

jubilee or festival number of its *Proceedings*. It was founded in 1834, at the end of which year it had 27 members, and in 1835 it was reorganised and called Isis. During the first thirty years of its existence the Society was fortunate in having in keeping a single president, Dr. Reichenbach, whose lectures were mainly instrumental in the formation of the Society. In 1860 the twenty-fifth anniversary of the founding was celebrated with much ceremony, and as the occasion was also Reichenbach's jubilee, the double event was commemorated by the establishment of a memorial fund which bore his name, and the income from which was to be devoted to the support of a Saxon student travelling for zoological investigation. A record was then issued of the work of the Society so far; the number before us carries on the story for another twenty-five years, thus completing the history of the half century. The 27 members of 1835 have swollen to about 465 in 1885, and progress in other directions has been in proportion. In addition to the secretary's record of the advances of the last quarter of a century, the *Festschrift* contains a paper by Prof. Stelzner on the development of the methods of petrographic investigation during the last fifty years, and one by Herr Töpler on the history of discoveries in electromagnetism and inductive electricity. Most of the remaining papers deal with local science, such traces of animals in the coal formations of Zwickau, and several others on subjects connected chiefly with Dresden and its neighbourhood. The Society starts on the second half of the first century of its existence with ample vigour and promise of an unlimited lease of existence and activity.

ON May 22, at about 6.30 p.m., a mirage was seen from Visby, on the island of Gothland, in the Baltic. It appeared out at sea, on the western horizon, and represented a town on both sides, surrounded by high forest-clad mountains, which seemed to be within a distance of only a few miles. A large vessel with three masts lay in front of the town. The mirage lasted a couple of minutes, when it suddenly disappeared.

ONE hundred thousand shad have been reared in the United States during the last year, to say nothing of other species of fish, the exact number of which it is impossible to compute. It will be remembered that the shad was once exceedingly prolific in the Thames, but owing to the impure state of the river their numerical proportions have decreased to a very large extent. The Fish Commissioners of America have acted wisely in acclimatising the shad to their own waters, it being a valuable fish and easy of cultivation.

A SHORT time since we commented upon the enormous quantities of rats which infested the Health Exhibition, but which entirely disappeared shortly after it closed. Soon after the present Inventions Exhibition opened, these pests commenced to reappear, and their numbers are daily increasing. The authorities would do well to check their movements before they assume gigantic proportions.

ALTHOUGH the Professorship of Anatomy and Histology at the University of Lund has been twice officially announced vacant no applicant has come forward. It will now have to remain unoccupied till 1886.

THE Mexican Government has at length determined to undertake a geological survey of the whole country, as far as practicable. 10,000 dollars have been assigned for preliminary expenses.

WE have received from Messrs. Theiler and Sons specimens of their Universal Pocket Microscope and their Demonstration Microscope. The former magnifies 50 diameters, while the latter, intended for "schools and the drawing-room," has three powers—30, 100, and 150 diameters. They are both very admirable contrivances, and should be in the hands of all young people. The definition and achromatism of the Demonstration Microscope are perfect.

THE additions to the Zoological Society's Gardens during the past week include two Javan Cats (*Felis javanensis*), a Marbled Cat (*Felis marmorata*) from Malacca, presented by Mr. Frank Swettenham; a Common Marmoset (*Hapale jacchus*) from Brazil, presented by Dr. L. Morgan; a Slender-billed Cockatoo (*Cacatua tenuirostris*) from Australia, presented by Mrs. E. H. Watson; two Tuatera Lizards (*Sphenodon punctata*) from New Zealand, presented by Prof. T. J. Parker; a Smooth Snake (*Coronella laevis*), a Common Viper (*Vipera berus*), British, presented by Mr. W. H. B. Pain; a Slender-billed Cockatoo (*Cacatua tenuirostris*) from Australia, thirteen Tuatera Lizards (*Sphenodon punctata*) from New Zealand, deposited; an Osprey (*Pandion haliaetus*), caught in the North Sea, purchased; a Darwin's Rhea (*Rhea darwini*) from Patagonia, received in exchange; a Hog Deer (*Cervus porcinus* ♂), two Four-horned Antelopes (*Tetracerus quadricornis*), two Prairie Marmots (*Arctomys ludovicianus*), two Long-fronted Gerbilles (*Gerbillus longifrons*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

