

and latterly of the University, on many occasions taken an active part in forwarding the interests of the institution.

Under the will of the late Mrs. John Rylands, the University directly benefits by a legacy amounting to 75,000*l.*, and, in addition, the munificent endowment of the John Rylands library will be of great service to many engaged in literary study and research.

Two further recent bequests must be recorded. Mr. George Harrison, of Manchester, a retired cotton spinner, has left 10,000*l.* for the foundation of scholarships or fellowships, and Mrs. Margaret Stern, of East Barnet, 500*l.*

Prof. Ernest Rutherford, F.R.S., has been awarded the Bressa prize by the Academy of Science of Turin in recognition of the importance of his researches during the past three years.

Prof. W. Boyd Dawkins, F.R.S., has announced his intention of resigning the chair of geology, which he has held since 1874, at the end of the present session; he will, however, accept an honorary professorship and give special courses of lectures. Prof. Dawkins will continue to take an active part in the affairs of the Manchester Museum, in which he has taken so great an interest since he first came to Manchester in 1869 as its curator.

LORD RAYLEIGH will probably be elected to the vacant Chancellorship of the University of Cambridge in succession to the late Duke of Devonshire.

THERE will be an annual exhibition of students' work at the Borough Polytechnic Institute, Borough Road, S.E., on Saturday, April 4.

It is announced that Prof. A. Crum Brown, F.R.S., professor of chemistry in the University of Edinburgh, contemplates retiring at an early date from the chair which he has occupied since 1869.

PROF. P. J. WHITE having been granted leave of absence for six months on account of ill-health, the Senate of the University College of North Wales has appointed Dr. W. A. Cunningham acting head of the department of zoology for the summer term.

THE Department of Agriculture and Technical Instruction for Ireland issued recently in pamphlet form the lectures delivered during 1906 in connection with the department's scheme of short summer courses for teachers, and an account of technical instruction in Ballymena by Mr. P. F. Gillies, which appeared first in the department's Journal.

In connection with the forthcoming Franco-British Exhibition, a "children's week" is to be held. A number of French school children and their teachers, half of whom will represent secondary schools and half elementary schools, will be present. The scheme is receiving the support and sympathy of the French and British Governments, and careful preparations are being made to secure the comfort and health of the visitors. A daily educational course is to be given in the British section of education, in which both French and English children will participate. Physical exercises and games typical of both countries will take a prominent part. *Tableaux vivants*, in which the children of both nations will join, illustrating historical events and symbolical of the advantages of peace and the *entente cordiale*, will be another important item of the week's proceedings. The idea is excellent, and we are sure that no pains will be spared to make it a complete success.

In introducing in the House of Commons on Tuesday a Bill to make further provision with respect to university education in Ireland, the Chief Secretary for Ireland adopted Sir Norman Lockyer's plea for a two-power standard in education as well as in naval defence. He pointed out that the provision of adequate facilities for higher education is as necessary as the aim to be at least twice as strong at sea as any two foreign nations. A short visit to Strassburg would be sufficient to show what the people of Germany are doing for the people of Alsace, and would also show that foreign universities may do this country, during every hour of every day of the academic year, a considerable amount of injury by way of competition. Something has been done in England, Scotland,

and Wales to supply this undoubted want. A number of teaching universities have of recent years sprung up among our great and murky towns—Manchester, Liverpool, Leeds, Sheffield, and Birmingham are now being associated in the minds of their younger citizens, not merely with docks and warehouses, not merely with shops and factories, least of all with gaols, lunatic asylums, and workhouses, but nobler structures from which are streaming forth the inspiring traditions, the ever-strengthening traditions, of university life and training. The Bill introduced proposes to establish two new universities in Ireland; these two universities to have their seats respectively in Dublin and in Belfast. In Belfast there will be but one college, the present Queen's College, and it will not be able to have any other, except, of course, by a subsequent Act of Parliament. Dublin will have three constituent colleges, and three only—Cork, Galway, and the new college, with a charter and an incorporated body in Dublin. The existing Royal University will be dissolved as from some appointed day, and its buildings, property, and endowments will be dealt with in a manner mentioned in the Bill. It is suggested, as a matter of finance, that the 20,000*l.* from the Irish Church Fund shall be divided into two equal parts, and that the university in Belfast shall take 10,000*l.* for maintenance and the new university in Dublin the other 10,000*l.* for maintenance. In addition to the present charge on the Irish Church Fund of 20,000*l.* there is a present charge upon the Exchequer of 36,500*l.*, which the Bill proposes to increase to 80,000*l.* This is the provision by way of new endowment, 43,500*l.* Belfast will thus get 10,000*l.* for its university, part of the Irish Church Fund; it will also have 18,000*l.* by way of annual endowment, making in all 28,000*l.* a year. The new college in Dublin has first of all to be built, and then endowed and maintained, and the proposal is that out of the moneys suggested 32,000*l.* a year shall endow and maintain the new university in Dublin when it has once been started. Then the income of the Queen's College, Cork, will be increased to 18,000*l.* a year, and the income of Queen's College, Galway, will be increased to 12,000*l.* a year. It is proposed also that a grant of 60,000*l.* should be made to the new University of Belfast to enable it to provide itself with a university worthy of the province to which it belongs. It is believed that a *maximum* sum for the purpose of the University and college in Dublin should be 150,000*l.*, which, it is hoped, will be sufficient first of all to complete the present university buildings.

