the nature of this other body. A current of ozone from a vacuum tube fed with oxygen was allowed to mix with any other gas which it was desired to test on its way to the pump. Nitrogen or ordinary air added to the ozone gave no effect, but air which had been through an independent discharge, and had been deprived of its original glow by silver oxide, was found to glow again on mixing with ozone. Some body is produced in air by the discharge the oxidation of which is responsible for the glow. This body is nitric oxide. On leading a current of this gas into the ozone stream a brilliant glow was obtained of the characteristic yellow colour. This glow can be produced in the form of a pointed flame, with dark inner cone. The glow is not associated with a sensible rise of temperature. Condensing the ozone with liquid air, allowing it to re-evaporate, and admitting nitric oxide to it, a yellow flash can be obtained long after the electric discharge is over. The glow is purely chemical in its origin. Ozone from the Siemens tube used at atmospheric pressure seems incapable of yielding the glow when mixed with nitric oxide. This may be due to the low percentage of ozone present. The main conclusion is that the ordinary yellow afterglow is due to oxidation of nitric oxide by ozone.—L. F. **Richardson**: The approximate solution of various boundary problems by surface integration combined with freehand graphs.

Zoological Society, November 29.—Dr. H. Woodward F.R.S., vice-president, in the chair.—Dr. H. B. **Fantham** and Dr. H. Hammond **Smith**: A possible cause of pneumo-enteritis in the red grouse (*Lagopus scoticus*). The authors recorded that in grouse-chicks dying of coccidiosis, many of which showed symptoms of pneumonia, they found coccidian oöcysts in the bronchioles, bronchi, and trachea. The coccidian cysts in the bronchioles were probably capable of setting up sufficient irritation to account for the pneumonic symptoms. These observations were interesting as showing that the much criticised views of Klein, Tegetmeier, and others on "pneumo-enteritic" as a cause of mortality in grouse may have some foundation in fact.—Dr. J. F. **Gemmill**: The development of *Solaster endeca*, Forbes. The author described the ovaries and ova and the processes of spawning, fertilisation, segmentation, and gastrulation, and then dealt with the characters of the free-swimming larvæ and the changes related to the metamorphosis. He discussed the development of the internal cavities and of the skeleton, and described the methods he had employed in obtaining and rearing the larvæ. The memoir, in addition to details of adult anatomy, contained a description of various points in development.—F. E. **Beddard**: The alimentary tract of certain birds, and on the mesenteric relations of the intestinal loops. Notes the author had accumulated relative to the viscera of birds which had died in the society's gardens. The paper dealt more particularly with species that had not been carefully studied from the point of view of the convolutions of the intestine, and attention was directed to a considerable series of birds.—Prof. A. **Cabrera**: The specimens of spotted hyænas in the British Museum (Natural History). Three apparently new forms were described.

Linnean Society, December 1.—Dr. D. H. Scott, F.R.S., president, in the chair.—Captain C. F. **Meek**: The spermatogenesis of *Stenobothrus viridulus*, with special reference to the heterotropic chromosome as a sex determinant in grasshoppers.

Mathematical Society, December 8.—Dr. H. F. Baker, president, in the chair.—G. H. **Hardy**: Properties of logarithmico-exponential functions.—G. H. **Hardy**: Some results concerning the increase of functions defined by an algebraic differential equation of the first order.—A. A. **Robb**: Optical geometry of motion.—T. C. **Lewis**: Note on the Pellian equation.—G. B. **Mathews**: The arithmetical theory of binary cubic forms.—Dr. W. H. **Young**: The integration of Fourier's series.—Dr. W. H. **Young**: The theory of the application of expansions to definite integrals.

