

MR. F. MOORE, having completed the "Lepidoptera of Ceylon," has now in preparation a much more extensive work comprising the Lepidopterous insects of the entire Indian region. It will be issued in monthly parts, to subscribers only, by the publishers of his previous work, Messrs. L. Reeve and Co.

MR. H. T. OMMANEY, C.S., of Karwar, has sent to the Bombay Natural History Society a full-grown live specimen of the Hamadryad, or King Cobra (*Ophiophtagus elaps*). The reptile, which measures about 12 feet in length, is jet black, with faint cream-coloured bars across its back. The throat is of a golden-yellow colour.

A NEW "Catalogue of Mathematical Books," including many of the works of the old mathematicians, has been issued by Messrs. Macmillan and Bowes, Cambridge.

DR. OVERBECK, who owns part of the collections that originally belonged to Alexander von Humboldt, has sent a report about them to the Saxe-Thuringian Naturalists' Society at Halle. He enumerates 290 objects. Dr. Overbeck intends to present Humboldt's collection of minerals to the Mineralogical Museum of Halle University.

THE additions to the Zoological Society's Gardens during the past week include three American Flying Squirrels (*Sciuropterus volucella*) from Florida, presented by Mr. Henry D. Harrison; two Great Eagle Owls (*Bubo maximus*), European, deposited; two Common Wolves (*Canis lupus* ♂ ♀), European, received in exchange.

OUR ASTRONOMICAL COLUMN.

THE NATAL OBSERVATORY.—Mr. Neison, Superintendent of this Observatory, has issued his Report for 1886, and it appears from it that the astronomical work during that year was almost wholly confined to routine observations with the transit instrument, though the meteorological observations were carried on as usual. This partial suspension of activity was due to the fact that only one assistant is now on the staff, and that, through the severe illness of the Superintendent during the first part of the year and his enforced absence in England during the latter part, the assistant, Mr. Grant, was left practically single-handed. The present year will probably show better results, as Mr. Neison returned to his post before the close of 1886, and several needed instrumental improvements and repairs had been successfully carried out. Mr. Neison had commenced an important work connecting the fundamental declinations of the star catalogues of the northern and southern observatories, by means of observations of the differences in zenith distance between 32 selected stars which cross the meridians of the great northern observatories near their zeniths on the one hand, and a set of corresponding southern circumpolar stars on the other.

OLBERS' COMET, 1887.—The following ephemeris for Berlin midnight for this object is in continuation of that given in NATURE of December 1, p. 37:—

| 1887. | R.A. | Decl. | Log r. | Log Δ. | Bright-ness. |
|------------|----------|------------|--------|--------|--------------|
| | h. m. s. | ° | | | |
| Dec. 17... | 16 7 41 | 2 47' 2 N. | 0'1990 | 0'3593 | 0'63 |
| 19... | 16 12 21 | 2 18' 4 | | | |
| 21... | 16 16 56 | 1 50' 5 | 0'2090 | 0'3645 | 0'59 |
| 23... | 16 21 25 | 1 23' 5 | | | |
| 25... | 16 25 48 | 0 57' 3 | 0'2190 | 0'3695 | 0'55 |
| 27... | 16 30 6 | 0 31' 9 | | | |
| 29... | 16 34 19 | 0 7' 4 N. | 0'2290 | 0'3741 | 0'51 |
| 31... | 16 38 27 | 0 16' 2 S. | | | |
| 1888. | | | | | |
| Jan. 2... | 16 42 30 | 0 39' 0 | 0'2389 | 0'3783 | 0'48 |
| 4... | 16 46 27 | 1 1' 2 | | | |
| 6... | 16 50 20 | 1 22' 7 S. | 0'2486 | 0'3821 | 0'45 |

PROBABLE NEW CLASS OF VARIABLE STARS.—The Rev. T. E. Espin considers that a number of our variable stars possess characteristics which justify their being formed into a separate class. They are irregular both in period and variation, the latter being usually about 1½ mag., and they show spectra

of Secchi's fourth type, i.e. like No. 152 Schjellerup. Their changes in brightness are rapid and uncertain. Mr. Espin names 19 Piscium, Birmingham 277, 521, 535, 541, and Espin 116, 154, as belonging to this new class, which perhaps embraces also Birmingham 85, 120, 121, 240, 290, 418, 464, 483, and 502.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1887 DECEMBER 18-24.

