was awarded to Mr. E. J. Stone, director of the Radcliffe Observatory, Oxford, for his great catalogue of southern stars, involving newly-determined places of all the stars observed by the French astronomer Lacaille during his memorable visit to the Cape of Good Hope, in the years 1751 and 1752; the observations for the catalogue having been made while Mr. Stone occupied the position of Her Majesty's Astronomer at the Cape. The commission to whom the consideration of the award was referred consisted of MM. Faye, Mouchez, Lœwy, Janssen, and Tisserand, who have called attention in their Report to the "fundamental importance" of the Catalogue, in view of the study of the proper motions, &c., of the stars in the southern heavens.

At the same sitting the Valz Prize was adjudged to M. Tempel of Florence for his numerous cometary discoveries.

The Damoiseau Prize (10,000 francs) has been again proposed for 1882. It had been offered without response in 1869, 1872, 1876, 1877, and 1879; the subject on all occasions being the same and a very important one in the actual state of astronomy, viz., "To review the theory of the satellites of Jupiter, to discuss the observations and to deduce the constants which it contains, and particularly that which furnishes a direct determination of the velocity of light; and lastly, to construct special tables for each satellite."

BIOLOGICAL NOTES

ALGÆ OF THE GULF OF FINLAND.—M. Chr. Gobi made an excursion along the borders of the Gulf of Finland in the summer of 1879 with the object of investigating the algæ of this district. In spite of the weather being of the most unfavourable character he was enabled to work out the whole south-west coast of this district, from St. Petersburg to the comparatively open sea at Hapsal. Along the southern coast of the Island of Kotlin, on which Cronstadt is built, and also along the opposite coast shore at Oranienbaum, chlorophyllaceous algæ were almost exclusively met with, and these belonging to species to be also met with in the fresh waters of the adjoining lands, for example, three distinct species of Cladophora (among these *C. glomerata*), several forms of the genera Oedogonium, Spirogyra, Zygnema, and other filamentous Mesocarpeæ; various Desmidiaceæ (Cosmarium, Closterium, Scenedesmus), a much-branched, very fine, almost hair-like Enteromorpha (apparently *E. salina*), also various oscillatoriaceous forms and diatoms. Besides at Cronstadt an Ulothrix, more commonly in the early summer months, and a Merismopœdia (probably *M. Kützingii*) at Oranienbaum, the pretty *Spirulina Jenneri*, amidst various Oscillatoria, was met with, also Vaucheria, and in larger quantities *Hydrodictyon utriculatum*, in the various stages of development (middle of August). About seven versts west of Oranienbaum Tolypothrix was met with in some quantity, forming floating ball-shaped masses. By the end of July some excursions to the environs of Hapsal led to the discovery of the interesting Phœospore, which up to this had only once been found by Pringsheim at Heligoland, and called by him Streblonema; in Hapsal Bay it lived on Ruppia, several Charas, and in company on these with *Ulothrix confervicola*, which latter grew in great abundance on these plants and on Ceramia and other red algæ. It is interesting to note that along with marine forms there grew some of the fresh-water filamentous algæ, such as Spirogyra, Zygnema, and in large quantities that half fresh-water species *Monostroma Balticum*. Out in the bay towards the open sea the red algæ increased in number, but the merging of the fresh-water forms into those of a truly marine type could be well studied in the Bay of Hapsal. (*Botanische Zeitung*, February 20.)