## SOCIETIES AND ACADEMIES.

### LONDON.

**Zoological Society, March 17.**—Dr. Henry Woodward, F.R.S., vice-president, in the chair.—Some observations on the effects of pressure upon the direction of hair in mammals: Dr. W. Kidd. This paper was a sequel to other communications on the subject of the direction of hair, and consisted chiefly of the observed effects of the pressure of harness on certain regions of the coats of domestic horses. This pressure was shown to produce reversed areas of hair, and it was held that these results supported the view put forward in other papers that changes in the arrangement of hair are due to mechanical causes. Fifty-three cases were brought together, and eight different regions of the coats of the horse were shown in which the effects of pressure were found.—Mammals obtained by Mr. C. H. B. Grant in the Gorongosa Mountains, Portuguese S.E. Africa: O. Thomas and R. C. Wroughton. This was the ninth of the series of papers on the mammals of the Rudd Exploration of South Africa. One hundred and fifty specimens were dealt with, belonging to thirty-one species and subspecies, of which three were described as new.—Notes upon some species and geographical races of serows (*Capricornis*) and gorals (*Næmorhedus*), based upon specimens exhibited in the society's gardens: R. I. Pocock. It was pointed out that the "grey" goral of the Himalayas was originally described by Hardwicke as *Antilope goral*, and that the "brown" goral, to which the specific title *goral* has been applied in recent literature, required a new name. The author proposed to call it *Næmorhedus hodgsoni*. Concerning the genus *Capri-*

cornis, he stated that although only one form had been hitherto distinguished from the Himalayas, the available material pointed to the existence of at least four subspecies in that mountain range.

**Geological Society, March 18.**—Prof. W. J. Sollas, F.R.S., president, in the chair.—The Carboniferous rocks at Loughshinny (county Dublin), with an account of the faunal succession and correlation: Dr. C. A. Matley and Dr. A. Vaughan. After an introduction recalling the succession at Rush, already described by the authors, a detailed account is furnished of the various sections in the Loughshinny area. About 1100 feet of Carboniferous rocks are exposed. They consist mainly of limestone, but also include a thick mass of conglomerate and many intercalated beds of shale and chert. The rocks have been much folded, and to some extent faulted. The lowest rocks belong to some part of the Dibunophyllum zone, the higher range through Cyathaxonia beds into Posidonomya Limestones and shales of Pendleside age. The Lane Conglomerate may be on or near the horizon of the Rush Conglomerate. Local decalcification has caused the more or less complete disappearance of some of the Cyathaxonia and Posidonomya Limestones. The region was close to an old shore-line of the Carboniferous Limestone Sea, the actual position of which appears to have been almost parallel to, and a short distance seaward of, the present coast-line between Rush and Skerries.—A note on the petrology and physiography of Western Liberia (West Coast of Africa): J. Parkinson. The country is low-lying, with a gradual rise northward from shore-level, and rivers mature in character with alluvial flats raised above flood-level. Where the River Tuma falls into the River St. Paul the remnant of a hanging valley can be seen. Flattopped ridges and isolated hills trending parallel to the foliation of the gneiss are characteristic of the country around Sanoyei and Boporo. There is a striking absence of late deposits of old gravels and sands. In the southern part of the district there are indications of a series of garnetiferous gneisses, tremolite schists, kyanite schists or gneisses, garnet-graphite gneisses, &c., associated with others of granitic type, the latter being apparently free from microcline and containing a pleochroic pyroxene. These rocks are replaced in the north by biotite gneisses and hornblende schists, which have an approximate and singularly constant east-and-west (magnetic) strike in their foliation. Microcline is common. These old crystalline rocks are cut by an extensive series of basalts and ophitic dolerites, resembling so closely the post-Cretaceous dykes of Southern Nigeria that it is difficult to avoid the conclusion that they are of the same age.

