

of the places which will be visited : Leatherhead and Boxhill, to examine the gorge of the Mole in chalk ; Maidstone and the vicinity, for gravels ; Woolwich and Reading beds, chalk gault, and lower greensand ; Erith and Crayford, for river gravels ; Grays (in Essex), Northfleet, and Oxsted, for studies in chalk ; and other places besides. Intending students should apply for tickets at once, as only a limited number are issued. Application forms may be had from Mr. W. P. Collins, 157 Great Portland Street.

The additions to the Zoological Society's Gardens during the past week include a Blue and Yellow Macaw (*Ara ararauna*), from South America, presented by Mrs. Warrand ; two White Ibis (*Eudocimus albus*), from South America, deposited ; two Black-backed Geese (*Sarcidiornis melanonota* ♂ ♀), from India, purchased ; a Puma (*Felis concolor*), two Long-fronted Gerbilles (*Gerbillus longifrons*), a Hog Deer (*Cervus porcinus*), a Sambur Deer (*Cervus aristotelis* ♂), born in the Gardens.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1888 MAY 20-26.

(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 May 20

Sun rises, 4h. 2m. ; souths, 11h. 55m. 21' Os. ; sets, 19h. 50m. : right asc. on meridian, 3h. 50'6m. ; decl. 20° 8' N
Sidereal Time at Sunset, 11h. 45m.
Moon (Full on May 25, 14h.) rises, 13h. 0m. ; souths, 19h. 49m. ; sets, 2h. 23m.* : right asc. on meridian, 11h. 44'2m. ; decl. 6° 3' N.

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..	4 25	...	12 43	...	21 1	...	4 37'3	... 23 42 N.
Venus ...	3 35	...	11 0	...	18 25	...	2 54'0	... 15 26 N.
Mars ...	15 7	...	20 49	...	2 31*	...	12 44'8	... 4 12 S.
Jupiter ...	19 49	...	0 7	...	4 25	...	15 59'5	... 19 33 S.
Saturn ...	8 27	...	16 22	...	0 17*	...	8 16'7	... 20 22 N.
Uranus... 15 16	...	20 55	...	2 34*	...	12 50'8	... 4 43 S.	
Neptune. 4 13	...	11 57	...	19 41	...	3 51'8	... 18 31 N.	

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

Occultations of Stars by the Moon (visible at Greenwich).

May.	Star.	Mag.	Disap.	Reap.		Corresponding angles from vertex to right for inverted image.
				h. m.	h. m.	
20	B.A.C. 3996	6	19 0	near approach	142	0
21	β Virginis...	6	0 57	...	139	254
24	η Libræ ...	6	22 52	...	128	184
25	θ Libræ ...	4½	3 45	...	4 39†	85 322
26	B.A.C. 5700	6½	4 14	...	4 44	175 236

† Below horizon at Greenwich.

May.	h.	Event
21	2	Jupiter in conjunction with and 0° 2' north of β Scorpii.
21	23	Mars in conjunction with and 4° 32' south of the Moon.
22	5	Jupiter in opposition to the Sun.
23	11	Mars stationary.
25	7	Jupiter in conjunction with and 3° 34' south of the Moon.

Variable Stars.

Star.	R.A.		Decl.	h. m.
	h. m.	h. m.		
U Cephei ...	0 52'4	81 16	N.	May 22, 1 17 m
S Persei ...	2 14'8	58 4	N.	" 22, m
W Virginis ...	13 20'3	2 48	S.	" 26, 3 0 m
U Coronæ ...	15 13'6	32 3	N.	" 25, 2 55 m
U Ophiuchi...	17 10'9	1 20	N.	" 23, 1 22 m
S Sagittæ ...	19 50'9	16 20	N.	" 25, 3 0 m
R Sagittæ ...	20 9'0	16 23	N.	" 23, m
T Vulpeculæ	20 46'7	27 50	N.	" 23, 2 0 m
δ Cephei ...	22 25'0	57 51	N.	" 25, 2 0 m

M signifies maximum ; m minimum.

