

will not be set on Vegetable Palæontology or the Geographical Distribution of Plants.

In Zoology and Comparative Anatomy minor details will not be included in the questions relating to classification. Geographical distribution of animals is held to be a part of Zoology, and Comparative Anatomy includes the structure of extinct as well as of recent forms.

Human Anatomy will include the mechanism of the human body, the comparison of its parts with those of lower animals, its development, &c. ; but the questions will be of a simple and elementary character.

In Physiology the questions will be of a comparatively elementary character.

A practical examination will be held in each of the above subjects.

### SCIENTIFIC SERIALS

*Verhandlungen der Schweizerischen Naturforschenden Gesellschaft in Zürich*, August 7-9, 1883.—We note here the opening address by Prof. Cramer, on unicellular fungi.

*Verhandlungen der Naturhistorischen Vereines der preussischen Rheinlande, Westfalens, und der Reg-Bezirks Osndrück*, 42nd year, first half, 1885.—The greensand of Aacken and its molluscan fauna, by J. Böhm.—The forest vegetation of the outer North-western Himalaya, by D. Brandis.—On Devonian Aviculaceæ, by O. Follmann.—The biology of water plants, by H. Schenck.

*Nouveaux Mémoires de la Société Helvétique des Sciences Naturelles*, vol. xxix. part I, 1884.—Geological sections of the Tunnels of Doubs, by M. Mathay.—On the nival flora of Switzerland, by M. Heer. Fossil woods from Greenland, by M. Beust.

### SOCIETIES AND ACADEMIES

#### LONDON

**Mathematical Society**, November 12.—J. W. L. Glaisher, F.R.S., President, in the chair.—Mr. L. J. Rogers, Balliol College, Oxford, was elected a member.—The following gentlemen were elected to form the Council for the ensuing Session:—President: J. W. L. Glaisher, F.R.S.; Vice-Presidents: Dr. O. M. Henrici, F.R.S., Prof. Sylvester, F.R.S., J. J. Walker, F.R.S.; Treasurer: A. B. Kempe, F.R.S.; Secretaries: M. Jenkins, R. Tucker; other Members of the Council: Prof. Cayley, F.R.S., Sir J. Cockle, Knt., F.R.S., E. B. Elliott, A. G. Greenhill, J. Hammond, H. Hart, C. Leudesdorf, Capt. P. A. Macmahon, R.A., Samuel Roberts, F.R.S.—The following communications were made:—On waves propagated along the plane surface of an elastic solid, by Lord Rayleigh, F.R.S.—On the application of Clifford's graphs to ordinary binary quantics, by A. B. Kempe, F.R.S. (Messrs. Hammond and Macmahon put questions to the author).—On Clifford's theory of graphs, by A. Buchheim.—On unicursal curves, by R. A. Roberts.—On some consequences of the transformation formula  $y = \sin(L + A + B + C + \dots)$ , by J. Griffiths.

**Linnean Society**, November 5.—Sir John Lubbock, Bart., President, in the chair.—Mr. T. Christy exhibited orchids of the genus *Catasetum*, showing that owing to the plants having been moved, the flower in both instances had become malformed.—Mr. E. A. Heath showed a golden eagle in its characteristic plumage of the second year.—Mr. J. Carter exhibited a collection of seeds, lately introduced, remarkable for their peculiarities as specimens under the microscope.—There was shown for the Baron von Mueller a collection of skeleton leaves of species of *Eucalyptus*, prepared by Mrs. Lewellin of Melbourne. These confirm Baron von Mueller's observations as to definite layers, and the relation of these to the skeletonising process. The leaves in decaying produce no bad odour. Von Mueller's observations do not support M. Rivière's statement that the bamboo is as good as eucalypts to subdue malaria; the former dry up, but do not exhale volatile oil as do the latter, and the eucalypts moreover absorb moisture as quickly as Willows, Poplars, and Bamboos.—Dr. Ondaatje showed examples of walking-sticks from Ceylon palms, viz. the Kittool Palm (*Cayota urens*), the Areca and Cocoa-nut.—Mr. J. G. Baker made remarks on an exhibition by Mr. Thiselton Dyer of Darwin's potato (*Solanum meglii*), grown at Kew, the weight of twelve tubers being 28 oz.; also the "papa de Oso,"

