material having been collected by Drs. von Fritsch and Rein. The new types are not very numerous, but the remarkably wide distribution of spider-species is confirmed; and good illustration afforded of the influence of climate and other local conditions in modifying type forms. Dr. Rein describes some plants found in the neighbourhood of Mogador, and also furnishes a sketch of the vegetation of the Bermudas. A new species of perforating cirripede, *Kochlorine hamata* N., is described by Dr. Knoll; M. Scheidel contributes a note on lake dwellings and their inhabitants; and there are interesting accounts of journeys to Iceland, and to the Puglia Petrosa, in Italy.

WE have received the first Annual Report of the "Haileybury Natural Science Society." It contains preliminary lists of the fauna and flora of the place, together with observations on the meteorology of the locality, and a humorous description of an experimental dinner at which the principal dish consisted of esculent snails which had been specially fed and fattened for the purpose by certain members of the Society. It need scarcely be added, that the repast amply rewarded the members for their generous devotion to the cause of Science.

THE additions to the Zoological Society's Gardens during the past week include three Mauge's Dasyures (*Dasyurus maugæi*) from Australia, presented by Mr. J. Shaw; two Vulturine Guinea Fowl (*Numida vulturina*) from East Africa, presented by Dr. J. Kirk; a Chilian Sea-Eagle (*Geranoaëtus aguia*) from Bahia, presented by Mr. J. Judge; an Indian Leopard (*Felis pardus*) presented by Mr. G. D. Elphinstone; two Orang Outangs (*Simia satyrus*) from Borneo, and a Ungko Gibbon (*Hylobates variegatus*) from Sumatra, deposited; two Wanderoo Monkeys (*Macacus silenus*) from the Malabar Coast; a Brown Monkey (*Macacus brunneus*) and two Adjutants (*Leptoptilus argala*) from India, two Pheasant-tailed Pigeons (*Macropygia phasianella*) from N.S. Wales, and two Jambu Fruit Pigeons (*Ptilonopus jambu*) from the Indian Archipelago, purchased.

SCIENTIFIC SERIALS

American Journal of Science and Arts, December 1873.—In a paper on the magnetic permeability (that is "conductivity," according to Faraday), and the maximum of magnetism of iron, steel, and nickel, by Mr. Henry Rowland, C.E., the results are expressed, and the reasoning is carried out in the language of Faraday's lines of magnetic force. The quantity introduced, in mathematical theories of induced magnetisation, depending on the magnetic properties of the substance, is in these treated as a constant; but it was shown, in twelve cases of iron and two of nickel, to vary between wide limits. The author finds that the magnetisation of good iron can never exceed 175,000 times the unit magnetic field (on the metre, gramme, second, system), nor can nickel exceed 63,000 times; and from these data, and with aid of a formula of Prof. Maxwell's for tension of lines of force, it is inferred that the greatest weight which can be sustained by an electro-magnet with an infinite current, is, for iron, 354 lbs. per square inch of section, and for nickel 46 lbs. The results of experiment closely agreed with this.—Prof. Henry Draper communicates a note on diffraction-spectrum photography, accompanied with a photograph printed by the Albert-type process. (See NATURE, vol. ix. p. 223.)—We note several geological papers, one of them, by Prof. Fontaine, describing a remarkable deposit of bituminous matter, termed Grahamite, in Ritchie County, West Virginia, chemically resembling the mineral Albertite of New Brunswick, but differing considerably from this in its geological relations.—The age of the Lignitic formation of the Rocky Mountain region is far from decided, owing to the contrary evidence afforded by fossil plants and animals; and the editors propose to cite the arguments from various sources, in order, if possible, to bring about agreement. They give in this number the conclusions of M. Lesquereux from fossil plants. He refers the Lignitic beds to the Upper and Lower Eocene; and he gives a number of facts showing the disconnection of American Eocene flora from that of the Cretaceous, indicating truly separate formations.—Mr. Comstock describes the geology of Western Wyoming.—Mr. Verrill communicates the results of a recent dredging expedition on the coast of New England. It was ascertained that the body of cold bottom water approaches so nearly to the Coast of Maine as to manifest itself distinctly within twelve or fifteen miles of Cape Elizabeth, both by its highly Arctic fauna, and its icy temperature, even in summer.—In a letter from Cordoba, dated Sept. 8, 1873, Dr. Gould describes a remarkable swarm of locusts then occurring.