Royal Astronomical Society, December 9.—Sir David Gill, K.C.B., president, in the chair.—A. C. D. **Crommelin**: Note on Mr. Innes's paper on the mean or perihelion distances of comets.—A. Stanley **Williams**: The equatorial current of Jupiter in 1880. The author concluded from observations of eight spots that the rotation period of the equatorial current in 1880–1 was nearly 20 sec. shorter than during the years 1888–1908, amounting to a difference in velocity of about 15 miles an hour.—A. A. **Rambaut**: Observations of Halley's comet, Daniel's comet (1909*g*), and comet 1910*e*, made at the Radcliffe Observatory, Oxford.—A. A. **Rambaut**: Observations of stars occulted by the moon during the eclipse of 1910 November 16. A photograph of the eclipsed moon and trails of stars was shown, the telescope having been adjusted to the moon's motion during the eclipse.—C. V. L. **Charlier**: Multiple solutions in the determination of orbits from three observations. The author showed that in certain regions more than one solution could be obtained from the observations, while in others only one was possible; in consequence of this, much difficulty was somtimes found in obtaining the true orbit, as was the case with comet 1910*a*.—H. H. **Turner**: The accuracy of the positions of the star images in the "Harvard Sky." By the latter term was intended the Harvard series of fifty-five plates, forming a photographic map of the heavens on a scale about one-eleventh that of the Astrographic Catalogue. Formulæ were given for computing the optical distortion, varying as the cube of the distance from the centre of the plates, and also for the differential refraction.—S. A. **Saunder**: The determination of selenographic positions, and the measurement of lunar photo-

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graphs. Fifth paper: Results of the measurement of two Yerkes negatives. The negatives, taken by Prof. Ritchey, were extremely fine, but their dates—given as 1901 August 3 and November 21—were uncertain. The result of the author's reduction of the measures of the plates enabled him to show that they were actually taken on September 3 and November 20. The measures appeared to show that points on the moon greatly above or below the mean surface should be rejected, owing to their being shifted in opposite directions by libration. A diagram was drawn to exhibit the close agreement between points independently measured on photographs by Prof. Franz and Mr. Saunder compared with the considerable divergence in the positions of the same points as determined by Lohrmann and Mädler. The actual measures had been made on the negatives by Mr. Hardcastle.

PARIS.

