

mark, and the health of the children in this country should not be less cared for than that of the children in German schools. The care of adolescents came in for careful debate. Sir Henry Hibbert, chairman of the Lancashire County Education Committee, said the duty of providing further discipline and training for all children during the years which follow the day-school period is receiving attention in many countries, all of which seem to be moving towards three conclusions:—(1) that increased effort should be made by the State to compel local authorities to organise, according to the needs of different localities and of different trades, courses of instruction useful to any child, and so planned as to train them for healthy living and for the duties of citizenship; (2) that there should be a further delimitation of the hours of juvenile labour; and (3) that all employers, Government as well as private, should be compelled by law to enable any persons of less than seventeen or eighteen years of age employed by them to attend courses of instruction, general or technical, for a specified number of hours per week at times during which the pupils would not be too tired to profit by the instruction. Dealing with the same subject, Miss Adler, of the London County Council, explained that the aim of the trade schools of the London County Council is not entirely to supersede apprenticeship, but to reduce the period of indenture, and to enable the lad to enter the workshop already equipped to take an intelligent interest in workshop processes, to handle tools effectively, and to be in a better position to learn by observation than the lad who enters the workshop direct from school. The development of handicraft side by side with the general intelligence is the primary aim of the trade school, and when this is possible on practical lines postponement of entry into the workshop is a distinct advantage, more especially when the trade side of the work is to some extent supervised by members engaged in the industry taught in the school. It was pointed out during the conference that the cost of compulsory attendance between fourteen and seventeen would be some 2,625,000*l.*, and if the age were increased to eighteen 3,500,000*l.*

### SOCIETIES AND ACADEMIES.

#### LONDON.

**Royal Microscopical Society**, March 16.—Prof. J. A. Thomson, president, in the chair.—Miss L. S. M. **Summers**: Antipatharians from the Indian Ocean. Fourteen species were dealt with, including three which are new, viz. *Cirripathes indica*, *Antipathes salicoides*, *Pteropathes simpsoni*. In several cases the presence of well-preserved polyps made it possible to remove some of the doubts which Brook expressed in regard to various species. The paper referred also to certain peculiarities in the polyps and spines. The collections were made at Ibo, in Portuguese East Africa, and in the Mergui Archipelago.—E. M. **Nelson**: The visibility of the tertiaries of *Coscinodiscus asteromphalus* in a balsam mount. The author directed attention to the continued improvement in microscope objectives, and particularly to a new  $\frac{1}{4}$ -inch objective by Zeiss. Twelve years ago he received a slide of Nottingham deposit mounted in sulphide of arsenic, and he then saw, for the first time, the tertiaries in *Coscinodiscus asteromphalus*. He had had a balsam mounted selected slide of this diatom since 1876, and had tested hundreds of objectives upon it, but these tertiaries had never been visible. Recently he received from Messrs. Zeiss a long tube  $\frac{1}{4}$ -inch apochromatic object-glass of N.A. 1.4, and it was tested on this balsam-mounted slide. The tertiaries which had for so many years eluded the grip of all kinds of lenses were conspicuous. This apochromatic  $\frac{1}{4}$ -inch was more sensitive to tube length, stood a larger axial cone, bore a deeper eye-piece, and had sharper definition than any microscope lens he had previously seen.—A. A. C. **Eliot Merlin**: The measurement of the diameter of the flagella of the cholera bacillus prepared by Löffler's method. Slides of bacteria are prepared by Löffler's method to render the flagella more easily demonstrable, as the organism and its appendages are greatly distended by the process, thus rendering them comparatively coarse objects. Little has been attempted

as regards the measurement of these appendages since Dr. Dallinger read his paper on the measurement of the diameter of the flagella of *Bacterium termo* in 1878. The author of the paper obtained his results by what are termed extinction measurements, the resulting measurements being for the finest flagella  $\frac{1}{64725}$ -inch and for the coarser  $\frac{1}{62226}$ -inch. He checked these results by measuring, by means of a filar micrometer, the flagellum of a selected specimen, the measurement by this method giving a diameter of  $\frac{1}{66756}$ -inch as against  $\frac{1}{64725}$ -inch of a flagellum of approximately similar fineness measured by the extinction method.

