

of the eighty-first degree of north latitude, on or near the shore of Lady Franklin Bay, for the purpose of scientific observation and exploration, and to develop or discover new whaling grounds; such officers as may be necessary to be detailed to take part in the same, and with permission to use any public vessel or vessels in connection therewith. This is essentially Capt. Howgate's plan, and probably introduced by his request.

THE last number of the *Indian Antiquary* contains a note by Major J. S. F. Mackenzie on some curious customs current among the Komti caste in regard to marriage, &c. "A Folklore Parallel," by Prof. C. H. Tawney, of Calcutta, is also worthy of notice.

MGR. LAVIGERIE, Archbishop of Algiers, communicates to *Les Missions Catholiques* intelligence respecting the portion of the French missionary expedition in East Africa, which, under the leadership of Père Livinhac, was gradually making its way towards Lake Victoria. At the date of the letter (December) the five Europeans were all in good health, and were then in Mirambo's country, on the way to Uganda. Père Livinhac writes that they had been three months in Unyanyembe, and that they were then twenty or thirty days' march from the lake. In the same number of *Les Missions Catholiques* Mgr. Ridet continues the account of his recent captivity in Corea, in which he gives a terrible picture of the prisons of the country.

A TELEGRAM from Malmö states that the steamer *Nordenskjöld*, built for M. Sibiriakoff, to go to the assistance of Prof. Nordenskjöld's expedition, was launched on the 17th inst.

A VERY interesting narrative of travel has just been commenced in the *Tour du Monde*, entitled "Voyage en Nouvelle Guinée," by M. Achille Raffray. The first instalment deals with the Moluccas, which M. Raffray visited *en route*, but in the second he commences his work in New Guinea. The illustrations are unusually good.

BIOLOGICAL NOTES

THE EARLY TYPES OF INSECTS.—Samuel H. Scudder has published a memoir on the early types of insects (*Memoirs of the Boston Society of Natural History*, vol. iii. Part i. No. 11, March, 1879). He concludes that the hexapods, arachnids, and myriapods appeared together in the carboniferous strata. That the hexapod insects may be divided into a higher group (Metabola), and a lower group (Heterometabola), that the latter are Devonian and carboniferous, the former just appearing in the Jurassic period. The Devonian forms were in the early stages of their life, undoubtedly aquatic. Nearly all the palæozoic orthoptera belong to the lower Saltatorial families. It would seem that the earlier types were of inferior organisation, and that the general type of wing structure in insects has remained unaltered from the earliest times.

HALOSPHERA, A NEW GENUS OF UNICELLULAR ALGÆ.—Under this name Dr. F. Schmitz describes, in the first "Heft" of the first volume of the *Mittheilungen aus der zoologischen Station zu Neapel*, an organism which is found abundantly between the middle of January and the middle of April, floating on the surface of the water in the Bay of Naples. Hitherto known to collectors simply as *punti verdi*, Dr. Schmitz gives it the name *Halosphæra viridis*. It presents to the naked eye the appearance of minute just visible pale green globules, the largest having a diameter of from 0.5 to 0.6 mm., but with no independent power of motion like that of *Volvox*. Each globule consists of a tolerably thick perfectly smooth and colourless cell-wall, coated on the inside with a thin layer of pale green protoplasm, which incloses a single very large central vacuole filled with a colourless cell-sap.