Academy of Sciences, December 3.—M. Émile Picard in the chair.—G. **Lippmann**: Two pieces of metal lightly touching do not, in general, form an electrical contact when the difference of potential is small. Two forms of contact are described in which no pressure is necessary. In one of these a strip of paper moistened with a solution of an electrolyte (calcium chloride) is employed; the second consists of two amalgamated silver wires.—A. **Gautier**: Concerning the invention of porous filtering candles. The author points out that he described the manufacture and use of porous porcelain filters two years before Ch. Chamberland.—A. **Laveran** and A. **Pettit**: A new hæmogregarian of *Damonia subtrijuga*.—M. **Gouy**: The potential of the discharge in a magnetic field.—W. **Kilian** and M. **Gignoux**: The levels of the pebble beds and terraces in the neighbourhood of Saint-Rambert-d'Albon (Drôme) and of Beaurepaire (Isère).—M. Lecornu was elected a member in the section of mechanics in the place of the late M. Maurice Levy.—G. D. **Boerlage**: An attempt at "*vol à vortex*." Attention is directed to the effect of the thickness of the front edge of the wing in birds, and the author suggests that an attempt might be made to realise these conditions in aëroplanes.—M. **Lambert**: A form of the equations of motion of a small planet.—M. **Borrelly**: Observations of the new Cerulli comet made at the Observatory of Marseilles with the comet finder. Data are given for November 10, 12, 14, and 16.—M. **Coggia**: Observations of the Faye comet (1910*e*, Cerulli, November 9) made at the Observatory of Marseilles with the Eichens equatorial of 26-cm. aperture. Positions are given for November 12 and 16.—P. E. **Gau**: The integration, by the method of M. Darboux, of any partial differential equation of the second order.—T. **Lalesco**: The poles of resolving nuclei.—Henri **Villat**: The movements of a fluid round an obstacle of given form.—Marcel **Chopin**: The absolute measurement of currents of great intensity. A description of a modified tangent galvanometer capable of measuring currents up to 1000 amperes.—M. **Tian**: The nature of the decomposition of hydrogen peroxide solutions produced by light. It has been shown that the decomposition of hydrogen peroxide by heat is a bimolecular reaction, whilst the decomposition by catalysis in presence of colloidal platinum, diastase, &c., is a unimolecular reaction. An experimental study of the decomposition produced by ultra-violet light shows that the reaction is unimolecular, and hence is not analogous to the action of heat, but rather resembles catalytic decomposition.—Paul **Jégou**: The reception of the Hertzian time signal from the Eiffel Tower. The apparatus described and illustrated works with Leclanche cells instead of secondary batteries, and is simplified in other directions.—L. **Décombe**: The mechanical interpretation of the principle of Carnot and Clausius. The case of a compensated transformation.—F. **Charron**: The modifications produced by the air layer in friction and sliding between solid bodies.—Br. **Glatzel**: New experiments in stimulation by shocks in wireless telegraphy. It is well known that by interposing very short sparks into the primary circuit of a Hertzian wave excitor the vibrations in this circuit are effectually deadened. The author passes the sparks through a tube containing hydrogen between nickel electrodes. Reproductions of photographs are given showing the complete damping effect obtained.—R. **Marcelin**: The mechanics of irreversible phenomena.—A. **Besson** and L. **Fournier**: By passing a rapid current of hydrogen bromide over amorphous silicon at a red heat a liquid is obtained which, on submitting to fractional distillation, gives as the main product of the reaction silicon tetrabromide; small quantities of SiH_2Br_2 are also obtained, and also a liquid which appears to be a mixture of this with SiH_3Br. Details are also given of a rapid method of preparing a crude silicon suitable for the reaction. By the action of the silent discharge upon the vapours of the silicobromoform four substances were identified, $SiBr_4$, Si_2Br_6, Si_3Br_8, and Si_4Br_{10}, the silicon analogues of tetrabromomethane, octobrompropane, and decabrombutane.—E. A. **Salmon**: A method for producing a reaction between two bodies in the electric arc.—L. **Tchougaeff** and W. **Fomin**: The addition of hydrogen to the isomeric thujenes and sabinene. The application of the Sabatier and Senderens reactions having been shown to be too energetic in the case of these two hydrocarbons, the addition of two atoms of hydrogen to each molecule was effected by the catalytic action of platinum black, the hydrogen being used under a pressure of 25 to 50 atmospheres. The physical and chemical properties of the resulting hydrocarbons are given.—Georges **Denigès**: A new reaction of morphine. The reagent proposed is a mixture of ammonia, hydrogen peroxide, and copper sulphate in aqueous solution. A red colour is produced if the concentration of the morphine is above 0·03 gram per litre. This reaction gives negative results with codeine, thebaine, papaverine, narceine, and narcotine.—A. **Verneuil**: The nature of the oxides causing the coloration of the Oriental sapphire. Careful analyses of sapphires from different sources (Montana, Burmah, and Australia) showed the invariable constituents to be oxide of iron and oxide of titanium. The latter oxide was not detected in the earlier analyses by other workers. No chromium was found in the two sapphires examined for this element, and the author concludes that chromium is not essential to the production of the characteristic colour. The conclusion that the colour is due to the oxides of titanium and iron alone is confirmed by the synthesis of the gem by fusion previously described.—Henri **Coupin**: The influence of various volatile substances on the higher plants.—L. **Moreau** and E. **Vinet**: Insecticide treatments in viticulture.—Ed. **Griffon**: The influence of the tarring of roads on the adjacent vegetation. The author comes to the conclusion that no injurious effect to vegetation can be proved to have been caused by the tarring of roads. Laboratory results cannot be regarded as conclusive on this point, which can only be settled by actual practice in the open air.—MM. **Melchissédec** and **Frossard**: Muscular fatigue in singing.—M. **Doyon**: The formation of antirhombine in the liver previously frozen at a very low temperature.—G. **Linossier**: The influence of iron on the formation of the spores of *Aspergillus niger*. It has been shown by previous workers that if iron be omitted from the culture solutions of *Aspergillus niger* spores are not formed. The author has extracted the black pigment from the spores of this mould, and shows that it possesses properties resembling the hæmatin of the blood, and contains iron as an essential constituent. This furnishes a full explanation of the impossibility of producing spores in the absence of iron.—Gabriel **Bertrand** and Arthur **Compton**: The influence of temperature on the activity of cellase. Cellase from sweet almonds has a maximum activity at a temperature of 46° C. This is independent of the duration of heating, and is a specific value of great interest.—M. **Lemoine**: The presence of deposits of cholesterol in the coats of sclero-ætheromatous arteries.—Ch. **Vélain** and Albert **Michel-Lévy**: The primary strata of the south of the Vosges.—MM. **Bernard** and **Mougin**: The stratification of the *névé* and of the ice in the upper regions of the collecting areas of glaciers.—Ph. **Glangeaud**: The glacial phenomena in the mountains of Forez.—Paul **Bertrand**: General characters of the stipes of *Asterochlaena laxa*.—M. **Martel**: The removal of obstruction in water-bearing fissures.—P. **Mercanton**: The magnetic condition of the diabases of Isfjord at Spitsbergen.—Louis **Gentil**: The lower Mlouya (eastern Morocco).