Astronomische Nachrichten, No. 1970, Jan. 14, contains the following papers:—On the determination of longitude by star-occultation and the telegraphically determined longitude between Madras, Singapore, and Batavia, by Dr. Oudemans. The author mentions his observations in 1859 as giving a longitude for Batavia of 7h. 7m. 12·5 s., also others in later years giving rather a less result. In 1870-71, however, the telegraphic communication with Singapore was used, giving a mean result of 11m.40·895 s. longitude from that place. The same author gives a note on Kaiser's original proof of Foucault's pendulum researches. The proof is given by Prof. Oudemans, by which the plane of motion of the pendulum moves in azimuth in 1 sec., $15''.\sin\phi$. It is too long to give in full here, but appears simple and good. Prof. Oudemans has also two other papers on position observation made during the eclipse of Dec. 1871 at Java, and on the Spheroidal form of the earth, which consist chiefly of equations and tables which we have not space to introduce.—Dr. Holetschek gives ephemerides of a number of the minor planets.

Der Naturforscher, December 1873.—This number contains notes from the Bothkamp Observatory. In one of them M. Vogel gives observations of the spectra of several fixed stars, comparing the results obtained by Huggins and Miller. Another treats of periodic changes in the atmosphere of Jupiter. The observation that the occurrence of certain coloured stripes in Jupiter, and of bright egg-shaped spots in his equatorial zone coincided with the maximum epoch of sunspots, appears to be confirmed by a number of fresh data collected by the writer, Dr. Lohse. A third note describes observations of Venus in 1871-73, by M. Vogel, who thinks it probable that the planet is surrounded with an atmosphere in which floats a thick and dense layer of condensation products, so that little insight is afforded to the planet's surface, and the observation of spots helps but little to ascertaining the time of rotation or the position of the axis of rotation.—In physics, we have a note on the curious fact which M. Budde has recently studied, viz., that chlorine, when acted on by very refrangible rays of light, undergoes expansion and heating. Some experiments, made by M. Hirn, on the optical properties of flame, tend to show that flame is not perfectly transparent to light (as Arago and M. Offret have affirmed), but that particles in the glowing state are; the weakening of light in its transmission through flames is due to the various refractions it undergoes, and consequent dispersion. The author is led to some speculations on the sun's temperature, and he puts the case thus: If the glowing parts of the photosphere are intransparent, the temperature must (according to mathematical calculation), be nearly six million degrees; if they are transparent it must be considerably less; and the lower, the greater the transparency. The problem is one for experimental physics, the question being, Are all solid or liquid bodies transparent and diathermanous when brought to a very high temperature? M. Hirn, we have seen, inclines to reply in the affirmative. We find accounts of Prof. Guthrie's discovery of a new relation between heat and electricity, and M. Herwig's experiments on pulverisation of electrodes in the voltaic arch.—Chemistry is represented by papers on the laws governing water of crystallisation, and the reduction of carbonic acid by phosphate of iron.—The action of camphor on plant life has been recently studied by M. Vogel at Munich, in a series of experiments which confirm an almost forgotten observation by Barton in the last century, that camphor has a stimulant effect on plants analogous to that of spirituous liquors or opium, in certain quantity, on the human system. There are also botanical notes on the influence of CO_2 on verdant growth of plants (M. Böhm), and on the geographical distribution of the Cupuliferæ (M. Oersted); and, in technology, M. Riche discusses the physical properties of certain alloys.