GEOGRAPHICAL NOTES.

AT Monday's meeting of the Royal Geographical Society Lieut. F. E. Younghusband gave an account of his journey across Central Asia, from Manchuria and Peking to Kashmir and the Mustagh Pass. This is the most important paper which has been read at the Society during the present session, and the journey one of the most remarkable ever made, considering its length, the time taken—April to November, 1887—and the novelty and value of the results. We have only space to refer briefly to Lieut. Younghusband's observations on the Mustagh Pass, which he has been the first European to cross. He crossed the Gobi Desert to Hami by a route lying between those of Marco Polo and Mr. Ney Elias. His observations in the Gobi are of much interest. The clearness and dryness of the atmosphere were remarkable. Everything became parched up, and so charged with electricity that a sheepskin coat or blanket, on being opened out, would give out a loud crackling noise, accompanied by a sheet of fire. At the western end of the Hurku Hills, beyond the Galpin Gobi—the most sterile part of the whole Gobi—is a most remarkable range of sand-hills. It is about 40 miles in length, and is composed of bare sand, without a vestige of vegetation of any sort on it, and in places it is as much as 900 feet in height, rising abruptly out of a gravel plain. With the dark outline of the southern hills as a background, this white, fantastically-shaped sand-range presents a very striking appearance. It must have been formed by the action of the wind, for to the westward of this range is an immense sandy tract, and it is evident that the wind has driven the sand from this up into the hollow between the Hurku Hills and the range to the south, thus forming these remarkable sand-hills. It was near this region that traces of the wild camel were met with, and both wild asses and wild horses seen. As far as Hami the country continues to be mainly desert. From Hami, Lieut. Younghusband went on to Yarkand, and by the Yarkand River to the Karakorum Range, which he meant to cross by the Mustagh Pass. The difficulties, owing to the enormous glaciers, the rugged nature of the mountains, and great height of the pass, were very great for Lieut. Younghusband, his men, and his ponies. The glaciers here are of enormous size, and Lieut. Younghusband has added considerably to the information obtained by Colonel Godwin-Austen, who surveyed the region to the south of the pass twenty-six years ago. "The appearance of these mountains," Lieut. Younghusband stated, "is extremely bold and rugged as they rise in a succession of needle peaks like hundreds of Matterhorns collected together ; but the Matterhorn, Mont Blanc, and all the Swiss mountains would have been two or three thousand feet below me, while these mountains rose up in solemn grandeur thousands of feet above me. Not a living thing was seen, and not a sound was heard ; all was snow and ice and rocky precipices ; while these mountains are far too grand to support anything so insignificant as trees or vegetation of any sort. They stand bold and solitary in their glory, and only permit man to come amongst them for a few months in the year, that he may admire their magnificence and go and tell it to his comrades in the world beneath." After some extremely difficult prospecting, Lieut. Younghusband made up his mind to cross the old and long-abandoned Mustagh Pass, instead of the new one. "Next morning," he stated, "while it was yet dark, we started for the pass, leaving everything behind, except a roll of bedding for myself, a sheepskin coat for each man, a few dry provisions, and a large tea-kettle. The ascent to the pass was quite gentle, but led over deep snow in which we sank knee-deep at every step. We were now about 19,000 feet above the sea-level, and quickly became exhausted. In fact, as we got near the summit, we could only advance a dozen or twenty steps at a time, and we would then lean over on our alpenstocks, and gasp and pant away as if we had been running up a steep hill at a great pace. But it was not till midday that we reached the summit, and then on looking about for a way down we could see none. Huge blocks of ice had fallen from the mountains which overhang the pass, and had blocked up the path by which travellers used formerly to descend from it, and the only possible way now of getting to the bottom was by crossing an icy slope to a cliff, which was too steep for a particle of snow to lodge on it, even in that region of ice and snow. From this we should have to descend on to some more icy slopes which could be seen below. . . . We had first to cross the icy slope ; it was of smooth ice and very steep, and about thirty yards below us it ended abruptly, and we could see