

lines of thought, and many different subjects of investigation, at one and the same period"; and accordingly his labours are classified under these heads:—(1) Heat and its applications, particularly to metallurgy; (2) Electrical science and practice; and (3) Miscellaneous engineering, mechanical, and scientific matters not included under the former heads. Dr. Pole then goes over the whole of Sir William Siemens's scientific labours in these fields, and, as might have been expected, produces the fullest and most valuable memoir of this distinguished member of "the creators of the age of steel" which has yet appeared.

THE "Year-Book of the Scientific and Learned Societies of Great Britain and Ireland," published by Messrs. Griffin and Co., will be found useful, and doubtless will be improved from year to year. The societies are arranged in fourteen sections, according to the field they occupy, with a fifteenth section, including some of the leading foreign societies. The compilers might certainly have avoided putting the Royal Society and the Royal Institution side by side, as if they had anything in common.

MR. W. M. MASKELL, F.R.M.S., continues his notes on the *Coccide* of New Zealand, and has sent us a lengthy continuation of his former papers, extracted from the *Transactions* of the New Zealand Institute, vol. xvi. That country seems to be especially rich in "scale-insects," and in Mr. Maskell they find an able student of their modes of life and characteristics. Especially curious is the species described as *Rhizococcus fossor*, the female of which does not cover herself with a sac or "scale," but sinks herself bodily in a circular pit in the substance of the leaf, and there lays her eggs; the species feeds on *Santolium cunninghamii* in the North Island. *Icenyra parchasi*—a near relative of the "pou à poche blanche" (*I. sacchari*), so destructive in Mauritius, and which has probably been introduced into Queensland and elsewhere—seems to be spreading rapidly, and to be doing much damage, not only to cultivated trees and shrubs, but also to the native forests. Before carrying into effect the radical remedy of cutting down and destroying the infected trees, we would recommend Mr. Maskell to try an application of kerosene, which has certainly proved useful in the case of *Coccide* on oranges in America. The weak point of these papers consists in the extreme roughness of the plates; they may be characteristic so far as they go, but a few coarse scratches scarcely sufficiently represent hairs, neither does an open network of crossed lines indicate a solid and probably concave surface.

THE *Kavkaz* newspaper mentions a bolide that was seen on August 3 at Kazakh, in the district of Elizabethpol. It had the shape of a blue globe which broke into two globes of the same colour, and disappeared in the direction of the Caucasus Chain.

WE regret to learn of the death at Montreal, from typhoid fever, of Mr. Walter R. Browne, well known as a writer on the scientific aspects of engineering. Mr. Browne had gone to Montreal to attend the British Association meeting.

THE dangers to public health which lurk in out-of-the-way places appear inexhaustible. This time the danger comes from the matter which collects on coins which have been a long time in circulation, and to which we have already referred. M. Reinsch of Erlangen has devoted much study to this matter, and has investigated old and recent coins of all metals from all the European States. Everywhere he has found micro-organisms of Algæ and Bacteria. Scraping away the matter which accumulates in the interstices of the relief with a needle, and placing it in a drop of distilled water under a microscope of 250 to 300 diameters, he found fragments of textile fibres, numerous starchy granules, especially of the starch of wheat, globules of grease, some unicellular Algæ, &c. But when a microscope of greater power was used Bacteria were found among this detritus. There

were long Bacteria with a vibratory or spiral movement, as well as those of a globular shape. Sometimes both forms were found on one coin; but as a rule each form was found separately. When a little glycerine or iodine was introduced into the preparation these ceased their movements. Among the Algæ two kinds were of most frequent occurrence, viz. a small *Chroococcus* and a small unicellular one resembling the *Palmellis*. They were collected in little spherical colonies of four, eight, or a dozen at a time, and were found only on old coins; recent ones contained only the Bacteria. A recent writer in *Science et Nature* refers to this discovery as of great importance from a hygienic point of view.

AT numerous places in Lower Austria several shocks of earthquake were felt on Tuesday last week. The duration of the shocks was from four to nine seconds each.

AT the last meeting of the Seismological Society of Japan, a paper (which is printed in the *Japan Gazette*) was read by Mr. E. Knipping on the meteorology of Japan. It was based on data obtained from twenty-three meteorological stations in Japan during the year 1883, the extreme positions being Kagoshima and Nagasaki in the south, and Sapporo and Nemoro in Yezo in the north. Interesting comparisons are instituted between the variations in temperature and pressure at different times of the year and in different parts of Japan, and similar variations in Europe.

