ASTRONOMICAL PHENOMENA FOR THE WEEK 1888 OCTOBER 14-20.

(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 October 14

Sun rises, 6h. 25m.; souths, 11h. 45m. 54·5s.; sets, 17h. 7m.: right asc. on meridian, 13h. 19·7m.; decl. 8° 25′ S. Sidereal Time at Sunset, 18h. 42m.

Moon (Full on October 19, 21h.) rises, 15h. 33m.; souths, 20h. 13m.; sets, 1h. 1m.*: right asc. on meridian, 21h. 48·6m.; decl. 15° 42′ S.

Planet.	Rises.	Souths.	Sets.	Right asc. and declination on meridian.	
	h. m.	h. m.	h. m.	h. m.	°
Mercury..	8 57 ...	13 15 ...	17 33 ...	19 49·1 ...	19 37 S.
Venus.....	8 49 ...	13 23 ...	17 57 ...	14 57·1 ...	17 4 S.
Mars.....	12 15 ...	15 57 ...	19 39 ...	17 31·6 ...	24 53 S.
Jupiter....	10 29 ...	14 40 ...	18 51 ...	16 14·7 ...	20 43 S.
Saturn....	0 22 ...	7 51 ...	15 20 ...	9 24·2 ...	16 7 N.
Uranus...	6 2 ...	11 33 ...	17 4 ...	13 6·9 ...	6 28 S.
Neptune..	18 42*...	2 28 ..	10 14 ...	4 0·7 ...	18 53 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).

Oct.	Star.	Mag.	Disap.	Reap.	Corresponding angles from vertex to right for inverted image.
			h. m.	h. m.	° °
16 ...	74 Aquarii	... 6 ...	0 57 ...	1 8 ...	66 49
16 ...	B.A.C. 8214	... 6½ ...	21 21 ...	— ...	203 —
20 ...	μ Ceti	... ... 4 ...	23 39 ...	0 41† ...	63 338

† Occurs on the following morning.

Oct. h.
20 ... 21 ... Mercury stationary.

Variable Stars.

Star.	R.A. h. m.	Decl. ° ′		Oct.	h. m.	
U Cephei	0 52·4	81 16 N.	...	Oct. 16,	3 11	*m*
Mira Ceti	2 13·7	3 29 S.	...	,, 15,		*M*
T Monocerotis ...	6 19·2	7 9 N.	...	,, 18,	3 0	*M*
U Geminorum ...	7 48·5	22 18 N.	...	,, 15,		*M*
R Camelopardalis.	14 26·1	84 20 N.	...	,, 17,		*M*
T Ophiuchi	16 27·3	15 54 S.	...	,, 18,		*M*
U Ophiuchi... ...	17 10·9	1 20 N.	...	,, 16,	19 46	*m*
Z Sagittarii	18 14·8	18 55 S.	...	,, 17,	19 0	*M*
β Lyræ...	18 46·0	33 14 N.	...	,, 19,	22 0	*M*
R Lyræ	18 51·9	43 48 N.	...	,, 18,		*M*
η Aquilæ	19 46·8	0 43 N.	...	,, 20,	1 0	*M*
T Vulpeculæ ...	20 46·7	27 50 N.	...	,, 20,	23 0	*M*
Y Cygni	20 47·6	34 14 N.	...	,, 14,	3 0	*m*
				,, 17,	3 0	*m*
				,, 20,	3 0	*m*
δ Cephei	22 25·0	57 51 N.	...	,, 16,	23 0	*m*

M signifies maximum; *m* minimum.

Meteor-Showers.

	R.A.	Decl.	
	°	°	
Near ξ′ Ceti	30	9 N.	... Slow; trained.
,, ϵ Arietis	42	20 N.	... Swift.
,, ν Orionis	90	15 N.	... The *Orionids*.
,, ζ Geminorum ...	105	22 N.	... Swift; streaks.

GEOGRAPHICAL NOTES.