**Geological Society**, March 23.—Prof. W. W. Watts, F.R.S., president, in the chair.—L. **Moysey**: Palaeoxyris and other allied fossils from the Derbyshire and Nottinghamshire Coalfield. After reviewing the bibliography of Palaeoxyris, the author records the finding of twenty-two specimens from Shipley Clay-pit (Derbyshire) and above 130 from Digby Clay-pit (Nottinghamshire), also several isolated examples from other localities in the district. He describes *Palaeoxyris helicteroides* (Morris), noting especially the presence of a "beak," which had not hitherto been adequately described. He then describes *Palaeoxyris prendeli* (Lesquereux) from Shipley Clay-pit, again noticing the formation of the "beak." The discovery of *Palaeoxyris johnsoni* (Kidston) from Digby is noted, and it is proposed that this fossil be removed into the genus *Vetacapsula*. The author also describes a specimen of *Vetacapsula cooperi* (Mackie and Crocker) from Newthorpe Clay-pit (Nottinghamshire).

#### CAMBRIDGE.

**Philosophical Society**, March 14.—Prof. Bateson, president, in the chair.—Sir J. J. **Thomson**: The cause of the phosphorescence of the glass in vacuum tubes when the pressure is not very low.—J. A. **Crowther**: Transmission of  $\beta$  rays.—J. L. **Giasson**: Secondary X-rays from metallic salts. These experiments show that the absorption coefficient of the secondary homogeneous X-rays from the metals of the chromium-silver group is unaffected by the combination of the metal with certain acid radicles. The only effect of the combination is the superposition of a small quantity of hard scattered radiation on the homogeneous radiation of the metal. Moreover, the valency of the element has no influence on the secondary homogeneous radiation from it. The absorption coefficient of the characteristic radiation from manganese is deduced from the absorption curve of manganese sulphate.—S. G. **Lusby**: Some experiments on ionisation in dried air. All the known properties of ions have been found to vary with the amount of moisture present in the gas experimented on, but in all cases the negative ion is the more susceptible. Hence it was thought that if the gas were dried, it should acquire a positive charge. The experiment was therefore tried, liquid air being used as the drying agent. On testing a stream of air which had been ionised and then dried, no indication of electric charge was detected. By using another method, it was found that both the positive and the negative ionisation are increased greatly by this drying action, but in an equal ratio, which in some cases amounted to ten. This was found to be due to decreased re-combination. The effect could be eliminated by previously filtering the air.

#### DUBLIN.

**Royal Dublin Society**, March 22.—Mr. R. L. Praeger in the chair.—Prof. T. **Johnson** and Miss R. **Hensman**: Agricultural seeds and their weed impurities; a source of Ireland's alien flora. The first-named author stated that as under the Weeds and Seeds Act for Ireland he had ceased to be responsible for the seed-testing station of which he had been director during the ten years of its existence (1900-9), the paper he communicated gave a summary of the purity and germination percentage of the 11,000 samples of seeds already tested, and of the weed-seeds found in these samples. Utilising the results of Dr. Stebler's investigations, he showed how many of the weed-seeds serve as source-indicators of the agricultural seeds sold. The paper contains also a list of casuals already recorded in the Irish flora, so far as these are traceable to introduction in seed. A list of 120 weed-seeds is given, 75 per cent. of which are the seeds of non-indigenous weeds.

## PARIS.

**Academy of Sciences**, March 29.—M. H. Poincaré in the chair.—Paul **Sabatier** and A. **Mailhe**: The mechanism of the dehydration of alcohols by the catalytic action of various metallic oxides. The action of sulphuric acid and of metallic oxides upon alcohols at various temperatures is compared, and the possibility of the formation of a compound of the oxide and alcohol analogous to ethylsulphuric acid considered.—M. **Carpentier**: A description of a new electrical measuring instrument, the logometer.—Charles **Nordmann**: Remarks on a preceding communication.—G. **Denigès**: The detection of methyl alcohol in general, and especially in the presence of ethyl alcohol. The method, full details of which are given, is based on oxidation by potassium permanganate in dilute sulphuric acid solution. Formaldehyde is produced, and is detected by fuchsine decolorised by sulphurous acid.—P. **Yvon**: Aniline arsenyl tartrate. Details of the preparation and physical properties.—A. **Guilliermond**: New observations on the cytology of yeasts. The results of the experiments given are entirely opposed to the views put forward by Wager and Peniston.—M. **Dugaast**: The presence of boron in Algerian wines. All the Algerian wines examined, of known origin and purity, were found to contain boron.—E. **Chuard**: A new method of treating for mildew by oxochloride of copper. The substitution of the oxochloride of copper for the mixtures of copper sulphate and lime reduces the amount of copper used to one-half.—Maurice **Gignoux**: The classification of the Pliocene and the Quaternary in southern Italy.—Jules **Welsch**: The formation of the Poitevin Marais and the separation of the "islands" of Ré and Oleron.

