

ments before they are fit, as is frequently done for the sake of higher grants. For the lower standards in the boys' and girls' departments she claimed more freedom, more activity, a better bridge from the infants' school. She asked that in the ordinary schools there should be a later leaving age, a more suitable curriculum, smaller classes, better attendance. All education up to twelve should be primary in name and practice. The transition to secondary schools should be easy for all scholars about the age of twelve years, and secondary schools of varying types should provide the coping-stone of primary education. Miss Cleghorn pleaded for the abolition of half-time, for a more vocational bias in the work of the present secondary schools, and for the extension to England of the powers already granted to Scotland of enforcing attendance at continuation schools until the age of seventeen years.

AMONG other matters of wide interest which were brought before the National Union of Teachers at the Aberystwyth conference we note especially the careful statement of the difficulties attending ameliorative medical work, contributed by Dr. Lewis Williams, the Bradford medical superintendent. At the Bradford school clinic 6446 cases were dealt with during last year, of which 3520 have actually received treatment, and of these 3000 have been cured of disease, had vision corrected, or teeth attended to. It is impossible to read this paper without arriving at the conclusion that the school clinic is a valuable—even a necessary—institution, and that the case for the extension of school clinics has an appalling strength. In view of recent controversies, it was inevitable that keen interest should be shown in the subject of a paper by Mr. T. P. Sykes, "Function and Position of H.M. Inspectors of Schools in the Elementary-school System," read at the same conference. The paper was evidently written before the recent Parliamentary discussion, and its main purpose was to put forward a view of the duties of the inspectorate which is very different from the one which appears to prevail. Mr. Sykes would wish inspectors to devote their energies to securing proper conditions of work, involving adequate expenditure and administration. They should see that the Medical Inspection and the Child Feeding Acts are properly carried out, that schools are not overcrowded, that there are proper staffs of certified teachers, that salaries are such as to secure efficiency. As a professional teacher, Mr. Sykes protested against the present system of interference by inspectors with methods of teaching, and he gave instances of its deleterious effect. Mr. Sykes did not, however, suggest any method of testing the efficiency of the work.

SOCIETIES AND ACADEMIES.

LONDON.

Geological Society, April 5.—Dr. C. W. Andrews, F.R.S., vice-president, in the chair.—E. S. **Cobbold**: Trilobites from the Paradoxides beds of Comley (Shropshire), with notes on some of the associated brachiopoda by Dr. C. A. Matley. The author describes and illustrates the type-specimens of *Paradoxides groomii*, Lapworth, 1891, and the associated trilobites from the basement beds of the Middle Cambrian of Comley Quarry. Among the latter there are two or three other species of Paradoxides, represented by fragments insufficient for specific determination; also a species of *Dorypyge*, allied to *D. oriens*, Grönwall, and one of *Conocoryphe* allied to *C. emarginata*, Linnarsson. He also describes some of the trilobites from a higher horizon containing *Paradoxides davidis*, Salter, and *P. rugulosus*, Corda; and notes on the brachiopoda from this horizon are contributed by Dr. Matley. A complete list of the trilobites hitherto identified from the local Cambrian deposits is given.—Dr. D. **Woolacott**: The stratigraphy and tectonics of the Permian of Durham (northern area). The Permian strata of Durham and Northumberland lie unconformably on a basin of the Coal Measures; they may be divided into:—(4) upper red beds with salt and thin fossiliferous Magnesian Limestones