THE OBSERVATORY OF PARIS.—Rear-Admiral Mouchez has issued his report on the work of this establishment during the year 1884. The completion of the re-observation of Lalande's stars has led to a new disposition of the meridian-instruments, one of which, on the proposal of M. Lœwy, is now occupied with the determination of a number of circumpolar stars on his new method; the great meridian-circle and the circle of Gamby are still employed for observations of the minor planets, and of comparison-stars for planets, comets, and nebulae observed with the equatorials. The great telescope of 0.74 m. is still unmounted, no suitable position being available in the present state of the grounds of the Observatory. M. Mouchez mentions having received communications from the authorities in Algeria, referring to the possibility of obtaining from the local budget the greater part of the sum that would be required to mount the instrument at the Observatory of Algiers on the summit of the Boudjaréah—an exceptionally favourable situation, which might be visited by the astronomers of the Paris Observatory for special observations, but the Council of the latter institution have not availed themselves of the proposition, in the hope that the equatorial may yet be erected at Paris. Amongst the observations made with the instruments in the west tower and the Henry equatorial, are many of the satellites of Uranus and Neptune, the companion of Sirius, the belts of Uranus, nebulae, and double-stars. MM. Henry have been occupied with astronomical photography during the year, and, as is well known, with great success; various clusters of stars have been photographed, and M. Mouchez appends to his report a reproduction by heliogravure of a plate of the great clusters in Perseus. A trace of the motion of the minor planet Pallas was shown after an exposure of thirty-five minutes. The important results obtained by MM. Henry in photographing very small stars in those crowded parts of the heavens where the Galaxy crosses the ecliptic have been already referred to in this column. Steady progress has been made both with the calculations and printing of the Paris Catalogue of Stars, and it is expected that the first volume of both series (star-positions as observed, and catalogue) will be completed by the end of the year. Vol. xviii. of the *Mémoires* is finished. The Report further details the personal work of the members of the Observatory staff. Amongst the additions to the Museum is a portrait of Pons, presented by M. Tempel.

The Report for the year 1884 is preceded by one which enters specially into the present condition of a scheme for removing the principal instruments in the Observatory to a site where not only greater steadiness can be secured in their mounting but where the objections of being surrounded by a great city will not exist. It appears that the Academy of Sciences have not, so far, favoured this scheme. M. Mouchez states very clearly his view of the question.

THE COMET TEMPEL-SWIFT (1869-80).—M. Bossert, of Paris, is engaged upon the determination of the orbit of this comet, which may be expected to reach perihelion again about May, 1886, the period of revolution being rather less than 5½ years. Since the last perihelion passage on November 8, 1880,

the perturbations are not likely to have been material, and should the comet arrive at its least distance from the sun early in May the chances of reobservation will be very small indeed, the longitude of perihelion being in 43° , and the inclination of the orbit to the ecliptic less than $5\frac{1}{2}^\circ$.

ASTRONOMICAL PHENOMENA FOR THE WEEK, 1885, JUNE 7-13

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on June 7

Sun rises, 3h. 47m.; souths, 11h. 58m. 35's.; sets, 2oh. 10m.; decl. on meridian, $22^\circ 48' N.$; Sidereal Time at Sunset, 13h. 15m.

Moon (New on June 12, 23h.) rises, oh. 56m.; souths, 7h. 3m.; sets, 13h. 22m.; decl. on meridian, $0^\circ 41' N.$

Planet	Rises h. m.	Souths h. m.	Sets h. m.	Decl. on meridian
Mercury ...	2 59 ...	10 34 ...	18 9 ...	17 10 N.
Venus ...	4 17 ...	12 38 ...	20 59 ...	23 57 N.
Mars ...	2 34 ...	10 14 ...	17 54 ...	17 58 N.
Jupiter ...	9 51 ...	17 1 ...	0 11*	12 52 N.
Saturn ...	4 31 ...	12 40 ...	20 49 ...	22 26 N.

* Indicates that the setting is that of the following day.

Phenomena of Jupiter's Satellites

June	h. m.		June	h. m.	
7	20 42	I. ecl. reap.	11	20 36	II. occ. disap.
8	0 2	IV. tr. ing.	13	22 0	I. tr. ing.

The Phenomena of Jupiter's Satellites are such as are visible at Greenwich

June	h.		
11	1	Mars in conjunction with and $3^\circ 51'$ north of the Moon.	
11	16	Mercury in conjunction with and $2^\circ 47'$ north of the Moon.	
13	6	Saturn in conjunction with and $4^\circ 3'$ north of the Moon.	
13	17	Venus in conjunction with and $5^\circ 48'$ north of the Moon.	

GEOGRAPHICAL NOTES

THE Pamir is the subject of another contribution, by M. Ivanoff, to the last issue of the *Ivestia* of the Russian Geographical Society. Several objections having been made to his views on the Pamir, already mentioned in NATURE, and especially to his tendency of limiting the name of Pamir to the eastern part of the great Central Asian mountain mass. M. Ivanoff answers by a paper accompanied by a map of the Pamir, on which the whole of the region is represented; the chains of mountains being drawn, however, merely schematically, which circumstance is a great obstacle to catching on the map their real characters. He insists on the fact that the denominations "Great" and "Little Pamir," introduced by Messrs. Gordon and Trotter, are not known to those natives who are best acquainted with the region, and they lay altogether too much stress upon the names in use among Kirghizes. He thus limits the discussion as to what must be considered as the Pamir, which discussion had been so very well put by his former orographical papers on its proper ground—that of physical geography—where it obviously must remain. We notice in the same issue a paper by M. Wolter on the Prussian Lithuanians; and a preliminary report, by M. Sorokin, on his journey in Russian Tian-Shan.