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NEW SOUTH WALES.

Linnean Society, September 28.—Mr. C. Hedley, president, in the chair.—C. T. **Musson** and W. M. **Carne**: The adventitious roots of *Melaleuca linariifolia*, Sm.—R. J. **Tillyard**: Some experiments with dragon-fly larvæ. This paper embodies the results of experiments carried out with the object of showing:—(1) That dragon-fly larvæ of certain kinds live longer than one year. An unknown Libellulid larva taken at Heathcote on October 10, 1908, and more than half-grown then, has lived in an aquarium to the present date. It now appears full-fed, and may be expected to emerge this season. Its age, from the egg, must be more than two and a half years. (2) That certain dragon-fly larvæ can resist severe and prolonged drought. Eight larvæ of *Synthemis eustalacta*, Burm., were placed in a shallow-water aquarium over sand; no food given from December 25, 1909, and water allowed to evaporate. The aquarium was dry on February 2, and the larvæ were kept alive, hidden in the sand, until May 29, a period of nearly four months. The larvæ were then returned to water and fed up. Seven are still alive, and may be expected to emerge this season.—T. Harvey **Johnston** and Dr. J. Burton **Cleland**: The Hæmatozoa of Australian Reptilia. No. 1. A list of Australian reptiles from which Hæmatozoa have been recorded is given, and three species of Haemogregarina (Karyolysus) are described as new.