**Linnean Society, March 19.**—Mr. H. W. Monckton, treasurer and vice-president, in the chair.—*Exhibits* (by permission of the director, Royal Botanic Gardens, Kew).—W. B. Hemsley: A second specimen of *Platanthera chlorantha* with three spurs. The plant exhibited a spike, each flower of which had the three petals spurred, a case of true peloria, whereas the specimen shown on January 17, 1907, had the three sepals spurred, a case of false peloria.—T. A. Sprague: Female flowers and fruits of *Sterculia Alexandri*, Harv., an extremely rare tree from Uitenhage, the only locality known for it.—C. H. Wright: Specimens of (a) *Sphaerotheryax algiformis*, Bisch., a rare South African podstemaceous plant; (b) *Archangiopteris Henryi*, Christ and Gilsonh., a Chinese genus of Marattiaceae, of which a better supply of material had been recently obtained.—*Papers*.—The Podostomata (=Pycnogonida) of the temperate Atlantic and Arctic Oceans: Canon A. M. Norman. The classification of Sars had been adopted, and the paper itself contained a complete enumeration of the group within the regions specified.—Amphipoda Gammaridea from the Indian Ocean, British East Africa, and the Red Sea: A. O. Walker. The total number of species from the three collections was fifty, in thirty-six genera, seven being new to science, and one being the type of a new genus.—A revision of the genus *Codonopsis*: T. F. Chipp. The author included the genus *Glosocomia* of D. Don, and other species which could not well be assigned to either. The genus was divided into four sections, dependent upon the attachment and insertion of the corolla and calyx.

Finally, the distribution of this genus along the mountain ranges of Asia was described and illustrated by a map on the screen.—The Holothurians of the Sudanese Red Sea: E. Hindle.

PARIS.

**Academy of Sciences, March 25.**—M. H. Becquerel in the chair.—The theory of flow over a vertical thin edge and without lateral contraction: J. Boussinesq. The results of the theoretical investigation of the author are compared with the empirical formula of Bazin, the latter representing numerous experiments. The agreement is moderately satisfactory.—The theory of electrocapillarity: M. Gouy.—The determination, at the Observatory of Paris, of the systematic errors in the reproductions of the *réseaux* of the chart of the heavens: Jules Baillaud.—The applicability and various modes of representation of surfaces with coinciding lines of curvature: L. Raffy.—The application of an alternative method to the biharmonic problem: S. Zaremba.—Remark concerning a note on the differential equations of an electrified corpuscle in a magnetic field: Carl Störmer.—The gases arising from electric sparks: M. de Broglie. It has been shown by de Wattville and Hemsalech that if the air supply of a Bunsen burner passes over two metallic terminals between which electric sparks are passed, the flame of the burner gives the spectrum of the metal of the electrodes. The author has examined air thus treated, and finds it to contain ions of feeble mobility (about  $10 \mu$  per second in a field of 1 volt per cm.), neutral centres capable of being transformed into ions of feeble mobility by exposure to radium or Röntgen rays, and fine particles visible in a strong beam of light. The last are in part electrified, and probably constitute the chief source of the spectrum obtained.—The absorption spectra of crystals of the rare earths in a magnetic field at the temperatures of the liquefaction and solidification of hydrogen: Jean Becquerel and H. Kamerlingh Onnes. Previous work at temperatures down to  $-190^\circ \text{C}$ . has shown that the size of the bands varies proportionally to the square root of the temperature. At  $-259^\circ \text{C}$ . the majority of the bands no longer follow this simple law. Two of the bands from xenotime appear to pass through a minimum, and are wider at  $-259^\circ \text{C}$ . than at  $-253^\circ \text{C}$ . A few of the bands, however, appear to follow the same law as down to  $-190^\circ \text{C}$ . Down to the temperature of liquid air, all the bands show an increase of intensity corresponding to an increase of absorption. This does not hold for lower temperatures, and for each band there is a temperature at which the absorption passes through a maximum.—The detection of minute quantities of helium in minerals: F. Borda. The exhaustion is carried out by means of charcoal cooled to the temperature of liquid air, and a Plücker tube is interposed between the vessel in which the mineral is heated and the charcoal vessels. The helium being much less readily absorbed by the cooled charcoal, very minute quantities can be detected. Helium has been recognised in this apparatus in 0.02 gram of Japanese naegeite.—The photography of the vibrations of the voice: M. Marago. The vibrations fall on a thin membrane of india-rubber, and are transmitted from this to a small plane mirror. Two reproductions of the photographs obtained accompany the paper. The apparatus, once set, can unroll, expose, develop, and fix 25 metres of paper without any manipulation. Various suggestions are made for practical applications.—Some examples of lines presenting a Zeeman phenomenon abnormal in the sense of the magnetic lines of force: A. Dufour. The second spectrum of hydrogen is formed of three types of line, the first being unacted on in the field, the second giving the ordinary Zeeman effect, and the third the abnormal Zeeman effect.—The action of chlorine upon dichthymol: H. Cousin. The products of the action are a dichlorothymol, a dichlorothymoquinone, and a dichloride of the latter compound.—Some derivatives of phenylisoxazolone: A. Wahl and André Meyer. Condensation is readily effected between phenylisoxazolone and aromatic aldehydes, the product being precipitated in nearly quantitative yield.—The products of the action of aluminium chloride and hydrochloric acid gas on benzene: G. Gustavson. Methyl-

