

providing the instruction, so that the greater the entry the greater the need for money.

This session the working of the faculty of science will be rearranged, much of the work previously done by the meetings of faculty being delegated to Boards of Studies. The latter consist of professors and selected members of the non-professional staff, and the following boards have been constituted: Mathematics, physics, chemistry, engineering, and biology. It is hoped that the new arrangement will do something towards relieving the congestion of business in the faculty, which has recently been serious. The boards will report to the faculty.

CAMBRIDGE.—Dr. Ff. Roberts, Clare College, has been appointed junior demonstrator in physiology, and Mr. T. R. Parsons, Sidney Sussex College, additional demonstrator in physiology.

The Vice-Chancellor has announced a very generous gift of 25,000*l.* from Sir Dorabji Tata, Gonville and Caius College, towards the expense of new buildings for the engineering school. A further anonymous gift of 2000*l.* has also been received. Part of the new buildings are already very nearly complete. Amongst the large entry this year are to be found fifty officers of the Royal Engineers and a small number of officers from the Royal Air Force and the Corps of Signals—a welcome connection between the Services and the scientific side of the University. The number of naval officers in residence has been reduced owing to the heavy pressure on the accommodation. The question of the admission of women to the University comes up for discussion in the Senate House on Thursday, October 14.

DR. JAMES G. GRAY, lecturer in physics at the University of Glasgow, has been appointed to the newly established Cargill chair of applied physics in the University.

THE *Times* announces that Mr. T. D. Owen, a leading Welsh metallurgist, has given 10,000*l.* to the University College of North Wales for the foundation of a chair in his name of electrical engineering and hydro-electrics.

DR. J. NEWTON FRIEND, hitherto headmaster of the Science and Technical School, Victoria Institute, Worcester, has succeeded Dr. T. Slater Price as head of the chemistry department of the Birmingham Municipal Technical School.

DR. MARION B. RICHARDS, of the chemistry department of Aberdeen University, has been appointed assistant to Dr. R. H. A. Plimmer, head of the biochemical department of the Rowatt Research Institute in Animal Nutrition, Aberdeen.

It is announced by the *Times* that Prof. A. B. Macallum, professor of biochemistry in the University of Toronto, and administrative chairman, honorary Advisory Council for Scientific and Industrial Research of Canada, has accepted the new chair of biochemistry at McGill University.

DR. C. DA FANO will begin a special course of eight lectures on "The Histology of the Nervous System" in the physiology lecture theatre of King's College University of London, on Wednesday, October 13, at 4.30 p.m. The course is free to all students of London colleges and to medical men and others on presentation of their visiting-cards.

At a meeting of the Old Students' Association of the Royal College of Science to be held on Tuesday next, October 12, at the Imperial College Union, Prince Consort Road, South Kensington, London, S.W.7, Mr. J. W. Williamson will deliver an address entitled "The Proposed University of Science and

Technology: Can a Useful and Worthy University be Based on Pure and Applied Science?" The chair will be taken at 8 p.m. by the president of the association, Sir Richard Gregory.

In connection with the University Extension Board of the University of London, Prof. John Cox will commence on October 8, at 7.30 p.m., an interesting course of lectures on "The Bases and Frontiers of Physical Science" at Gresham College, Basinghall Street, E.C.2. The first part of the courses will be devoted to a review on the broadest possible lines of the concepts and laws of Nature on which traditional physics has been built up. The later lectures will deal with Einstein's views and the principle of relativity. Admission to the first lecture is free.

Societies and Academies.

PARIS.

Academy of Sciences, September 13.—M. Léon Guignard in the chair.—F. E. Fournier: The apparent displacement of some stars in the total eclipse of the sun of May 29, 1919.—A. Blondel: The calculation of electric cables by the use of vectorial functions with real notation. The method described has the same advantages as when imaginary quantities are employed, but only real quantities are utilised in the demonstration. It is based on the introduction of vectorial series.—V. Smirnoff: Some points of the theory of linear differential equations of the second order and automorphic functions.—E. Jouguet: The velocity of waves in elastic solids.—C. Camichel: The transmission of energy by the vibrations of water in pipes. Remarks on some recent publications of M. Constantinescu, and a statement of the work done by the author on the same subject.—E. Canals: The estimation of calcium and magnesium in different saline media. A study of the conditions under which, in acetic acid solutions, it is possible to separate completely calcium and magnesium from salts of iron and aluminium.—G. Zeil: The rôle of building corals in lithospheric re-adjustments.—C. Störmer: Some rays of aurora observed on March 22, 1920, which reached a height of 500 km. The aurora borealis of March 22 was photographed from seven stations under favourable conditions. The stations were connected by telephone, and simultaneous photographs were taken from two or three stations at a time. About 620 photographs were obtained, and they show that the summits of some of the rays reached an altitude of 500 km. above the earth.—A. Chevalier: The origin of the cider apple-trees cultivated in Normandy and Brittany.—F. Vlès: The spectral properties of the tetanus toxin. Spectrophotometric studies of the ultra-violet absorption spectra of the effects of heating and of the addition of antitoxin to solutions of the tetanus toxin.—A. Marie and L. MacAuliffe: The influence of life in Paris on the race. A study of 1509 Parisians of the poorer classes, 850 of whom were born of provincial parents, 294 of Parisian parents, and the remainder of one Parisian and one provincial parent. The Paris climate and town life lead to modifications which are thus summarised: The hair and eyes less pigmented than in the rest of France, more marked cranial development in proportion to height, and shortening of the limbs.—J. L. Dantan: Budding in *Antipathella subpinnata* and *Parantipathes larix*.