The green colour of the protoplasm is due to its being interspersed with a small number of minute grains of chlorophyll; and there is also, at an early stage, a single globular nucleus with a somewhat darker nucleolus. As the cell increases somewhat slowly in size, the process of cell-division commences. The single nucleus divides into two nuclei, which gradually separate from one another; and this process is repeated time after time, until a very large number of nuclei, which the author reckons to average from 200 to 300, come to be tolerably regularly distributed through the parietal protoplasm of the mother-cell, which has by this time attained its full size. The layer of protoplasm then breaks up into a number of primordial daughter-cells, each surrounding one of the nuclei, and having the form of a hemispherical ball, the flat surface of which is in contact with the cell-wall of the mother-cell. They are of a uniform bright green colour, without apparently containing any distinct grains of chlorophyll. The external cell-wall of the mother-cell has now become differentiated into two distinct layers, the outer one of which bursts into two nearly equal halves, and becomes completely detached from the inner one, which now itself consists distinctly of two layers. The hemispherical green daughter-cells then become transformed into zoospores of a very peculiar shape. They begin gradually to detach themselves from the outer cell-wall, and to take up positions in the interior of the cell. In most cases each of them contracts in the centre into somewhat the shape of an hour-glass, but pointed at the two ends, ultimately dividing in the middle into two zoospores of conical shape, with a nearly flat base, but toothed at the edges, and a pointed apex. To a colourless protuberance in the centre of the nearly flat base are attached two very long vibratile cilia. Sometimes only a single zoospore is formed from each of the primordial cells, and occasionally more than two. The remaining cell-wall of the mother-cell has, in the meantime, been gradually swelling up and deliquescing, and has now become completely converted into mucilage, so that the zoospores escape free into the surrounding water. After moving about for some time with a rather slow swarming motion, they fall to the bottom; but their further development has not been followed up. Until its complete life-history is known, it is impossible to assign a systematic position to *Halosphæra*. It may possibly come near *Eremosphæra*, a genus of Conjugatæ; its resemblance to *Volvox* is clearly only superficial.

A NEW ALGA.—In the first Heft of the 1st vol. of the *Mittheilungen aus der zool. Station zu Neapel*, Dr. Falkenberg describes a new genus of Phæosporeæ under the name *Discosporangium*, with the following characters:—Thallus, an irregularly branched filament, consisting of a single row of cells, and growing by an apical cell. Reproduction by zoospores, which are formed singly in the compartments of multilocular zoosporangia. The zoosporangia are placed singly near the middle of the cells of the thallus, forming a square unilamellar plate, the compartments of which open separately when ripe on the upper side of the sporangium.

In the second Heft of the same publication Dr. Falkenberg gives a complete list of the marine Algæ of the Bay of Naples.

MARINE FLOWERING PLANTS.—Dr. I. B. Balfour has just published (*Transactions Bot. Soc. Edinburgh*, Session 1877-78) a most valuable and interesting memoir on two species of the genus *Halophila*, found very abundantly in widely extended patches on the reefs surrounding the island of Rodriguez. The island was visited in 1874 by Dr. I. Balfour as naturalist accompanying the "Transit of Venus" expedition. Of the two species one, *H. ovalis*, grows on spots which are just uncovered at low tides. The other, *H. stipulacea*, grows in places where it is always submerged. Specimens

collected both in flower and fruit were preserved in alcohol, and were most painstakingly investigated at Prof. de Bary's botanical laboratory at Strassburg. The only portion of the life-history of these plants left for future investigators is the germination of their seeds, which, probably, does not take place until the first quarter of the year. The stem structure is simple. Of the presence of sieve-tubes in the bundles there appears to be no doubt. The mode of the tissue formation at the tips of the roots is peculiar; from an initial group of cells underneath the root-cap, there issues three distinct tissues. This corresponds to the third type of Janczewski, who, among the monocotyledons, found it only in *Elodea*. The scale and foliage leaves are described in detail. The epidermal layer is peculiar; stomates are to be found in neither of the species. The floral axis is short and axillary; there is a double-leaved spathe. The author is inclined with Ascherson to consider the plants dioecious. The anther cavities are filled with a mass of confervoid pollen. These pollen cells are found to be united in long strings, each string apparently continuous through the greater part of the length of the cylinder. The partition walls between adjacent cells in a string are transverse. The ovary is inferior and contains many ovules. The author suggests the morphological identity of the stamens and carpels, "the same phyllomes (or the phyllomes from the same nodal regions), which, in the male form stamens, in the female form carpels." A technical and emended character to the genus and of the two species concludes this paper.

AMERICAN APHIDES.—Dr. Riley gives a detailed account of the life-history of some species of gall-making Pemphiginæ (Art. I, vol. v. *Bulletin of the United States Geological and Geographical Survey of the Territories*, 1879). The facts concerning these Aphides have a special interest on account of the close relationship between the insects of this group and the now notorious grape vine Phylloxera. The special history of *Schizoneura americana*, n. sp., is given. It is to be found curling and gnarling the leaves of the White Elm (*Ulmus americana*), and passes from the egg state through no less than seven stages, in some winged, in some wingless, but in all agamic until the seventh, when, as the result of fertilisation, the true egg state is again reached. Another very common gall described is that formed by *Colopha ulmicola*, and the diagnoses of five new species of Pemphigus are given. In a second part of this paper Mr. Monell describes several new species, and gives detailed synonymy of several already described. Two excellent plates accompany Dr. Riley's notes on the gall-making forms.