THE new and promising route to Central Asia from the Mortvyi Kultuk Gulf of the Caspian via the Ust-Urt to Kungrad is the subject of an interesting paper read by M. Belavskiy before the Russian Geographical Society, and analysed in the last issue of the *Ivestia* (xxi. 2). Until lately the Mortvyi Kultuk was considered too shallow for navigation, east winds being said to reduce its depth to 3.5 feet. Recent soundings proved, however, that the usual depth being about 9 feet, no winds reduce it more than to $4\frac{1}{2}$ feet; in fact, flat steamers freely navigate the gulf. Those which do not take more than $4\frac{1}{2}$ feet of water approach the shores for 60 to 230 yards at Ayrakly. From that port, which has sweet-water wells, the route goes on to the Ust-Urt plateau. The Ust-Urt was formerly considered as quite dry, and as having

a very severe climate. But this belief was exaggerated. Water is found at each 10 to 13 miles; there are also pasture-grounds, and neither the cold in winter nor the heat in summer is excessive. This last is moderated by winds. The *saksaoul*, brushes, and the excrement of camels give the necessary fuel. On the whole stretch, 270 miles long, from the Mortvyi Kultuk to Kungrad, there is no difficulty in crossing the Ust-Urt in carriages, and want of water is felt only near Kungrad. From this town steamers may ply on the Amu-daria; a steamer has already gone up the river to Khodja-Sala. Moreover, a route, available for carriages, runs along the left bank of the river. On the whole this new route has already proved to be more advantageous for the transport of merchandise from Bokhara to Russia than the old one via Orenburg.

FROM a communication to the Russian Geographical Society, made by Dr. Dybovskiy, it appears that the Commodore Islands—Behring, Copper, and two smaller ones—situated 300 miles east of Kamschatka, ought to be regarded in a better light than they have been hitherto. Behring Island is covered with excellent prairies, and Dr. Dybovskiy is sure that agriculture could be carried on it. The southern part of this island is hilly, and reminds one of the alpine regions of Kamtschatka. No forests, but only shrubs of the *Rhododendron Sorbus*, and so on, grow on the islands; but the explorer's experiments of planting forest-trees proved quite successful. The higher tracts offering excellent grazing grounds for reindeer, a number of these last were imported in 1882, and the experiment of acclimatizing them on the island proved also quite successful. The narrow valleys of Copper Island are also considered quite suitable for agriculture. The islands are formed of crystalline rocks covered with Tertiary deposits; they contain copper ore and brown coal, of course unworked. Fuel is brought from Kamtschatka. The climate is far milder than on the peninsula, and while in May snow a yard thick lay at Petropavlovsk, vegetables are freely grown on the islands. Snow is altogether so scanty that horses brought on to Behring Island were feeding throughout the winter on the prairies. The fauna of the islands has been well explored by M. Dybovskiy. The flora is much like that of the alpine regions of Kamtschatka. The inhabitants, all Aleutes, 514 in number, live in wooden houses. They are all Christians, and can read.

THE attention of geographers and men of science ought to be called to several numbers of the *Archiv für die naturwissenschaftliche Landesdurchforschung von Böhmen*, which have recently been issued (Prague: Franz Rzonatz). The numbers of most interest to geographers pure and simple are those forming the first division of the third volume, and containing a list of the heights in Bohemia trigonometrically determined by the Imperial Institute of Military Geography in the years 1877-79. Numbers 2 to 6 of the fourth volume deal with the geology and botany of Bohemia, and numbers 1 to 3 of the fifth volume are also devoted to geology. The monographs composing this work are said to constitute a real treasury of information concerning the physical conditions and natural resources of the Austrian Crownland of which it treats.

AT the last meeting of the Paris Geographical Society a communication was read from Capt. Sorensen respecting his visit last year to Spitzbergen. It contained numerous observations on climatology and the configuration of the coasts (especially in correction of the English charts). His remarks with regard to the state of the ice during the spring are of special interest. He found the ice around Spitzbergen very different from what he had observed in previous years. Usually the western side is accessible at the commencement of the season, viz., May and June. Drifts are to be met with, but they disappear about the middle of June, or, at the latest, in the beginning of July. Last year, on the other hand, the west coast was blocked by ice the whole summer through. No captain can recollect having ever encountered such a mass of ice on this coast. The Norwegians have observed that for three years past the melting of the ice has grown later year by year. On the east coast the sea is generally full of icebergs, but it was wholly free from them last year. Off Barentz Island also the sea was free from ice, and one of the captains who penetrated farther to the east discovered two islands. Capt. Sorensen suggests, therefore, that Spitzbergen and Franz-Josef Land form parts of a vast archipelago, and not two wholly distinct territories, as has hitherto been believed. He promises during coming years to continue his meteorological observations in his annual visits to these regions.