(only exposed in the south of Durham), 300 feet; (3) the Magnesian Limestone; (2) the Marl Slate, 3 feet; (1) the Yellow Sands, from 0 to 150 feet. These beds, which vary much in thickness, lie in North Durham in the general form of a syncline beneath Sunderland. The unfossiliferous Yellow Sands are probably a deltaic formation reassorted by wind, the other beds being the result of deposition in an inland sea undergoing desiccation. The magnesium carbonate existed in the waters of the sea, and was either deposited along with the calcium carbonate or introduced by seepage when the beds were being laid down. Great changes in the amount and distribution of these carbonates have, however, taken place since deposition. The percentage of calcium carbonate is sometimes more than 99, while that of magnesium carbonate is occasionally as much as 50. The fauna of the Magnesian Limestone is very restricted (about 140 species) and most peculiarly distributed. The marked palæontological features are the profusion of individuals in the Middle Fossiliferous Limestone (which appears to have formed a shell-bank in the Middle Magnesian-Limestone sea), and their sudden disappearance in the Upper Limestone. No corals, echinoderms, polychaeta, brachiopods, or cephalopods have ever been found above the top of the Middle Fossiliferous division, only a few fishes, gastropods, lamellibranchs, entomostraca, and foraminifera occurring in the Upper beds. The Lower and Middle Fossiliferous Limestones are marked by the presence of *Productus horridus*, Sow. Fish-remains occur at two horizons, namely, the Marl Slate and the Flexible Limestone, and the beds above these deposits. The Brecciated beds, which occur at various horizons, chiefly, however, in the two Middle divisions, constitute the most marked tectonic feature of the Magnesian Limestone of the area. They have been produced by thrusting, which brought about a decrease in the lateral extension of the Permian. Associated with the breccias are other proofs of thrusting:—(1) thrust or shear-planes; (2) disturbed and displaced masses of Lower Limestone; (3) intruded breccias; (4) slickensided and grooved, horizontal and vertical surfaces; (5) cleavage; (6) folding, both on a local and on a general scale; (7) buckling, thickening, and squeezing-out of beds; (8) phacoidal and other structures; and (9) fissuring.

DUBLIN.

Royal Dublin Society, March 28.—Mr. R. Lloyd Praeger in the chair.—Prof. T. **Johnson**: (1) *Archaeopteryx simplex*, sp. nov.; (2) Is Archæopteris, Dawson, a pteridosperm? The author gave an account of his examination of specimens of Archæopteris, Daws., in the botanical division of the National Museum, and in the Royal College of Science, Dublin. He recorded in the first part of his paper the occurrence in the south of Ireland, in the Upper Devonian beds, of *A. hibernica*, var. *minor*, Crépin, *A. roemeriana*, Göpp., and *A. Tchernaki*, Stur, in a fertile state. In the second part of the paper certain features in the structure of *A. hibernica*, Forbes, sp., are described. The more interesting features are the presence of fertile adaxial and sterile abaxial lobes in the fertile pinnule or *sporophyllule*, the vascularity of the stalk of the sporangium, and the transverse septation of the latter. The paper concludes with a discussion of the relationship of Archæopteris to the Ophioglossaceæ, the Sphenophyllaceæ, and the Pteridospermeæ.—Dr. J. H. **Pollok**: The vacuum-tube spectra of the vapours of some metals and metallic chlorides. The author showed reproductions of the spectra of the metals or chlorides of thallium, lead, copper, bismuth, iron, aluminium, chromium, manganese, nickel, cobalt, barium, strontium, calcium, magnesium, potassium, sodium, and lithium taken by means of his new quartz vacuum tube. As observed in the spectra referred to in part i. of this paper, there is invariably a marked difference between the spectra taken without a condenser and with a condenser in the secondary circuit. In the former case bands show a greater tendency to develop, in the latter there are invariably many more lines, but some become weaker. The new lines, and lines that become stronger, are very generally those showing the discontinuous lines when metallic electrodes are sparked in air, and a spherical condenser is used in photographing.

Royal Irish Academy, April 10.—Rev. J. P. Mahaffy, president, in the chair.—Major **Berry**: The Sierra Leone cannibals, with notes on their history, religion, and customs. Traces of a formerly richer flora and the remains of human settlements would tend to prove that the Sahara was subject to cyclical periods of aridity and humidity, and that in Palaeographical times it possessed a climate favourable to life. It was in the Sahara that the Mediterranean race probably originated and sent forth waves of migration, one of which, moving southwards, pushed the blacks back to the unhealthy coast-line. These blacks were by the Arab historians called the Dem-Dem, and are now known as the Mampas. Formerly they must have been powerful, but are now broken up along the coast from the Gambia to the Niger. From time immemorial these people have practised cannibalism, less for food than as a sacrament, with definite ritual curiously resembling that of ancient Mexico and Egypt. There are traces of a Mother Goddess, and the symbology connected with their religion and customs suggests other than local origins. Details of the customs and cannibalistic ritual collected in the country by the author are given and discussed.