HOBART.

Royal Society of Tasmania, August.—His Excellency Sir W. L. Allardyce, president, in the chair.—H. H. Scott and C. Lord: *Nototherium Mitchellii*. Its evolutionary trend: the skull and such structures as related to the nasal horn. In their third paper on the

Smithton discovery the authors deal with a mass of data relating to the evolutionary trend of the Nototheria and the structure of the skull. They also deal with a reclassification of the genus. The Nototheria are a group of animals that in Tasmania became extinct late in Pleistocene times. They were generalised, and yet in part specialised. They retained the racial characteristics that can be relegated to five geological periods—that is, from the pre-Eocene to the latest Pleistocene. They show similar developments to those of the perissodactyl ungulates, and, without leaving a single modern representative to carry on their race in totality, they left many characters scattered through their marsupial allies, the kangaroos, wombats, and native bears, which still grace our woodlands to-day. In dealing with the taxonomic data relating to the skull the authors recognise two well-marked groups, namely: Group i., Megacerathine, and group ii., Leptocerathine.—H. T. Parker: Mental efficiency. A study of the results obtained by testing children by the Binet-Simon scale.

Books Received.

The Cactaceæ: Descriptions and Illustrations of Plants of the Cactus Family. By N. L. Britton and J. N. Rose. Vol. ii. Pp. vii+239+xl plates. (Publication No. 248.) (Washington: Carnegie Institution.)

Geometrical Investigation of the Formation of Images in Optical Instruments. Embodying the Results of Scientific Researches Conducted in German Optical Workshops. Edited by M. von Rohr. (Forming vol. i. of "The Theory of Optical Instruments.") Translated by R. Kanthack. Pp. xxiii+612. (London: H.M. Stationery Office.) 2l. 5s. net.

Technical Handbook of Oils, Fats, and Waxes. By P. J. Fryer and F. E. Weston. Vol. i.: Chemical and General. Third edition. Pp. xii+280+xxxvi plates. (Cambridge: At the University Press.) 15s. net.

Commonwealth of Australia. Papua. Annual Report for the Year 1918-19. Pp. 119. (London: Australia House, Strand.)

The Human Atmosphere (The Aura). By W. J. Kilner. Pp. vii+300. (London: Kegan Paul and Co., Ltd.) 10s. 6d. net.

Mathematical Papers for Admission into the Royal Military Academy and the Royal Military College and Papers in Elementary Engineering for Naval Cadets and Royal Air Force. November, 1919, and July, 1920. Edited by R. M. Milne. Pp. 34. (London: Macmillan and Co., Ltd.) 1s. 9d. net.

Diary of Societies.

THURSDAY, OCTOBER 7

ROYAL AERONAUTICAL SOCIETY (at Royal Society of Arts), at 5.30.—Major-General Sir F. H. Sykes: Civil Aviation.
CHILD-STUDY SOCIETY (at Royal Sanitary Institute), at 6.—Dr. C. W. Kimmins: The Handwriting of the Future.
ROYAL SOCIETY OF MEDICINE (Obstetrics and Gynaecology Section), at 8.—The President: Spoon-shaped Depressed Birth Fracture of the Frontal Bone treated by Elevation.—Dr. M. Kerr: (1) The Surgery of the Uterus Bicornis Unicollis, with a case of Resection of the Uterus followed by two Normal Pregnancies; (2) The Intra-vesical Repair of Inaccessible Vesico-vaginal Fistula.—Dr. A. J. McNair: A Case of Placenta Prævia with Vasa Prævia.—H. Briggs: (Presidential Address). The Female Pelvic Floor. (Neurology Section), at 8.45.—Dr. H. Head: (Hughlings Jackson Lecture), A New Conception of Aphasia.

