

TEACHERS of domestic subjects in schools and colleges who desire to give their instruction a scientific character continually find that some of the commonest observations and methods of domestic work are very difficult to explain. To assist such teachers to arrive at satisfactory explanations of the various steps in common domestic practice, the Association of Teachers of Domestic Subjects has appointed a science committee to which problems that arise may be referred for elucidation or investigation. Prof. Smithells is chairman of the committee, which includes several well-known chemists as well as practical teachers of domestic subjects. The report of this committee for 1914, which has been received, contains abundant evidence of the utility of the work of the committee, and every teacher of domestic subjects should study the answers to the questions discussed in it.

THOUGH the University of Bristol is one of the youngest of English universities its calendar for 1914-15, a copy of which has been received, shows that it is making rapid strides in the direction of providing a very complete system of higher education for the western counties of England. There are in the University faculties of arts, science, medicine, and engineering. We observe, among other interesting arrangements, that an alternative curriculum is provided so that undergraduates pursuing the study of agriculture and forestry may take an ordinary bachelor of science degree. Regulations are included by which students may secure the degree of bachelor of science in engineering by research. Those students who are not qualified by matriculation to proceed to a degree, may in certain circumstances procure a certificate in engineering. The University also, we notice, confers testamurs in social science and journalism. Among institutions associated with the University may be mentioned the Royal Agricultural College at Cirencester, the National Fruit and Cider Institute at Long Ashton, and the Agricultural and Horticultural Station at Long Ashton.

THERE is a tendency among popular philosophers and supernaturalists just now to suggest that modern science is crude materialism against which a spiritual reaction is to be encouraged. Some justification might have been found for such a view a generation or two ago, but the dogmatism of those days, both of men of science and theologians, has given way to a more liberal spirit, and all who are seeking earnestly for truth are considered to be worshippers at the same shrine. We are glad, therefore, to direct attention to a series of addresses upon the mutual relations between science and religion to be delivered by scientific men of distinction at Browning Hall, Walworth Road, S.E., during the week beginning on Sunday next, November 22. The addresses are intended for working men and women, students and teachers, and they will be delivered by Sir Oliver Lodge, Prof. J. A. Fleming, Prof. W. B. Bottomley, Prof. E. Hull, Dr. J. A. Harker, Prof. Sims Woodhead, and Prof. Silvanus Thompson; all seats will be free. There is, of course, no conflict between religion and science; one is the expression of an instinct, the other is a spirit of inquiry into the character and meaning of all things, visible and invisible, in the universe. It is particularly important at the present time to show that science is an uplifting study, and not merely the handmaid of material advance. Ruskin described the difference between science and invention long ago, but it is forgotten by most writers, and we trust that the addresses to be given at Browning Hall will do something to remove mistaken popular impressions as to the aim and meaning of scientific work.

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SOCIETIES AND ACADEMIES.

LONDON.

Geological Society, November 4.—Dr. A. Smith Woodward, president, in the chair.—L. Richardson: The inferior oolite and contiguous deposits of the Doulting-Milborne-Port District (Somerset). This paper embraces the country around Bruton, Castle Cary, and Blackford. In the northern half of the Doulting-Milborne-Port district the bulk of the yellow Upper-Lias Sands is of *dispansi* hemera; but in the neighbourhood of Cole and Castle Cary the topmost portion is of *dumortieriae* hemera. In the south-eastern portion, under Stowell, while the main mass is probably of *moorei-dumortieriae* hemeræ, the upper 50 ft. is of *aalensis-moorei* date. Rock of *garantiana* hemera spreads over the whole district. From Doulting to Bruton the Garantiana beds rest directly on the Sands. In the neighbourhood of Cole there is a synclinal area, and beds of *blagdeni*, *sauzei*, *witchelliae*, *shirburniae*, *discitae*, and *murchisonae* hemeræ are seen between the Garantiana beds and the Sands. At Corton Downs are rocks of *sauzei*, *witchelliae*, *shirburniae*, *discitae*, *bradfordensis*, and *murchisonae* hemeræ. In this southern portion of the district it is difficult to determine the upper and lower limits of the deposits of *discitae*, *shirburniae*, and *witchelliae* hemeræ. The rock of *garantiana* hemera varies much from place to place in thickness and lithic structure. Above the Garantiana beds come the Doulting Stone, Anabacia Limestones, and Rubby beds. The Anabacia Limestones soon lose their lithic characters; but the Doulting Stone spreads over the Oolitic tract, and is exposed in numerous quarries. In the southern portion of the district, the lower portion of the equivalent of the Hadsen Stone passes into the Sherborne Building-Stone, and the top portion, plus higher beds, into the Rubby Limestone beds, such as those displayed in quarries in the eastern portion of the Sherborne district.—E. T. Paris and L. Richardson: Some Inferior-Oolite peccens. Descriptions and illustrations are given of one new species of *Camptonectes*, of two new varieties of *Chlamys articulata* (auctt.), and of two new species of *Velopecten*.