THE "BLAKE" CRUISE.—Numbers 1 and 2 of volume 8 of the *Bulletin* of the Museum of Comparative Zoology at Harvard College contain preliminary reports on the Echini collected during the cruises of the *Blake*, by Alex. Agassiz, and on the Crustacea by Alphonse Milne-Edwards, have just reached us. The report on the Echini contains descriptions of thirteen new species belonging to such genera as Dorocidaris, Cœlopleurus, Asthenosoma, Phormosoma, Palæotropus, and Schizaster. Perhaps no group of animals has received such marked additions to its ranks through the deep-sea dredging expeditions. There was a time, and that not long ago, when we remember that the prevalent idea was that in this class new species were scarcely to be expected to turn up. Alphonse Milne-Edwards' report, of which the first part only is published, treats of the Brachyurous Decapods and of a portion of the Macrura. Many new genera and species are described, and several are figured. One very remarkable new genus, Corycodus, is formed to receive a somewhat mutilated example, which however exhibits characters different from any known Crustacea, belonging apparently to the family Dorripedæ. Its carapace is globular, and intimately connected to (soudée) the sternal plastron and between the insertion of the articulations of the first and those of the second pair of feet there is to be found a considerable space. Some very interesting new genera belonging to the Paguridæ are described. Among the new species of the Galatheadæ there are no less than eleven belonging to the genus Munida; and a new genus allied to Munida, Galathodes is described with ten new species. It is evident that the number of species belonging to the Crustacea have been very largely increased by the deep-sea exploration carried on by the United States Coast Survey-steamer *Blake*.

FOOD OF BIRDS, FISHES, AND BEETLES.—The State Legislature of Illinois authorised at its last session an investigation of the food of the birds of the State, with especial reference to agriculture and horticulture, and a similar investigation of the food of the fishes, with especial reference to fish-culture. As a result several Bulletins have been issued from the State Laboratory of Natural History, of which the last just received (No. 3) contains a report on the food of fishes by S. A. Forbes, the director of the Laboratory, the class especially reported on being the Acanthopteri, and another on the food of birds by the same. A very interesting series of notes on the food of predaceous beetles, by F. M. Webster, is added. Many species are proved to be vegetarians, sometimes doing the growing crops a good deal of mischief.

PHYSIOLOGICAL SIGNIFICANCE OF TRANSPIRATION OF PLANTS.—Prof. Weiss concludes from experiments (Vienna Acad. *Anz.*) that transpiration is only prejudicial to the functions of plants, excepting the process of lignification of the cell-walls, which it favours; hence it is to be regarded as a necessary evil for plants. Prof. Weiss also obtains striking evidence in favour of Wiesner's theory of heliotropism; and he seeks to prove that through transpiration certain inorganic constituents of the ground are carried to plants in excess, and are got rid of on the fall of leaves in autumn, and consequently that transpiration is also the cause of the influence exercised by the nature of the ground on the quantitative composition of the ashes of plants. The view that the stronger growth of non-transpiring plants is due to mere expansion of cells without simultaneous over-production of organic substances, is controverted.

SIGNS OF DEATH.—Observations with regard to the last manifestations of life in animals variously killed have been lately made by Drs. Verga and Biffi (*Real. Ist. Lomb. Rend.*). The following conclusions are arrived at:—1. in the higher animals, when sensibility, circulation, and respiration have ceased, the life of histological elements of the nervous centres, especially of the ganglionic system and the spinal cord, remains for a short time. 2. Contraction of the pupil and of the spleen are effects of this reduced latent life, and more remarkable effects, in guinea-pigs, rabbits, and cats, are the constant and uniform movements of inward curvature, which have the significance of respiratory efforts, presented under like conditions by the dog and the ass. 3. These movements appear in the animals whether drowned in water, or hung, or bled to death. 4. They indicate the point beyond which the organism loses the power of recovery.

CLASSIFICATION OF STATURES.—In view of the increasing need of exactness in anthropological descriptions, Prof. Zoja has lately proposed in the Lombard Institute a system of classification of human statures. He first constitutes three divisions, denoting by the terms *mesosoma*, *megasoma*, and *microsoma*, medium, high, and low stature respectively. At the ends of the series are added divisions for gigantic and dwarfish statures, *gigantosoma* and *nanosoma*. Each of these five classes is divided into three parts, on this plan: *medium mesosoma*, *hypermesosoma*, and *hypomesosoma*. To attach numerical values to all these fifteen divisions is more difficult. The author makes 2·00 metres the division between very high and gigantic stature, and gigantosoma ranges from that point up to 2·51 m. or more (hypergigantosoma). On the other hand 1·25 m. is made the limit between very low and exceptionally low stature; and nanosoma ranges from this to 0·74 or less (hyponanosoma). Medium stature (or mesosoma) ranges from 1·60 m. to 1·70 m.