THE additions to the Zoological Society's Gardens during the past week include two Ring-tailed Lemurs (*Lemur catta* ♂ & ♀) from Madagascar, presented by Mr. Charles Stewart; a Common Marmoset (*Hapale jacchus*) from Brazil, presented by Mr. J. Henderson; two Peba Armadillos (*Tatusia peba*) from South America, presented by Mr. Frank Parish, F.Z.S.; a Wood Owl (*Syrnium aluco*), British, presented by Mr. J. Baldwin; two Smooth Snakes (*Coronella levis*) from Hampshire, presented by Mr. W. H. B. Pain; seven Common Crowned Pigeons (*Goura coronata*) from New Guinea, a Victoria Crowned Pigeon (*Goura victoria*) from the Island of Jobie, two Brazilian Hangnests (*Icterus jamaicæi*) from Brazil, deposited; a Gray-cheeked Monkey (*Cercopithecus albigena*) from West Africa, purchased; a Prairie Wolf (*Canis latrans*) from Kansas, U.S.A., received on approval; a Vulpine Phalanger (*Phalangista vulbina*), born in the Gardens.

#### GEOGRAPHICAL NOTES

THE present number of the *Bulletin de la Société de Géographie* commences with a paper by M. Duveyrier, on the geographical extent of the Mussulman confraternity of Senousi. This sect, which is distinguished by its austere and fanatical tenets, arose forty-six years ago under an Algerian, and appears to have in a greater or less degree permeated the Mohammedan world, and acquired vast political importance. It flourishes especially in Northern Africa, reaching as far south as Timbuctoo. The details of its precise extent and the nature of its activity are given in the paper. The second paper, which is not signed, records a French hydrographical mission to the coast of Morocco by the French officer M. Vincendon-Dumoulin in 1854. The most interesting part of the paper is the introduction, in which the writer discusses the necessity of having a dictionary of geographical etymology; that is, a work which will explain as far as possible the origin and meaning of geographical names, not only from a philological but also an historical point of view. The names, he says, which, for example, Stanley and De Brazza are giving their settlements in Africa, are explicable now, when everybody knows why Leopoldville is so called; but it may be different fifty years hence. But who knows, he inquires, that the territory called Adélie in the Polar Ocean was so called after the wife of Admiral Dumont d'Urville, or that the capes known as Jagersschmidt and Cotelle were named after the members of the hydrographical expedition to Morocco, which the paper then goes on to describe? From the report of a Committee of the Society appointed for the purpose, we see that three

gold medals for geographical work have been awarded this year. The first was granted to M. Alphonse Milne-Edwards for his submarine investigations; the second to M. Thouar for his journey to the Grand Chaco in search of the survivors of the Crevaux Mission; and the third to M. Charnay for his explorations and archeological discoveries in Yucatan. The last paper in the number is composed of a series of extracts from the letters of Abbé Desgodins on the boundary region between Thibet, Burmah, Assam, and China.

THE Danish gunboat *Fylla* returned from the Arctic regions to Orkney last week, having been sent out by the Danish Government on an exploring and surveying expedition. She has had a most satisfactory voyage, occupying nearly four months, and extending along the whole coast of Greenland to 70° N. lat. Her work included a scientific exploration of the inland glaciers in that country, and dredging, trawling, and meteorological observations there and in Davis Straits, Baffin's Bay, and Disco Bay. Many hitherto unknown specimens were brought up by the dredging, the greatest depth being 900 fathoms. Valuable collections have been brought home by the ship in all the scientific sections. The members of the expedition speak in high terms of their collections, which include a meteoric stone estimated to weigh about 2000 lb.

LIEUT. GREELY, in connection with his paper at the British Association, took occasion to say that the fact that had surprised him was the discovery that when the tide was flowing from the North Pole it was found by his observations that the water was warmer than when flowing in the opposite direction. He took trouble to have an elaborate set of observations showing this wonderful phenomenon prepared, which would be eventually published. To him the peculiarities were unexplainable.

A CORRESPONDENT of the *Standard* writes:—"On July 26 the lighthouse-keeper at Cape Reykjanes, the south-west point of Iceland, on scanning the sea with his glass, saw what he at first took for a very large ship, but which a closer inspection showed to be a new island. It had the form of a rounded flattened cone, was of considerable size, and lay, according to his estimate, about fourteen miles north-west of the volcanic island Eldey, or the Mealsack (Melsekken), which lies eight miles off Reykjanes to the south-west. Several earthquake shocks had been felt during the preceding days, and they have since occurred at intervals, but no other volcanic manifestations heralded or attended the rise of the island from the deep. Owing to the danger of approaching the island in an open boat, no one has as yet attempted to land on it. The light-keeper has observed it from day to day when not prevented by foggy weather, and reports no change in its appearance save that a large part of one side of the cone appears to have slipped or fallen down into the sea. From time to time since the colonisation of Iceland, volcanic islands have sprung up out of the waves in the neighbourhood of Reykjanes, only to disappear again after a brief period. In the end of last century an island arose at or near the same place as the present one occupies, and was taken possession of by the Danes, under the name of Njoc (New Island), but as it consisted only of loose volcanic ash and pumice the action of the waves speedily broke it down, and after little more than a month it disappeared as mysteriously as it had arisen."