## DIARY OF SOCIETIES.

## THURSDAY, APRIL 7.

ROYAL INSTITUTION, at 3.—The Himalayan Region: Dr. Tom G. Longstaff.

LINNEAN SOCIETY, at 8.—Elm-seedlings showing Mendelian Results: A. Henry.—On the Foraminifera and Ostracoda from Soundings, chiefly deep-water, collected round Funafuti by H. M. S. *Penguin*: F. Chapman.

RÖNTGEN SOCIETY, at 8.15.—Some methods of using the Alternating Current Mains for Röntgen Ray Work: Dr. G. B. Batten.—Treatment of X-Ray Dermatitis by Radium: Mackenzie Davidson.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—The Progress of Electric Braking on the Glasgow Corporation Tramways: A. Gerrard.

## FRIDAY, APRIL 8.

ROYAL INSTITUTION, at 9.—Lowell Observatory: Photographs of the Planets: Prof. Percival Lowell.

INSTITUTION OF CIVIL ENGINEERS, at 8.—The Reconstruction and Extension of Egremont Ferry Pier: G. H. Hodgson and H. M. Gell.

PHYSICAL SOCIETY, at 8.—An Experimental Demonstration of the Loading of Artificial Telephone Cables: B. S. Cohen.—Further Tests of Brittle Materials: W. A. Scoble.

ROYAL ASTRONOMICAL SOCIETY, at 5.—Note to Paper on Star Colours and Spectral Types: W. S. Franks.—*Probable Papers*: Investigations relating to the Spectra of Comets: A. Fowler.—Places of Halley's Comet, 1909-1910, deduced from Photographs taken at the Radcliffe Observatory, Oxford: A. A. Rambaut.—Proper Motions: Astronomer Royal for Scotland.

## SATURDAY, APRIL 9.

ROYAL INSTITUTION, at 3.—Bells, Carillons and Chimes: W. W. Starmer.

## MONDAY, APRIL 11.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—Across Africa from the Niger to the Nile: Dr. Karl Kumm.

ROYAL SOCIETY OF ARTS, at 8.—Modern Methods of Brick-making: Dr. A. B. Searle.

## TUESDAY, APRIL 12.

ROYAL INSTITUTION, at 3.—The Modern Development of the Problem of Alcoholic Fermentation: Dr. A. Harden, F.R.S.

ROYAL ANTHROPOLOGICAL INSTITUTE, at 8.15.—Charcoal Burning in Epping Forest: S. Hazzledine Warren.—Additional Notes on the British Camp at Wallington: H. C. Collyer and N. F. Roberts.

INSTITUTION OF CIVIL ENGINEERS, at 8.—The New Clyde Bridge of the Caledonian Railway at Glasgow: D. A. Matheson.—The Queen Alexandra Bridge over the River Wear, Sunderland: F. C. Buscarlet and A. Hunter.

## WEDNESDAY, APRIL 13.

ROYAL SOCIETY OF ARTS, at 8.—The Port of Dover: A. T. Walmisley.

GEOLOGICAL SOCIETY, at 8.—The Volcano of Matavanu in Savaii: Dr.

Tempest Anderson.—Notes on the Geology of the District around Llansawel (Carmarthenshire): Miss Helen Drew and Miss Ida L. Slater.

## THURSDAY, APRIL 14.

ROYAL SOCIETY, at 4.30.—*Probable Papers*: On the Viscous Flow in Metals and Allied Phenomena: E. N. da C. Andrade.—The Refraction and Dispersion of Argon and Redeterminations of the Dispersion of Helium, Neon, Krypton and Xenon: C. and M. Cuthbertson.—The Action of the Radiation from Radium Bromide upon the Skin of the Ear of the Rabbit: J. O. W. Barratt.—And others.

ROYAL INSTITUTION, at 3.—The Himalayan Region: Dr. Tom G. Longstaff.

## FRIDAY, APRIL 15.

ROYAL INSTITUTION, at 9.—The Chemical Significance of Crystal Structure: Prof. W. J. Pope, F.R.S.

INSTITUTION OF MECHANICAL ENGINEERS, at 8.

## SATURDAY, APRIL 16.

ROYAL INSTITUTION, at 3.—Bells, Carillons and Chimes: W. W. Starmer

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