October 26.—Mr. C. Hedley, president, in the chair.—T. **Iredale**: An additional note on the birds of Lord Howe and Norfolk Islands. The opportunity of inspecting the Watling drawings in the British Museum prompted the author to investigate the authenticity of the early chronicles relating to some of the birds of Norfolk and Lord Howe Islands, now extinct, or the identity of which has never been settled satisfactorily. From the consideration of the historical evidence available, the author concludes that the extinct white gallinule (*Notornis alba*) was restricted to Lord Howe Island; that the "Norfolk Island petrel" of Latham is probably *Puffinus griseus*, Gm., which still breeds about the typical locality, and not *P. chlororhynchus*, Less., as supposed by the late Dr. Sharpe; and that drawing No. 282, regarded by Dr. Sharpe as representing *P. tenuirostris*, Temm., is undoubtedly a figure of the Œstrelata still breeding, or which apparently used to breed, on Norfolk Island, which must bear the name *Œstrelata phillipi*, Gray, and which is different from *Œ. neglecta*, Schl. Some omissions are rectified, and observations supplementary to those of Mr. Hull (Proceedings, 1909, p. 636) are given.—A. F. Basset **Hull**: Further notes on the birds of Lord Howe and Norfolk Islands, with the description of a new species of petrel. The author endeavours to dispel the uncertainty enshrouding the identification of the petrels of Norfolk Island. Captain Hunter's "bird of providence" remains a mystery, as visits to Mount Pitt in November, and in the succeeding year in August, offered no signs of birds or burrows, a condition of things possibly due to the extermination of the old-time colony, or its removal to more secure breeding grounds. The "Big Hill mutton-bird" of Lord Howe Island, which breeds upon Mount Gower, is shown to be markedly different from *Œstrelata neglecta*, Schlg., and is described as new.—J. H. **Maiden** and E. **Betche**: Notes from the Botanic Gardens, Sydney. No. 16.—A. M. **Lea**: Australian and Tasmanian Pselaphidæ (Coleoptera).

DIARY OF SOCIETIES.

THURSDAY, DECEMBER 15.

LINNEAN SOCIETY, at 8.—Reports on the International Botanical Congress at Brussels, 1910: Dr. Otto Stapf, F.R.S., and others.—Non-calcareous Sponges from the Red Sea, collected by Mr. Cyril Crossland: R. W. H. Row.—Comparative Anatomy of Leaves of Veronica: R. S. Adamson.

ROYAL SOCIETY OF ARTS, at 4.30.—The Taj Mahal and its Relation to Indian Architecture: R. F. Chisholm.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Submarine Cables for Long Distance Telephone Circuits: Major W. A. J. O'Meara, C.M.G.

FRIDAY, DECEMBER 16.

INSTITUTION OF MECHANICAL ENGINEERS, at 8.—The Production of Castings to withstand High Pressures: Prof. H. C. H. Carpenter and C. A. Edwards.—The Constitution of Troostite and the Tempering of Steel: Andrew McCance.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Mathematical Deduction of the most Economical Ratio of Reinforcement for Reinforced-concrete Structures: R. N. Mirza.

SATURDAY, DECEMBER 17.

ESSEX FIELD CLUB (at Essex Museum of Natural History, Stratford), at 6.—Notes on a "Neolithic Floor" near Rayleigh, Essex: F. W. Reader and S. Hazzledine Warren.—Sarsens, Basalt, and other Boulders in Essex: Dr. E. A. Salter.

MONDAY, DECEMBER 19.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—The French Antarctic Expedition, 1903–1910: Dr. J. B. Charcot.

INSTITUTE OF ACTUARIES, at 5.—On the Valuation of the Liabilities of an Insurance Company under its Employers' Liability Contracts: W. Penman, Jr.

TUESDAY, DECEMBER 20.

ROYAL STATISTICAL SOCIETY, at 5.

INSTITUTION OF CIVIL ENGINEERS, at 8.—The Winning of Coastal Lands in Holland: A. E. Carey.

WEDNESDAY, DECEMBER 21.

GEOLOGICAL SOCIETY, at 8.—The Keuper Marls around Charnwood Forest: T. O. Bosworth.—The Relationship of the Permian to the Trias in Nottinghamshire: R. L. Sherlock.

ROYAL MICROSCOPICAL SOCIETY, at 8.—Modern Methods of Research on a Scientific Cruiser: Arthur Earland.

ROYAL METEOROLOGICAL SOCIETY, at 7.30.—(1) Report on Balloon Experiments at Blackpool, 1910; (2) The Meteorological Significance of Small Wind and Pressure Variations: Capt. C. H. Ley.—Atmospheric Waves of Short Period: Dr. Wilhelm Schmidt.

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