GÖTTINGEN.

Royal Society of Sciences.—The *Nachrichten* (physico-mathematical section), part i. for 1911, contains the following memoirs communicated to the society:—

November 16, 1910.—E. **Kohlschütter**: The structure of the earth's crust in German East Africa.

January 14, 1911.—W. **Voigt**: Contributions to Lord Rayleigh's theory of grating-inflexion.

December 10, 1910.—N. **Galli** and K. **Försterling**: Theoretical and experimental researches on the optical behaviour of minimal metallic films.

November 26, 1910, and January 28, 1911.—W. **Voigt**, with a note by H. A. **Lorentz**: General considerations on emission and absorption in connection with the question of measurements of intensity in the Zeeman effect.

DIARY OF SOCIETIES.

THURSDAY, APRIL 20.

SOCIETY OF DYERS AND COLOURISTS, at 8.—The Dyeing of Paper Pulp: R. Bickerstaffe.

MONDAY, APRIL 24.

ILLUMINATING ENGINEERING SOCIETY, at 8.—The Ratio of Light to Illumination: Havdn T. Harrison.—Some Notes on the Effect of Wall-papers upon the Illumination of Interiors: P. J. Waldram.

VICTORIA INSTITUTE, at 4.30.—The Sidereal Universe: Sir David Gill, K.C.B., F.R.S.

TUESDAY, APRIL 25.

ROYAL ANTHROPOLOGICAL INSTITUTE, at 8.15.—River Life and People in Upper India: P. B. Bramley.

ROYAL STATISTICAL SOCIETY, at 5.—The Application of the Method of Multiple Correlation to the Estimation of Post-censal Populations: E. C. Snow.

WEDNESDAY, APRIL 26.

ROYAL SOCIETY OF ARTS, at 8.—The Production and Identification of Imitation and Artificial Gems: Noel Heaton.

GEOLOGICAL SOCIETY, at 8.—The Llandovery and Associated Rocks of North-eastern Montgomeryshire: A. Wade.—Geology of Northern Nigeria: Dr. J. D. Falconer.

BRITISH ASTRONOMICAL ASSOCIATION, at 5.

THURSDAY, APRIL 27.

ROYAL SOCIETY OF ARTS, at 4.30.—The Trend of Mineral Development in India: Sir Thomas Henry Holland, K.C.I.E., F.R.S.

ROYAL INSTITUTION, at 5.—The Optical Properties of Metallic Vapours: Prof. R. W. Wood.

MATHEMATICAL SOCIETY, at 5.30.—On the Geometry of a Deformable Octahedron: G. T. Bennett.—A Symmetrical Method of Apolarly Generating Cubic Curves: W. P. Milne.—The Solution of the Homogeneous Linear Difference Equation of the Second Order (Second Paper): G. N. Watson.—A Cartesian Theory of Complex Geometrical Elements of Space: G. B. Mathews.—The Number of Primes of given Linear Form: Lieut.-Col. A. Cunningham.—On the Proofs of the Properties of Riemann's Surfaces discovered by Lüroth and Clebsch: Prof. M. J. M. Hill.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Battery Economics and Battery Discharge Arrangements: A. M. Taylor.

FRIDAY, APRIL 28.

ROYAL INSTITUTION, at 9.—The Revolutions of Civilisation: Prof. W. M. Flinders Petrie, F.R.S.

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PHYSICAL SOCIETY, at 5.—High-tension Electrostatic Wattmeters: Prof. Ernest Wilson.—Previous Magnetic History as Affected by Temperature: Prof. Ernest Wilson and L. C. Budd.—Note on the Behaviour of Incandescent Lime Cathodes: Dr. R. S. Willows and T. Picton.—On the Formation of Dust Striations by an Electric Spark: Dr. S. Marsh and W. H. Nottage.

INSTITUTION OF MECHANICAL ENGINEERS, at 8.—Gas-producers: J. Emerson Dowson.—The Effect of Varying Proportions of Air and Steam on a Gas-producer: E. A. Allcut.

INSTITUTION OF CIVIL ENGINEERS, at 8.—The Commercial and Technical Relations of Engineering Design and Work: T. Frame Thomson.

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