(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 December 18

Sun rises, 8h. 4m.; souths, 11h. 56m. 45' 5s.; sets, 15h. 50m.; right asc. on meridian, 17h. 43' 9m.; decl. 23° 24' S. Sidereal Time at Sunset, 21h. 38m.
Moon (at First Quarter on December 22, 7h.) rises, 10h. 48m.; souths, 15h. 23m.; sets, 20h. 4m.; right asc. on meridian, 21h. 10' 7m.; decl. 16° 43' S.

| Planet. | Rises. | | Souths. | | Sets. | | Right asc. and declination on meridian. | |
|-------------|--------|-------|---------|-------|-------|-------|---|--|
| | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. | h. m. | |
| Mercury.. | 6 35 | 10 44 | 14 53 | 16 31 | 17 11 | 21 4 | 4 S. | |
| Venus ... | 3 48 | 8 48 | 13 48 | 16 34 | 17 16 | 12 16 | 16 S. | |
| Mars ... | 0 38 | 6 39 | 12 40 | 12 25 | 12 56 | 0 37 | 3 S. | |
| Jupiter ... | 5 17 | 9 44 | 14 11 | 15 30 | 16 18 | 18 9 | 9 S. | |
| Saturn ... | 18 59* | 2 47 | 10 35 | 8 32 | 8 19 | 19 16 | N. | |
| Uranus... | 1 43 | 7 16 | 12 49 | 13 25 | 13 58 | 5 58 | S. | |
| Neptune. | 14 16 | 21 56 | 5 36* | 3 44 | 3 18 | 1 18 | N. | |

* Indicates that the rising is that of the preceding evening and the setting that of the following morning.

Occultation of Star by the Moon (visible at Greenwich).

| Dec. | Star. | Mag. | Disap. | Reap. | Corresponding angles from vertex to right for inverted image. |
|--------|--------------|------|--------|-------|---|
| | | | h. m. | h. m. | ° |
| 18 ... | ♄ Capricorni | 4½ | 17 58 | 18 59 | 103 35° |

December 22.—Sun at greatest declination south; shortest day in northern latitudes.

Variable Stars.

| Star. | R.A. | | Decl. | h. m. |
|--------------------|-------|-------|-------|------------------|
| | h. m. | h. m. | | |
| U Cephei ... | 0 52 | 3 81 | 16 N. | Dec. 21, 23 44 m |
| λ Tauri... .. | 3 54 | 4 12 | 10 N. | „ 18, 22 54 m |
| ζ Geminorum ... | 6 57 | 4 20 | 44 N. | „ 22, 21 46 m |
| | | | | „ 19, 22 0 m |
| | | | | „ 24, 22 0 M |
| R Canis Majoris... | 7 14 | 3 16 | 11 S. | „ 19, 2 19 m |
| | | | | „ 20, 5 35 m |
| S Cancri | 8 37 | 5 19 | 26 N. | „ 21, 23 57 m |
| δ Libræ | 14 54 | 9 8 | 4 S. | „ 18, 22 2 m |
| U Coronæ | 15 13 | 6 32 | 4 N. | „ 21, 18 29 m |
| R Serpentis | 15 45 | 5 15 | 29 N. | „ 21, M |
| β Lyræ... .. | 18 45 | 9 33 | 14 N. | „ 18, 2 0 m |
| Y Cygni | 20 45 | 6 34 | 10 N. | „ 20, 21 51 m |
| | | | | „ 23, 21 45 m |
| δ Cephei | 22 25 | 0 57 | 50 N. | „ 23, 2 0 M |

M signifies maximum; m minimum.

Meteor-Shower.

| | R.A. | Decl. |
|------------------------|-------|-------|
| | h. m. | h. m. |
| Near λ Ursæ Majoris... | 130 | 49 N. |

GEOGRAPHICAL NOTES.