Bear's potato (*S. tuberosum*, var.), grown out of doors from tubers received from Dr. Ernst of Caracas, who obtained them from Merida, where they are found wild.—Then followed a paper, viz. contributions to the flora of the Peruvian Andes, with remarks on the history and origin of the Andean flora, by Mr. John Ball. In this paper the author says that his statements chiefly refer to the western slope of the Cordilleras. From the collections made and other data, so far, therefore, a this region of Peru is concerned, it may confidently be averred that the limit of Alpine vegetation has been placed by previous writers on the subject far too low. In the present instance there can be no serious error as to heights, seeing these are based on those of the railway engineers. The explanation of this relatively high extension of the temperate flora depends on the peculiar climatical conditions. Rain occurs but sparingly, the nights are cold, but frost scarcely known; whereas in the plateau region eastward storms, heavy snow, and frosts are frequent. The vegetation of the region visited Mr. Ball divides into a sub-tropical dry zone from coast to 8000 feet, a temperate zone reaching to 12,500 feet, and an Alpine zone upwards to 17,000 feet, above the sea-level. As regards the proportion in which the natural families of plants are represented in the Andean flora, the Compositæ amount to nearly one-fourth of the whole species, the grasses equal one-eighth, the Scrophularinæ supply five per cent., while Crucifereæ, Caryophyllæ, and Leguminosæ each are represented by about one-thirtieth of the whole. The Cyperaceæ are conspicuous by their absence; a remarkable feature is the presence of four Crassulaceæ. If we take the proportions of the endemic genera and species as criteria, then, as far as materials admit, the Andean flora appears to be one of the most distinct existing in the world. Mr. Ball agrees with those who think it probable that the south polar lands constitute a great archipelago of islands. To this region in question he is inclined to refer the origin of the Antarctic types of the South American flora.—The first part of an exhaustive monograph on recent Brachiopoda, by the late Dr. Thos. Davidson, was read by the Secretary. In this part of his contribution the author reviews the labours of his predecessors in the field, with regard to the shell, to the anatomy of the adult, and to the embryology. As regards the perplexing question of affinities he remarks:—"Now, although I do not admit the Brachiopoda to be worms, they may, as well as the Mollusca and some other groups of invertebrates, have originally diverged from an ancestral vermiform stem, such as the remarkable worm-like mollusk *Neomeiia* would denote." He lays stress on the brachiopodous individual being the product of a single ovum, and not giving rise to others by gemmation. He considers that the shell, the pallial lobes, the intestine, the nerves, and the atrial system, afford characters amply sufficient to define the class. The greatest depth at which a living species has been found alive has been 2990 fathoms. As to classification, he groups the recent species into two great divisions:—(1) Anthropomata (Owen) = Clisterenterata (King), (2) Lypomata (Owen) = Tretenterata (King). The Anthropomata he groups in 3 families:—1st Fam. Terebratulaceæ, with 7 sub-families and 13 genera and sub-genera, 70 species, and 21 uncertain species. 2nd Fam. Thecideidæ, with 1 genus and 2 species. 3rd Fam. Rhynchonellidæ, 1 genus, 1 sub-genus, and 8 species. The Lypomata he also groups into 3 families, 5 genera and sub-genera, 23 species, and 7 uncertain species:—1st Fam. Craniidæ, with 1 genus and 4 species. 2nd Fam. Discinidæ, with 1 genus, 1 sub-genus, and 8 species. 3rd Fam. Lingulidæ, with 1 genus and 1 sub-genus, and 11 species. He does not concur with M. Delongchamps' scheme (1884) of classifying the Terebratulina, bringing forward Mr. Dall's observations on *Waldheimia floridana*, of delicate spiculæ in the floor of the great sinuses as telling evidence against the arrangement. Dr. Davidson then proceeds to treat of the various genera and species, adding remarks in detail on the Terebratulaceæ from his standpoint, and throughout gives copious descriptions and observations on each.

**Royal Microscopical Society**, October 14.—The Rev. Dr. Dallinger, F.R.S., President, in the chair.—Mr. Crisp exhibited D'Arsonval's water microscope, a suggestion for improving the means of focusing. The body-tube of this extraordinary instrument contained a glass cylinder which was connected by an india-rubber tube with a syringe. On turning the handle of the syringe water was forced into the cylinder, and the focus was altered according as more or less water was pumped in. Of course, an alteration of focus did result from the operation, but the arrangement destroyed the correction of the objective, and was