Linnean Society, November 5.—Prof. E. B. Poulton, president, in the chair.—A. D. Cotton: The algæ, lichens, and fungi of the West Falkland Islands, from Mrs. Rupert Vallentin's collections. A large collection was made by Mrs. Vallentin from 1909 to 1911, and was presented by her to the Royal Botanic Gardens, Kew; the present paper dealt with those Cryptogams mentioned in the title, the Mosses and Hepaticæ being reserved for later work. These collections are valuable and have yielded interesting results, including several novelties, and many additions to the flora, and by means of ample, well-dried material, enabled previous descriptions to be enlarged and revised. The author gave an historical account of the cellular Cryptogams from the earliest record (1771) to the present time, and included in his list all previous records, revised so far as practicable.

Mathematical Society, November 12.—Annual general meeting.—Prof. A. E. H. Love (retiring president) and afterwards Sir Joseph Larmor (newly-elected president) in the chair.—Prof. Love: Presidential address, "Mathematical Research." Prof. G. A. Miller: Note on an extension of Sylow's theorem.—J. Hodgkinson: The conformal representation of the various triangles bounded by the arcs of three intersecting circles.—G. R. Goldsbrough: The dynamical theory of the tides in a zonal basin.—G. H. Hardy: The modulus of an analytic function.—Prof. W. Burnside: (i) The modification of a train of waves as it advances into

shallow water. (ii) A configuration of 21 points and 21 lines which arises from the complete quadrilateral and determines the group of 168 plane collineations.—Prof. Tadahiko **Kubota**: Convex closed surfaces.—Prof. W. H. **Young**: Integrals and derivatives with regard to a function.

Mineralogical Society, November 10.—Anniversary meeting.—Dr. A. E. H. Tutton, president, in the chair.—Prof. W. J. **Lewis**: Albite; its crystal elements, etc. New values of the elements were obtained based upon measurements made on well-developed twinned crystals from Alp Rischuna. Chemical analysis showed them to be very pure albite.—H. **Collingridge**: The determination of the maximum extinction angle, optic axial angle, and birefringence of monoclinic pyroxenes in thin sections. The method depends on the presence of well-defined twins about 100, and the visibility of an optic axis through one individual. From observations in this individual of the positions of the trace of the optic axial plane and the twin plane, the extinction angle, and the position of the visible optic axis, and in the other the extinction angle and the birefringence, and, if possible, the positions of an optic axis and the trace of the optic axial plane, the requisite determinations may be made.—Prof. H. L. **Bowman**: Note on calcite from the Chalk at Corfe Castle, Dorset. Good crystals, which occur in veins in the Upper Chalk, are of the pointed habit, the forms being $f(11\bar{1})$ and $x(21\bar{2})$. Interpenetrant rhombohedra twinned about the c axis, as in cinnabar, are not uncommon.—A. **Scott**: Barkevikite from Lugar, Ayrshire, and litharge from Persia. The former occurs in lugarite in prismatic crystals up to 75 mm. in length, with mean refractivity 1.690, and very intense pleochromism, c very dark brown, b reddish-brown, a light yellow; in chemical composition it is fairly close to the type mineral from Barkevik. The latter was found at Larshuran, Persia, as a red mica-like crystalline mass; it is biaxial with mean refractivity 1.735, the double refraction being very weak, and contains more than 97 per cent. of lead oxide, the remainder being copper oxide with a little antimony oxide.—Dr. G. T. **Prior**: The meteorites of Uwet, Kota Kota, and Angela; the identity of Angela and La Primitiva. The meteoric iron of Uwet, Southern Nigeria, said by natives to have fallen about ninety years ago, is a hexahedrite of the Braunau type, containing about 6 per cent. of nickel. The meteoric stone of Kota Kota, Marimba district, British Central Africa, said by natives to have been seen to fall some years ago, is a chondrite, probably belonging to the crystalline spherulitic group. The meteoritic iron of Angela, near Iquique, Chili, was found in the nitrate beds. It is an ataxite, containing about 4.5 per cent. of nickel, and enclosing large nodules of schreibersite, and is probably identical with La Primitiva.