THE new number of *Petermann's Mitteilungen* contains a letter from Dr. Hans Meyer, written from Taveta, at the foot of Kilimanjaro, giving some details of his ascent of that mountain, and the results of his observations; it is accompanied by a sketch-map. Dr. Meyer, with one white companion and twenty-two natives, started from Mareale's village, at the south foot of the mountain, in the beginning of July, and proceeded to mount the southern slopes. At 1800 metres the last bananas were passed, and at 2000 metres the saturated forest belt was entered, which on the second day was left behind. Immediately above this stretches a broad belt of grass,

and here a north-west line was struck, and for two days the upper edge of the forest was skirted. On the second day Johnston's old camp was reached, where in the water-courses an abundance of large Ericaceous plants was found growing. Here the two beautiful peaks were seen for the first time, and thenceforth only partial glimpses were obtained through the prevailing clouds. Only eight men would go further than this, and when the snow-line was reached five of them refused to go further. On the third day a northerly route was taken over grass-covered lava-fields, with snow-streams sometimes cutting their channels 50 metres deep into the lava. Dr. Meyer made for the saddle which joins the two peaks of Kibo on the west and Kimawenzi on the east. After 6000 paces a level spur of the saddle was reached, where between the great blocks of lava the green meadows marked the upper course of the snow-streams. Here the last traces were seen of *Senecio Johnstoni* in the bed of a brook about 4000 metres high. About 2000 paces further up great cliffs of lava were met with, and here at the snow-line the tent was pitched. Thence, with his companion and three natives, photographic apparatus, and provisions for three days, Dr. Meyer proceeded to ascend to the Kibo crater. After 3000 paces a wild and shattered hill of lava, whence the lava-stream proceeded, was met with; this was the first of a series of such hills, between which the snow lay thick. Turning to the north-west the party made direct for Kibo over the old lava-streams, and at about 5000 metres reached the last cone of ashes before the ascent to the summit itself. Here the two white men encamped (the natives going back), with a night temperature of -11° C. Early next morning they made directly for the east side of the mountain over debris-covered lava, and came on great snow-fields in the spaces between the lava-hills. After a time sleet came on, and, as the sun got higher, clouds covered the mountain, and the temperature fell from $+8^{\circ}$ C. to -3° . Dr. Meyer's companion became so exhausted he had to drop behind, and he himself suffered greatly. Proceeding onwards, he met with more extensive snow-fields, and higher still with great ice-blocks, and a less steep stretch covered with ice-debris. Some 20 metres beyond this point he saw a great blue wall of ice rise before him to about 34 or 40 metres high, and evidently stretching all round the crater. In Dr. Meyer's exhausted condition, and without ice-axes, to ascend this wall, which evidently surrounded the crater, was impossible. So, after taking some hasty observations and notes, he began his descent, which was accomplished safely. As the wall seems to extend round the east, south, and west sides of the crater, Dr. Meyer concludes that probably the crater itself is filled with ice. It is remarkable that no snow seems to exist at all on the north side. Dr. Meyer promises to give full details on his return home to Leipzig, and these may render his account more intelligible to Alpinists.

OTHER articles in the new number are on "Temperature Abnormalities on the Earth's Surface," by Herr Rudolf Spitaler, accompanied by a map illustrative of the paper; and "Production of Tin in the Riouw-Tongga Archipelago," by Dr. Posewitz.

LIEUT. WISSMANN, whose health is not good, has given a preliminary account of his journey across Africa to the Berlin Geographical Society. He began with a very brief sketch of the first part of his journeyings, which consisted of his first voyage up the Kassai. By his last journey up the Kassai he has determined that its largest tributary is the Kwango. The Sankuru has only half the volume of water possessed by the Kassai above the confluence of the two rivers. From Lulua-burg, Wissmann began his great forward march to the north of the Sankuru and Lomami. A lengthened stay was made on the Lubi, and after crossing the Sankuru the party entered the region of virgin forests. These were found partially peopled by the savage Batetela and the Batua, the latter being the pygmies described in a previous number. Turning south, Wissmann passed through the territory of the marauding Ben Mona, and where on a former journey he found gigantic villages he now found the place depopulated by war and small-pox. From Nyangwe, Wissmann reached the East Coast by Lakes Tanganika and Nyassa, and the Zambesi. The latter part of the route was through hitherto unexplored territory. Lieut. Wissmann has been compelled to go to Madeira on account of his health, but we believe there is some likelihood of his appearing at the Royal Geographical Society some time next spring.