NEW BIRDS FROM THE PORTUGUESE POSSESSIONS IN WESTERN AFRICA.—Prof. Barboza du Bocage publishes (*Journ. de Scien. Math. Phys. Natur.*, Nos. xxiii. and xxiv., Lisboa, 1878) his sixteenth and seventeenth lists of birds from Angola. A new genus and species (*Hylypsornis salvadori*) is established for a creeper, and a pretty sun-bird is called after M. d'Anchieta, who has added so much to our knowledge of the birds of Angola (*Nectarinia anchieta*). Several other new species are described in the sixteenth list. In the seventeenth list a new genus and many additional new species are also established, the more remarkable being a sun-bird (*Nectarinia oustaleti*) and a unique bird from Caconda (*Sharpia angolensis*), called after Mr. Sharpe, of the British Museum, and having affinities with Hyphantornis.

A UNIVERSAL CATALOGUE

THE Council of the Society of Arts, probably the most practically useful body in the kingdom, has taken a positive step towards the accomplishment of a task which certainly deserves to be called gigantic. We need not

moralise once more on the extent to which the making of books has been carried; many a modern Solomon has no doubt been appalled into silence in the effort even to realise, far less to express, the extent of this manufacture. To attempt to begin *ab initio* to catalogue the works published during the past century, or even since the beginning of the present century, would be a task which to us would seem to be hopelessly endless. Any one whose business it is to work with books, and even the most thorough-going scientific worker must refer to them occasionally, must recognise the immense advantage, however, of having in one properly arranged catalogue, as complete a list as possible of printed books, and the farther back it went, the more valuable it would be. It is, then, certainly a fortunate thing that there exists ready to hand, though unprinted, a catalogue which for all practical purposes may be regarded as a universal catalogue of printed books, and that not only for the past century, but the past four centuries and more; for the British Museum Catalogue begins as far back as 1450. Some time ago the Society of Arts considered the advisability and practicability of constructing a catalogue coming down to the year 1600. The Council addressed a series of questions to them likely to give useful answers, and afterwards met to hear evidence on the subject. Mr. Bullen and other authorities were thus examined, and it seems to have been Mr. Bullen who happily suggested that the best and only sure method of laying a solid foundation for the Universal Catalogue of English printed literature would be to print the Catalogue of the Printed Books in the British Museum, from A.D. 1450 to the present time, say, the end of the year 1878, representing about 1,250,000 vols., and comprising between 2,000,000 and 3,000,000 entries, *i.e.*, main titles and cross references. He considered the work might be ready for printing, "in a rough and ready way," in two years, and in less time if more force were employed, and that it would take five years to print. All the witnesses agreed that the printing of the British Museum Catalogue would be highly desirable, and the Committee are of the same opinion.

As we have had occasion to point out in these pages, the British Museum Catalogue is by no means perfect, and it is specially difficult for a man in search of a scientific serial or paper to get at it without much roundabout hunting from one cross reference to another, much waste of time, and loss of temper. Still considering all the difficulties in the way of constructing a perfectly new catalogue, we do not think a better course could be followed than that suggested by the Society of Arts' Council. It might be possible to introduce some improvement in arrangement during the process of printing, and especially with reference to the arrangement of the publications of scientific societies, which at present is so completely unscientific. It must also be borne in mind that the Catalogue is only one of authors, and that for many purposes of research such a catalogue is of little use without an equally complete one of subjects. Still the want of the latter is no argument against the publication of the former, though we should hope that the one would be followed by the other.

Of course such a stupendous, and, at its cheapest, costly undertaking could hardly be accomplished by any private body, and it is natural that the Society of Arts should look to government for help in the matter. As the scheme has the approval of the President of the Society, the Prince of Wales, we should think that the Government is not likely to hesitate in granting such aid as might be required. Of course the printing and paper need not be luxurious nor expensive, and the specimen-page issued by the Society seems to us satisfactory. It is calculated that the British Museum Catalogue would thus occupy about forty-five volumes of 1,000 pages each, and could be issued through the Stationery Office at about 16s. per vol., and even less if the edition were of 2,000 copies. No doubt a fair sale would be obtained for such a publica-