

continent of India by a network of triangles is now an accomplished fact, Mr. More, District Surveyor, having in November last finished his series of observations with the large theodolite. Nothing now remains but to reduce the observations, a work which it is anticipated will take about six months. Mr. More had enormous difficulties to overcome in his survey. The north of the island is so much covered with forests that he was compelled to erect lofty stages for his theodolite, at a height of from 40 to 70 feet above the ground; and the observed signals were in many cases 140 feet from the earth. All these stages had to be made on the spot, the appliances at hand being of the poorest description, and it was with the greatest difficulty that the structures thus made were kept at the necessary rigidity. The climate is so uncertain that the surveyors often watched for days without seeing a flash from the heliostat, and at other times every member of the working parties was prostrated by fever. As the observers approached the coast, stone towers were put up instead of timber stages, and these towers will serve not only as permanent survey stations, but as landmarks for those navigating the neighbouring waters. In all, eleven stone towers were erected, and very many wooden stages. Ceylon, by the completion of this trigonometrical survey, is now free from the reproach which it has lain under since the Indian surveyors finished their portion of the work. There is now a complete chain of triangles from Asiatic Russia to the south of Ceylon. The *Observer* adds that it is curious to note that exactly one hundred years ago (1787) a complete triangular connection was formed between Great Britain and France across the Channel under the superintendence of General Roy, R.E.

THE additions to the Zoological Society's Gardens during the past week include a Barrowing Owl (*Speotybo cunicularia*) from South America, presented by the Rev. Basil Wilberforce; a Vulpine Phalanger (*Phalangista vulpina* ♀) born in the Gardens.

OUR ASTRONOMICAL COLUMN.

O'GYALLA SPECTROSCOPIC CATALOGUE.—The systematic survey with the spectroscope, undertaken for the northern heavens several years ago, by Prof. Vogel and Dr. Dunér, the former examining the region from Decl. 1° S. to Decl. 40° N., and the latter that from Decl. 40° N. up to the Pole, has been now carried some considerable distance into the southern hemisphere by Dr. N. de Konkoly and his assistant, Dr. Kövesligethy; and the second part of the eighth volume of the O'Gyalla observations, which has recently appeared, contains a spectroscopic catalogue of the stars down to mag. 7.5, lying between Decl. 15° S. and the equator. The work was commenced in August 1883, and was completed in August 1886, 2797 spectra having been observed on ninety nights. A number of these were observed on more than one night, so that the resulting catalogue contains only 2022 stars. Vogel's arrangement of types was followed, so that the present catalogue is on the same lines as those of Vogel and Dunér. The annexed table gives the number of stars ranged under each type.

I.a.	I.b.	I.b.?	I.c.?	II.a.	II.b.	III.a.	III.b.
990	4	12	1	865	2	87	3
Continuous.			Monochromatic.		?		
41			3		14		

The three monochromatic spectra indicate the presence of minute planetary nebulae. There was only one star spectrum suspected of showing a bright line, a star of mag. 6.5 about 50° n of ζ Orionis. This latter star, together with β, δ, and ε of the same constellation, Dr. Konkoly finds to be variable as to its spectrum. It is to be hoped that the details of the observations upon which so important a statement is based will be published. And it is also to be desired that the work which has been carried so far may now be taken up by some southern observer, and the remaining portion of the heavens surveyed. It is to such works as the present, and the similar labours of

Vogel and Dunér, that we must look for evidence of such physical changes amongst the stars as Dr. Konkoly would seem to predicate of the principal stars of Orion.

ASTRONOMICAL PRIZES OF THE PARIS ACADEMY OF SCIENCES.—The Lalande Prize of the Academy has been decreed to M. Dunér for his micrometric measures of double stars, and for his researches on spectra of the third type. M. Périgaud, of the Observatory of Paris, receives the Valz Prize for his important astronomical labours. Amongst those specially mentioned are his determinations of the division errors of four of the circles, and of the absolute flexure of the two principal meridian instruments of the Paris Observatory. The Janssen Prize for important progress in physical astronomy—in the recent sense of the term—awarded this year for the first time, was most appropriately assigned to the late Prof. Kirchhoff. Amongst the general prizes of the Academy should be noted the Arago Medal decreed to M. Bischoffsheim for his great and generous aid to science, and especially for his magnificent foundation of the Nice Observatory. This prize also is now given for the first time. The La Caze Physical Prize is given to MM. Paul and Prosper Henry, chiefly for their great achievements in astronomical photography.

The subject for the Damoiseau Prize for 1888 is proposed in the following question: To perfect the theory of inequalities of long period caused by the planets in the movement of the moon; to see if they exist sensibly beyond those already known.

NEW OBSERVATORY IN VIENNA.—The observatory of Herr M. von Kuffner, the erection of which was commenced in the summer of 1884, has been practically completed. The building is cruciform in shape, and is 82 feet from east to west, and 61 from north to south. The meridian instrument is by Repsold, and has an aperture of 4.9 inches, and a focal length of 5 feet; the eye-piece and object-glass are interchangeable; the circle is 21.6 inches in diameter, and is divided to 2' and read by four microscopes. The principal equatorial is by the same maker, and has an aperture of 10.6 inches, and focal length of 12 feet 6 inches, with a finder of 2.6 inches aperture, and 26 inches focal length. The co-ordinates of the observatory are provisionally given as long. = 1h. 5m. 11.1s. east of Greenwich, and lat. = 48° 12' 47".2 N.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1888 JANUARY 15-21.

(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 January 15

Sun rises, 8h. 2m.; souths, 12h. 9m. 34.3s.; sets, 16h. 17m.; right asc. on meridian, 19h. 47.1m.; decl. 21° 10' S. Sidereal Time at Sunset, 23h. 55m.
Moon (at First Quarter on January 21, 5h.) rises, 9h. 18m.; souths, 14h. 1m.; sets, 18h. 51m.; right a. c. on meridian, 21h. 39.3m.; decl. 15° 14' S.

Planet.	Rises.			Souths.			Sets.			Right asc. and declination on meridian.		
	h.	m.	°	h.	m.	°	h.	m.	°	h.	m.	°
Mercury..	8	9	...	12	2	..	15	55	...	19	39.4	... 23 26 S.
Venus ...	4	52	...	9	7	...	13	22	...	16	44.5	... 20 0 S.
Mars ...	0	0	...	5	36	...	11	12	...	13	12.8	... 5 17 S.
Jupiter ...	3	56	...	8	16	...	12	36	...	15	52.5	... 19 19 S.
Saturn ...	16	58*	...	0	49	...	8	40	...	8	24.9	... 19 47 N.
Uranus ...	23	56*	...	5	28	...	11	0	...	13	4.5	... 6 9 S.
Neptune..	12	23	...	20	3	...	3	43*	...	3	42.1	... 17 55 N.

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

Jan h. 18 ... 20 ... Mercury in superior conjunction with the Sun.

Meteor-Showers.

	R.A.	Decl.	
Near π, Orionis...	72	5 N.	January 15-20.
From Canes Venatici.	180	35 N.	Swift; streaks.
Near θ Aurigæ...	295	53 N.	January 14-17.