FROM the full report of recent explorations in Tierra del Fuego, to which we have recently referred in these notes, we have some further information as to the real character of the

region. The reports refer chiefly to the main island, which, instead of being a mountainous region of eternal snow, presents great diversity of surface—high mountains, deep valleys, rolling table-lands, fertile plains; numerous lakes, and frequent water-courses. Occupying a large portion of the extreme north, and extending from one extremity to the other of the straits, are continuous chains of mountains, running into peaks several thousand feet high. Adjacent to these mountains on the south is a wide belt of high and rather barren plain, running the entire width of the island. Then succeed lofty table-lands quite covered with forests. South of this is another chain of sierras, and still further south the country opens into an extensive plain, which occupies all the central portion of the island, and is quite desolate of trees except small patches here and there of hardwood and shrubs. The plain is covered in some parts with an abundance of rich grasses. The extreme south is also mountainous, some of the peaks being volcanic, with numerous glaciers and dense forests. The geological formation of Tierra del Fuego exactly corresponds to that of Patagonia. The broken and disjointed mountains, with wide seas running where they have been depressed, are but the continuation of the Andes; while the plains and uplands partake of the same geological characteristics as the Patagonian steppes.

AT Monday's meeting of the Royal Geographical Society the paper read was by Mr. D. D. Daly on his explorations in British North Borneo, in 1833-87. Mr. Daly's paper consisted mainly of an itinerary with minute details of the economic character of the country through which he travelled, and of the people. He gives some interesting information about the numerous bird-nest caves which he met with, and on the methods of collecting the nests. Most of the people are eager head-hunters, but Mr. Daly made treaties with several of the tribes in which they undertook to give over the practice. Mr. Daly went in both from the east and the west side. In the former journey he went up the River Kinabatangan to the centre of North Borneo; in the latter he went a long distance up the Padas River.

ON THE METEORIC IRON WHICH FELL NEAR CABIN CREEK, JOHNSON COUNTY, ARKANSAS, MARCH 27, 1886.¹

THE Johnson County meteoric iron, the tenth whose fall has been observed, is of more than ordinary interest, because its fall is so well substantiated, because it is the second largest mass ever seen to fall, and, again, because it fell within five months of the date of the ninth recorded fall, that of the Mazapil. It is almost an exact counterpart of the Hraschina (Agram, Croatia) iron, the first of the recorded falls. The Agram iron fell in two fragments, one weighing about 40 kgm., and the other about 9 kgm., the combined weight being about equal to that of the Johnson County iron.

This mass fell about 6 miles east of Cabin Creek, Johnson County, Arkansas, in longitude $93^{\circ} 17' W.$ of Greenwich, latitude $35^{\circ} 24' N.$, within 75 yards of the house of Christopher C. Shandy. Mrs. Shandy states that about 3 o'clock on the afternoon of March 27, 1886, while in her house, she heard a very loud report, which caused the dishes in the closet to rattle, and which she described as louder than any thunder she had ever heard. At first she thought it was caused by a bombshell, and ran out of the house in time to see the limbs fall from the top of a tall pine-tree, which, she says, stands about 75 yards from her dwelling. She did not investigate the matter until her husband came home, about 6 o'clock in the evening, when, in company with John R. Norton, their hired man, they went out to find the cause of the noise that had so startled Mrs. Shandy. They discovered that a large hole had been made in the ground by some falling object. The iron had buried itself in the ground to the depth of 3 feet, and the earth around it to the thickness of 1 inch seemed to be burned. The ground was still warm when the iron was taken out, and the iron itself was as hot as the men could well handle.

The noise was heard 75 miles away, and was likened to a loud report, followed by a hissing sound, as if hot metal had come in contact with water. It caused a general alarm among the people, and teams of horses 25 miles distant, becoming frightened, broke loose and ran away; and in Webb City, Franklin County, on the south side of the Arkansas River, a number of bells kept on sale in a store are said to have been

¹ From the *American Journal of Science*, vol. xxxiii., Jun. 1887.