OUR ASTRONOMICAL COLUMN

VARIABLE STARS.—Several papers upon these interesting objects have lately appeared in the publications of scientific bodies:—

(1) "A Catalogue of known Variable Stars, with Notes," by Mr. J. E. Gore, in the *Proceedings* of the Royal Irish Academy, vol. iv. Mr. Gore has brought together particulars relating to about 190 stars, including their positions for 1880, the limits of magnitude, mean periods, and epochs of maximum and minimum, for the most part taken from Schönfeld's Catalogue of 1875; indeed, this Catalogue is the source of much of the information contained in Mr. Gore's paper. His summary will be very useful to those who are entering upon the study of the variable stars; some corrections are needed, but they are not of very much importance. Observations by himself of several of the stars are added in the notes following the Catalogue, and others by various observers made since Schönfeld's last Catalogue was published. The positions as printed have a lame

appearance, from being given to seconds of time in right ascension and to seconds in declination: if the right ascension of an object is assigned to the nearest second of time, the more legitimate expression of the declination is to the nearest tenth of a minute. The reference to the fancied identity of "the Biblical star of the Magi" with Tycho's celebrated star of 1572 seems out of place.

(2) "Recent Observations of Variable Stars," presented by Prof. Pickering to the American Academy of Arts and Sciences. The author had previously issued a pamphlet and a circular from the Harvard College Observatory, in the hope of promoting a more systematic observation of the variable stars, and in response has received communications from a number of observers who have expressed their willingness to join in his scheme of observations. In the paper in question Prof. Pickering has brought together the results of observations of variable stars for 1883, so far as he had them at hand, to show the nature of the information which he desires to obtain in order to be in a position to issue a further circular early in 1885. It should be mentioned that Mr. S. C. Chandler is preparing a bibliography of the variables, which will eventually furnish the means of forming a catalogue of all the stars now known to be in a state of change, to a much more reliable extent than hitherto; such a work cannot fail to be of vast assistance to any one desirous of looking up the history of particular stars, which is now an operation attended with much trouble and uncertainty. With regard to his next circular, Prof. Pickering hopes that observers of variable stars, whether professional or amateur, will be generally disposed to furnish information on the following subjects—(a) the method of observation, if photometric, some account of the instrument, and the manner of using it; if not photometric, whether the observations are made by Argelander's method, or by direct estimation of magnitude; (b) stars observed in 1884, with the number of nights on which each was observed; (c) the time and form of publication contemplated by the observer; (d) plans for 1885, naming the stars selected and the number of nights on which it is proposed to observe them. This information it is desired to receive at Harvard College Observatory by February 1, 1885, as well as any material which may be useful towards making the table for 1883 more complete. Prof. Pickering's first table gives the positions of the variable stars for 1875, with the limits of magnitude and the periods; also the discoverer and year of discovery, with references to observations made in the years 1880-83. In a second table is a list of suspected variables extracted from Mr. Chandler's unpublished catalogue.

3. The Rev. T. E. Espin publishes in the *Transactions* of the Liverpool Astronomical Society "A Catalogue of the Magnitudes of 500 Stars in Auriga, Gemini, and Leo Minor," which have been determined from photographs taken by means of the equatorial stellar camera at the Society's Observatory. The apparatus was placed at the disposal of the Society by Mr. Howard Grubb. The magnitudes determined from the photographs are entirely based on those of Argelander. It is stated that the deduced magnitudes of 341 stars out of the 500 agree within 0.4 m. with those of Argelander, while in twenty-five cases the differences exceed a whole magnitude. The nebulae M 35 and 51 have been photographed after exposures of 2h. 55m. and 2h. 0m. respectively, as also the cluster Præsepe, of which the photographs show the smallest of Argelander's stars, and some which do not occur in the *Durchmusterung*. Two stars are noted as presenting indications of variability: viz. 41<sup>b</sup>, 1222 in Auriga, which was 8.6 m. on March 19, but was not found on a plate taken a few nights afterwards; and 33<sup>b</sup>, 1895 in Leo Minor. Mr. Espin concludes with the remark, "The difficulty of reducing the stars to Argelander's scale is complicated, from the fact that near the *minimum visibile* the bluer stars alone are photographed, the yellowish ones disappearing."

COMET 1884 *b* (BARNARD).—The following positions for Berlin midnight have been calculated by Herr Stechert from his elements (NATURE, p. 431).

	R.A.	Decl.	Distance from Earth	Light
	h. m.	° ' "		
Sept. 15 ...	19 21.4	-29 23	0.703	0.76
17 ...	19 29.3	28 43	...	...
19 ...	19 37.1	28 1	0.729	0.69
21 ...	19 44.7	27 19	...	...
23 ...	19 52.2	26 35	0.759	0.62
25 ...	19 59.5	25 52	...	...
27 ...	20 6.7	-25 8	0.792	0.55