FRIDAY, OCTOBER 8

ROYAL SOCIETY OF MEDICINE (Clinical Section), at 5.30.—Z. Cope: The Clinical Significance of Shoulder-pain in Upper Abdominal Lesions.
ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN, at 7.—R. A. Malby: A Miniature Alpine Garden.

NO. 2658, VOL. 106]

MONDAY, OCTOBER 11

BIOCHEMICAL SOCIETY (at King's College), at 5.
ROYAL SOCIETY OF MEDICINE (War Section), at 5.30.—Wing-Commander Martin Flack: Medical Requirements for Air Navigation.
MEDICAL SOCIETY OF LONDON (at 11 Chandos Street, W.1), at 8.—Annual General Meeting. At 8.30.—Sir William Hale-White: (Presidential Address), Then and Now.

TUESDAY, OCTOBER 12

SOCIETY FOR THE STUDY OF INEBRIETY (at Medical Society of London), at 4.—Dr. J. A. Davidson, and others: Discussion on Special Clinics for Inebriates.
ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN, at 7.—(Annual Traill Taylor Memorial lecture), Prof. A. E. Conrady: The Present State of Photographic Optics.

WEDNESDAY, OCTOBER 13

INSTITUTION OF AUTOMOBILE ENGINEERS (at Royal Society of Arts), at 8.—Sir Henry Fowler: Presidential Address.
HUNTERIAN SOCIETY (at Sion College), at 9.—Sir George Newman: The Ministry of Health as an Instrument in Preventive Medicine.

THURSDAY, OCTOBER 14

OPTICAL SOCIETY (at Imperial College of Science and Technology), at 7.30.—H. A. Hughes and P. F. Everitt: The Field of View of a Galilean Telescope.—B. K. Johnson: The Calibration of the Divided Circle of a Large Spectrometer.
INSTITUTION OF AUTOMOBILE ENGINEERS (at 28 Victoria Street), at 8.—Graduates Meeting. Messrs. Chatterton and Watson: Factors affecting Power Output.
ROYAL SOCIETY OF MEDICINE (Neurology Section), at 8.30.—Dr. E. S. Reynolds: (Presidential Address), The Causes of Nervous Disease.

FRIDAY, OCTOBER 15

ROYAL SOCIETY OF ARTS (Indian Section), at 4.30.—T. M. Ainscough: British Trade with India.
ROYAL COLLEGE OF SURGEONS OF ENGLAND, at 5.—Prof. A. Keith: Demonstration on the Contents of the Museum.
ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN, at 7.—A. Keighley: An Evening in Lakeland.
ROYAL SOCIETY OF MEDICINE (Electro-Therapeutics Section), at 8.30.—S. Gilbert Scott: Presidential Address.
SOCIETY OF TROPICAL MEDICINE AND HYGIENE, at 8.30.

SATURDAY, OCTOBER 16

PHYSIOLOGICAL SOCIETY (at Guy's Hospital), at 4.

CONTENTS.

PAGE

The Metric System and International Trade. By Harry Allcock	169
The Study of Live Embryos	170
Two Books for the Country	171
Principles of Aeronautics	173
Text-books on Chemistry	174
Our Bookshelf	176
Letters to the Editor:—	
The British Association.—Sir Napier Shaw, F.R.S.; Sir Edward Brabrook, C.B.	178
The Examination System.—Oxford M.A.	179
An Awkward Unit.—Prof. Alexander McAdie	179
Absorption Spectrum of Hydrogen Chloride.—F. W. Loomis	179
A New Visual Illusion.—J. E. Turner	180
Plant-life in the Cheddar Caves.—Edith Bolton	180
Old Maps.—T. Sheppard; The Writer of the Note	180
The Iridescent Colours of Insects. II. (Illustrated.) By H. Onslow	181
Physical Anthropology of Ancient and Modern Greeks. (Illustrated.) By L. H. Dudley Buxton	183
Obituary:—	
Alfred E. Fletcher.—J. B. C.	185
D. H. Nagel.—Prof. H. B. Dixon, F.R.S.	186
Notes	187
Our Astronomical Column:—	
Prof. Pickering's Lunar Observations	191
The Sun's Magnetic Field	191
Fossils and Life. II. By F. A. Bather, M.A., D.Sc., F.R.S.	192
International Catalogue of Scientific Literature	195
The International Congress of Mathematicians. By H. B. H.	196
Disorders of Symbolic Thinking	197
University and Educational Intelligence	198
Societies and Academies	199
Books Received	200
Diary of Societies	200

(INDEX.)