phenylcyclopentane has been isolated from the numerous products of this reaction.—Some derivatives of thiophene: V. **Thomas**. Magnesium acts on  $\alpha$ -iodothiophene in presence of ether, giving an organomagnesium compound which behaves similarly to phenyl magnesium iodide in many of its reactions. Details of the products resulting from the action of various ketones are given.—The formation of acetic aldehyde in alcoholic fermentations: A. **Trillat**. The experiments described prove that acetic aldehyde is not a true product of fermentation, since if the fermentation is carried out in the presence of hydrogen or carbon dioxide, air being carefully excluded, no aldehyde can be detected. If air is freely admitted during the fermentation, more aldehyde is produced than if a little air is present.—The production of gum in the *Moringa*: F. **Jadin** and Volcy **Boucher**.—The phytology of the eastern region of Kabylie and Djurdjura: G. **Lapie**.—The levers in the organism: A. **Guillemin**. A discussion of the efficiency of the leg muscles and bones considered as levers.—The discovery of Palæolithic paintings of man and animals in the Portel cave: René **Jeannel**. More than forty paintings of animals and human beings have been found on the walls of this cave. None of the designs have been cut into the rock, and they are coloured either black or red, both in line and flat wash. Some of the objects are partially masked by stalagmitic deposit. Two designs represent man on foot in profile; others represent bison, reindeer, and horses, the last being the most numerous. Photographs have been taken of some of the objects, and the remainder will be photographed shortly.—Anemometric studies of helices copied from animals: Paul **Amans**.—The Pliocene and Pleistocene eruptions of Limagne: Ph. **Glangeaud**.—Contribution to the study of the solar calorific radiation: C. **Féry** and G. **Milochau**.

## DIARY OF SOCIETIES.

THURSDAY, APRIL 2.

ROYAL SOCIETY, at 4.30.—Complete Survey of the Cell Lamination of the Cerebral Cortex of the Lemur: Dr. F. W. Mott, F.R.S., and Miss A. M. Kelley.—The Alcoholic Ferment of Yeast Juice. Part III. The Function of Phosphates in the Fermentation of Glucose by Yeast Juice: A. Harden and W. J. Young.—The Antagonistic Action of Calcium upon the Inhibitory Effect of Magnesium: S. J. Melzer and J. Auer.—Studies on Enzyme Action, XI., The Hydrolysis of Raffinose. XII., Emulsin: Prof. H. E. Armstrong, F.R.S., and others.

ROYAL INSTITUTION, at 3.—The Animals of Africa: R. Lydekker, F.R.S. ROYAL SOCIETY OF ARTS, at 8.—The Navigation of the Air: Prof. H. S. Hele-Shaw, F.R.S.