WE notice in the last number of the *Izvestia* of the East Siberian Geographical Society (vol. xix. 1), a most interesting note, by L. A. Jaczewski, on the geological results of the last Sayan expedition. The immense border-ridge of the great plateau of East Asia, which stretches from the sources of the Iya to Lake Baikal, was very little known. Many explorers have visited the valleys of the Irkut and Oka which flow at its northern base, but very few have crossed it, and if they crossed the huge ridge, it was mostly to the north of Lake Kosogol, where a broad passage is opened from the lowlands to the high plateau. The Expedition of MM. Prein and Jaczews crossed it at three different places, and thus obtained an insight into its geological structure. As to its age, it appears that limestones, most probably Silurian, lie almost undisturbed at its northern base, so that the hypothesis as to the great plateau having been a continent since the Laurentian or Huronian epochs is thus confirmed. We notice also that, besides Munku Sardyk, 3500 metres high, there are in the Sayan at least three or four summits of nearly the same height; and that, viewed from the south on the banks of the Kirlygoi stream, it appears as a massive wall, 700 metres high, having a direction from the north-west to the south-east. As to the complex ramifications of the Sayan, they are chiefly due to a most extensive action of atmospheric agencies, as was foreseen by Tchersky. Most interesting observations were made as to the formerly quite unknown glaciers of the northern slope, where they have the shape of narrow glaciers descending down a very steep slope and taking their origin amidst wide snow-fields. Their lower extremities reach a lower level than on the southern slopes. As to the former extension of glaciers, which was maintained by Kropotkin, but doubted on account of prevailing theoretical conceptions as to the non-glaciation of Siberia, M. Jaczewski found plenty of striæ and striated boulders which made him consider that glaciers formerly extended to a level of 1500 metres on the northern slope, and 1700 metres on the southern slope turned towards the plateau.

THE French Maritime Survey is sending a special mission to map the coasts of Madagascar. The officers will leave Paris in a few days, and are busy at the St. Maur Magnetic Observatory regulating their instruments for this purpose.

ELECTRICAL NOTES.

PROF. FITZGERALD (B. A. Address, Section A), in drawing attention to Hertz's experiments, has done the greatest possible service to electrical science. Hertz not only proves the existence of the ether, but the fact that an electric field is due to the oscillatory motions of the ether. Everyone who has the means will probably be repeating these experiments. The *Electrician* is publishing a capital *résumé* of Hertz's work by Mr. De Tunzelmann. Prof. Fitzgerald himself had predicted this result at Southport in 1882, and Prof. Oliver Lodge has actually measured these wave-lengths—the shortest ether wave measured being 3 yards—by extremely simple and beautiful experiments.

ACHESON (NATURE, July 26, p. 305) is pursuing in Pittsburg his inquiry into the influence of the disruptive discharges of powerful alternating currents. He confirms his formula, $\frac{E^3 \times K}{a} = d$, d being the sparking distance in inches and a a constant, and finds for

Dielectric.	Sparks between	a.
Air	points	. 135
Air	points and wire	. 263
Paraffin and cotton . . .	,,	. 5822
Ozite and cotton	,,	. 7759

Ozite is a residuum of petroleum.

LENARD and Howard (*Electrotechnik Zeitschrift*, July 1888), have succeeded in making flat spirals of pure bismuth which, in the magnetic field, vary in resistance from 10 to 20 ohms, according to the strength of the field, and form a good practical mode of roughly measuring its intensity as suggested by Leduc.

DR. BORGMAN, of St. Petersburg (*Phil. Mag.*, September 1888), has been experimenting on the transmission of electric currents through air when flames or points are used as electrodes. Some years ago, Prof. Hughes showed many of his friends similar experiments with telephones, but for some reason or other he has never published the results. The experiments were extremely interesting, as indeed are those of Borgman, who finds a difference in the surface resistance of the cathode and anode flames. He attributes much to the influence of light as studied by Hertz, Hallwachs, Wiedemann and Ebert, and Arrhenius. These results have a very important bearing on the new views of electrical action that are following from the inquiries of Fitzgerald, Hertz, Lodge, and others.

AN extremely suggestive and very original paper was read at the British Association by Prof. Hicks, "On a Vortex Analogue of Static Electricity." Attractions, repulsions, lines of force, charge, positive and negative electrification, induction,