EDINBURGH.

Royal Society, November 2.—Prof. James Geikie, president, in the chair.—Sir William **Turner**: The Baleen whales of the South-Atlantic. The paper was essentially a comparison of certain anatomical characteristics of specimens of whales recently found in the South Atlantic with those of the better known whales of the North Atlantic. The conclusion was that of the Balænopteridæ, five species were common to the north and south Atlantic oceans, namely, *Megaptera boops (longimana)*, and the four species of *Balaenoptera*, *sibbaldi*, *borealis*, *rostrata*, *musculus*. Similarly the smaller right whale, *Balaena australis*, which frequents the temperate waters of the South Atlantic, is obviously the same species as the *Balaena biscayensis* of the North Atlantic. On the other hand, *Balaena mysticetus* of the Arctic Ocean appears to

have no representative in the Antarctic.—Dr. J. E. **Mackenzie** and S. **Ghosh**: The optical rotation and cryoscopic behaviour of sugars dissolved in (1) formamide, (2) water. The mutarotation of the sugars, β -*l*-arabinose, *l*-xylose, α -*d*-glucose, α -*d*-galactose, *d*-mannose, *d*-fructose, α - and β -lactose, dissolved in the solvents named, was measured and found to be of the same character. The molecular weights of the same sugars dissolved in these solvents were also determined, and each sugar was found to be in the monomolecular state. The results of the optical rotation measurements in formamide, like those obtained in pyridine solution by Grossmann and Bloch, appear to show that the presence of water is not essential to explain the phenomenon of mutarotation of sugars.

PARIS.

Academy of Sciences, November 3.—M.P. Appell in the chair.—A. **Lacroix**: The products of alteration of aluminium silicate rocks, and, in particular, the laterites of Madagascar.—G. **Lippmann**: The Hughes electromagnetic balance and its application to medical surgery (see p. 319).—D. **Eginitis**: Observation of the solar eclipse of August 21, 1914, made at the Athens Observatory with the Doridis equatorial (Gautier, 40 cm.). Particulars are given of actinometric observations, and of measurements of air temperatures, relative humidity, barometric pressure, and wind velocity.—M. **Guéritot**: An experimental method of determining the metacentric curves of an aeroplane. Details of experiments made on a model fixed to a float in water.—J. **Bougault**: The dioxytriazines. The reaction between the semicarbazides of α -ketonic acids and aqueous soda solution takes place in the cold. The yield is better than when the experiment is carried out at the boiling point, but the reaction velocity is very slow. The dioxytriazines react with sodium hypobromite, giving substituted amides of the type $R.CBr_2.CO.NH_2$.—G. A. **Le Roy**: The waterproofing of military clothes. The whole garment is impregnated with lanoline, by immersion in a solution in a volatile solvent containing from 5 per cent. to 10 per cent. of the wool fat. The cloth remains permeable to air, but is impermeable to water.—Marcel **Baudouin**: The ossification of the metacarpal and metatarsal bones in men of the polished Stone age.

BOOKS RECEIVED.

- College Physiography. By Prof. R. S. Tarr. Published under the editorial direction of Prof. L. Martin. Pp. xxii+837. (London: Macmillan and Co., Ltd.) 15s. net.
- A Handbook of Vocational Education. By Dr. J. S. Taylor. Pp. xvi+225. (London: Macmillan and Co., Ltd.) 4s. 6d. net.
- A Text-Book of Grasses. By A. S. Hitchcock. Pp. xvii+276. (London: Macmillan and Co., Ltd.) 6s. 6d. net.
- The Royal Zoological and Acclimatisation Society of Victoria. Fiftieth Annual Report. Pp. 43. (Melbourne.)
- New Zealand. Department of Lands and Survey. Report on the Survey Operations for the Year 1913-14. By E. A. Wilmot. Pp. 55+maps. (Wellington: J. Mackay.)
- The Essex Institute. Historical collections. Vol. i. October. Pp. 289-404. (Salem, Mass.: Essex Institute.)
- Some South Indian Insects and other Animals of Importance. By T. B. Fletcher. Pp. xxii+565. (Madras: Government Press.) 9s.
- Vital Statistics Explained. By J. Burn. Pp. x+140. (London: Constable and Co., Ltd.) 4s. net.