EQUUS PRJEVALSKI.—The St. Petersburg Geographical Society has just published a pamphlet, by M. Poliakoff, on the

Equus Prjevalski, a new species of wild horse discovered in Central Asia. It was killed by hunters who were sent from the post of Zaisan, and its skull and skin were sent to the St. Petersburg Academy of Sciences. M. Poliakoff discusses at length the relations of this new species of horse to our domestic horses, and illustrates his memoir with drawings of the new horse and of its anatomical features.

SIR JOHN DALZELL'S ANEMONE.—Many of our readers will be glad to hear of the good health and wonderful activity of this celebrated sea anemone. From the annual address of the president of the Botanical Society of Edinburgh, as published in the recently issued part of this Society's *Transactions*, we learn that the late Dr. James M'Bain was the faithful custodian of that *Actinia mesembrianthemum*, which, among naturalists, has long borne the honourable appellation of "Granny," and which, though having entered upon her fifty-second if not her fifty-ninth year of existence, has not yet ceased to people the waters with her progeny, for from the 4th day of March, 1879, to the 4th day of October in the same year, on which occasion the last official registry of birth occurs, she has given origin to twenty-seven young ones. This is nothing to her prolific powers in 1857, for in one single night in that year she gave birth to no less than 240 young ones. This would have put Priam himself to shame, seriously alarmed Malthus, and taxed all the energy of all the accoucheurs in Edinburgh and its surrounding districts. She was gathered from the rocks at North Berwick by Sir John Dalzell, and at his death was handed over to the care of Prof. John Fleming, then to Dr. James M'Bain; he on the prospect of his decease was most solicitous to find a proper guardian for such a treasure. Some to whom he spoke declined to undertake so responsible a duty, till at last Mr. Sadler, the curator of the Royal Botanical Gardens at Edinburgh, cordially responded to the request, and when last heard of the old lady was doing well.

GEOGRAPHICAL NOTES

AT the meeting of the Geographical Society on March 14 Mr. James Stewart, C.E., of Livingstonia, read a paper on Lake Nyassa and the Water-route to the Lake-region of Africa. In his preliminary observations he remarked upon the fact that, though the lake is but 350 miles in length, no fewer than seven different languages are spoken on one side only, all belonging to the Great Bantu group, and that natives from the south end cannot understand those at the north end. He dwelt upon the advantages the Livingstonia missionaries enjoyed for performing geographical work at an exceedingly small cost, though their other duties prevented them from doing very much. Mr. Stewart afterwards gave an account of his journey up the western side of the northern part of the lake and thence to Tanganyika and back. During this he passed one stream, the Mera, which he thinks may be considered one of the most remote of the sources of the Congo. Mr. Stewart concluded by stating that he was shortly about to return to Lake Nyassa, where he hoped to have opportunities for resuming his geographical work in opening a route to the south end of Lake Tanganyika.

WE have the new numbers of several geographical journals before us. In the March number of *Petermann's Mittheilungen* Herr Richard Buchta describes his journey, in considerable detail, to the Nile Lakes in 1878. To accompany a map of the South Argentine Pampas Herr H. Wichmann summarises the latest information we have on that region. M. Sibiriakoff describes his journey in the *Oscar Dickson* to the mouth of the Jennissei in 1880. This number contains the geographical necrology of the past year, besides the usual monthly summary. —In the *Zeitschrift* of the Berlin Geographical Society Herr C. J. Büttner in a long paper gives some valuable directions for the study of the Bantu group of languages. Herr K. Himly has a short paper on some of the forms of Turkish, Mongolian, and Chinese names of places in books of geography. Herr Gustav Niederlein describes in a long paper some of the scientific results of an Argentine Expedition to the Rio Negro in Patagonia. Appended is a reproduction on a large scale of Dr. Kiepert's map of the new boundaries in the Balkan Peninsula.—In the *Verhandlungen* of the same Society is a paper by Herr K. Kessler on the Caucasus and their exploration, and some valuable remarks on the thickness of the ice formed each year in the Arctic regions, and its connection with Arctic temperatures.—The first number of vol. iv. of the *Deutsche geographische Blätter* (Bremen) contains a long paper by Dr. Lindemann on the woods of the Bavarian Spessart, and by the same author a summary of recent Arctic work.—To the December number of the *Bulletin* of the French Geographical Society M. De Castries contributes a paper on the region of the Wed Draâ; M. Ch. Velain, geological notes on Upper French Guana; and M. H. Duveyrier, on the question of the sources of the Niger.