LINNEAN SOCIETY, at 8.—Altitude and Distribution of Plants in Southern Mexico: Dr. Hans Gadow, F.R.S.—The Anatomy of some Sapotaceous Seedlings: Miss Winifred Smith.—Notes on some Sponges recently collected in Scotland: Dr. N. Annandale.

CIVIL AND MECHANICAL ENGINEERS' SOCIETY, at 8.—Efficiency of Boiler Heating Surface: C. Humphrey Wingfield.

CHEMICAL SOCIETY, at 8.30.—The Condensation of Epichlorohydrin with Phenols: D. R. Boyd and E. R. Marle.—Rate of Hydrolysis of Chloroacetates and Bromoacetates, and of a Chlorohydrin by Water and by Alkali, and the Influence of Neutral Salts on the Reaction Velocities. Preliminary Note: G. Senter.—A New General Method of Preparing Diazonium Bromides: F. D. Chattaway.—On the Probable Nature of the Impurity found in the Triphenylmethane Spectrum: W. N. Hartley.—The Absorption Spectrum of Triphenylmethane: A. G. G. Leonard.—The Constituents of *Cyprus Origanum* Oil. Isolation of a New Terpene (*Origanene*): S. S. Pickles.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—High Speed Electrical Machinery: G. Stoney and A. H. Law.

FRIDAY, APRIL 3.

ROYAL INSTITUTION, at 9.—The Modern Motor Car: Lord Montagu of Beaulieu.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Notes on the Foundations of an Indian Bridge: G. W. N. Rose.

SATURDAY, APRIL 4.

ROYAL INSTITUTION, at 3.—Electric Discharges through Gases: Prof. J. J. Thomson, F.R.S.

MONDAY, APRIL 6.

VICTORIA INSTITUTE, at 4.30.—History of the Spread of the North American Fauna: Prof. J. Logan Lobley.

ARISTOTELIAN SOCIETY, at 8.—Impressions and Ideas: H. Wildon Carr. SOCIETY OF CHEMICAL INDUSTRY, at 8.—Considerations affecting the "Strength" of Wheat Flours: J. L. Baker and H. F. E. Hulston.—Note on Murexide as a *quondam* Dye Stuff and Printing Colour: W. Smith.

TUESDAY, APRIL 7.

ROYAL INSTITUTION, at 3.—The Egyptian Sudan: its History, Monuments, and Peoples. Past and Present: Dr. E. A. Wallis Budge.

ZOOLOGICAL SOCIETY, at 8.30.—A Monograph of the Chiropteran Genera *Uroderma*, *Euchisthenes*, and *Artibeus*: Dr. Knud Andersen.—On

Certain Points in the Structure of the Cervical Vertebrae of the Okapi and the Graffe: Sir Ray Lankester, K.C.B., F.R.S.—Some Australian Spiders: H. R. Hogg.

INSTITUTION OF CIVIL ENGINEERS, at 8.—The King Edward VII. Bridge, Newcastle-on-Tyne: F. W. Davis and C. R. S. Kirkpatrick.

JUNIOR INSTITUTION OF ENGINEERS, at 8.—Purification of Water: George H. Hughes.

WEDNESDAY, APRIL 8.

ROYAL SOCIETY OF ARTS, at 8.—Technical Education in America: Sir W. H. Preece, K.C.B., F.R.S.

THURSDAY, APRIL 9.

ROYAL INSTITUTION, at 3.—The Animals of South America: R. Lydekker, F.R.S.

FRIDAY, APRIL 10.

ROYAL INSTITUTION, at 9.—The Carriers of Positive Electricity: Prof. J. J. Thomson, F.R.S.

ROYAL ASTRONOMICAL SOCIETY, at 5.

PHYSICAL SOCIETY, at 8.—An Experimental Investigation of the Nature of  $\gamma$  Rays: Prof. W. H. Bragg, F.R.S., and Mr. Madsen.—Experiments on Artificial Fulgurites: Miss D. D. Butcher.—Short-spark Phenomena: W. Duddell, F.R.S.

INSTITUTION OF MECHANICAL ENGINEERS, at 8.

SATURDAY, APRIL 11.

ROYAL INSTITUTION, at 3.—Electric Discharges through Gases: Prof. J. J. Thomson, F.R.S.

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