DR. RAE sends us the following extract from a letter to him by Capt. Howgate, dated Washington, March 4, 1881:—"I write . . . to tell you that Congress has given the appropriation asked for the continuance of our work *viâ* Lady Franklin Bay, and also for an expedition *viâ* Behring Strait—ostensibly to look after the *Jeannette*, but also to prosecute the work of discovery in that direction. In addition to this it is propable that the Signal Service will this year establish the Point Barrow station, making a noble programme of Arctic work for the United States, and one in which I take just pride, for it is the direct result of my persistent work, since 1877, in raising public interest in the cause."

THE preparations for the commencement of the survey of Eastern Palestine are now complete. The War Office have granted to the Committee of the Palestine Exploration Fund the services of Lieut. Conder, who executed most of the survey of Western Palestine, and Lieut. Mantell, both of the Royal Engineers. The party will include the two non-commissioned officers (now both pensioners) Black and Armstrong, who first went out in the year 1871. Lieutenants Conder and Mantell started for Beyrout on Tuesday evening, March 15, and the men will follow with the instruments. The work will be commenced in the north—the land of Bashan.

FROM a Buenos Ayres paper we learn that the long-promised exploring expedition to Neuquen, the most fertile spot perhaps in all South America, and part of the territory secured by General Roca's memorable expedition, has at last started, and important results are expected from it. This territory lies along the foot of the Andes, is watered by innumerable streams flowing from the great range into the Rio Neuquen, one of the two rivers which form the Rio Negro, and presents facilities for agriculture unknown in any other part of the Republic.

THE current number of *Les Missions Catholiques* contains a long letter from Père Schmitt, written from Mboma on the Lower Congo, in which he describes a journey lately made to the foot of the Yellala Falls. He paid a visit to the station of the Livingstone (Congo) Inland Mission at Matadi or Matavi, which is situated on the left bank of the Congo, opposite Mr. Stanley's settlement at Vivi. Owing to the whirlpools in the river, landing at Matadi was accomplished with great difficulty. From Père Schmitt's account, the spot hardly appears to have been well chosen, being a melancholy sort of place, covered with rocks, as its name imports. The mission establishment consists of five or six tents, the interior of which reminded the visitor of a bazaar. On the return journey Père Schmitt spent a few days at Noki, where he had an opportunity of collecting information respecting the Congo region from the son of the king, who had been educated at St. Paul de Loanda.

ACCORDING to the *London and China Express*, the sole obstacle to the contemplated maritime surveying operations in China and Japan, under the direction of the United States Hydrographic Office, has been removed by the consent of the Russian Government to the occupation of an astronomical station at Vladivostock by United States naval officers. They are to proceed there at once, and by telegraphic exchange of time signals, working from Vladivostock through Japan and China to Madras, will determine with great exactness the longitudes of Yokohama, Nagasaki, Shanghai, Amoy, Hong-kong, Manila, Saigon, and Singapore.

THE Wellington correspondent of the *Colonies and India* states that the New Zealand Government have just succeeded in acquiring a large tract of land at Rotorua, in the famous Hot Lake district, every acre of which the Maoris have hitherto jealously preserved. Even now tourists from all parts of the world visit this wonderful and beautiful district, but, when it is made more accessible, it is thought that Rotorua will become a great sanatorium for India and the colonies.

KING OSCAR of Sweden has just conferred decorations on Prof. Virchow, Dr. Nachtigal, and Herr William Schönlank, in recognition of their services in the cause of geographical discovery and commerce.

DR. BAYOT has been deputed by the French Minister of Marine to explore the upper part of the Niger.