elements for each of the four periods of observation. Then follow the computations of the perturbations exercised by the different planets from Venus to Uranus, Mercury having no appreciable disturbing effect, for the comet at perihelion does not come far within the orbit of the earth, and remains well without that of Venus, its perihelion distance being 0·831. The perturbations exercised by Jupiter, however, are most important, for the aphelion of the comet does not lie far outside the orbit of that planet, and the two tend to come into proximity every eleven years, their aphelion distances being, respectively, 5·57 and 5·20, and their periods 2076·79 and 4332·59 days, so that the comet was only 0·87 distant from the planet in December 1870, and eleven years later, in November 1881, was only half as far from it. These perturbations were computed for intervals of twenty days through the whole period covered by the observations, including thus five revolutions; and where it seemed desirable, for every ten or even every five days. The reciprocal of the mass assumed for Jupiter was $\frac{1}{m}$ = 1047·54, and with this value, so far from finding an acceleration of the mean motion of the comet, as with Encke's comet, a retardation was displayed—a retardation which, however, disappeared when a somewhat higher value viz. 1047·1752, was substituted. It appears that this latter value satisfies the observations not only of the comet in question, but also those of Faye's and Encke's. The value obtained by Dr. Schur from the four satellites of Jupiter does not greatly differ from that now found by Dr. von Haerdtl, and the latter considers that the simple mean of the two, $\frac{1}{m}$ = 1047·204, may be adopted as the nearest approach to the true mass of Jupiter, *i.e.* of the Jovian system, the satellites being included.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1889 FEBRUARY 17–23.

(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 February 17

Sun rises, 7h. 11m.; souths, 12h. 14m. 12·0s.; sets, 17h. 17m.: right asc. on meridian, 22h. 4·9m.; decl. 11° 48′ S. Sidereal Time at Sunset, 3h. 8m.

Moon (at Last Quarter on February 23, 0h.) rises, 17h. 59m.*; souths, 1h. 12m.; sets, 8h. 10m.: right asc. on meridian, 11h. 0·9m.; decl. 10° 42′ N.

Planet.	Rises.	Souths.	Sets.	Right asc. and declination on meridian.
	h. m.	h. m.	h. m.	h. m. ° ′
Mercury..	6 37 ...	11 49 ...	17 1 ...	21 39·7 ... 10 6 S.
Venus.....	8 22 ...	15 4 ...	21 46 ...	0 55·6 ... 7 42 N.
Mars.....	8 9 ...	14 11 ...	20 13 ...	0 1·6 ... 0 26 S.
Jupiter....	4 24 ...	8 19 ...	12 14 ...	18 8·8 ... 23 6 S.
Saturn....	15 47 ...	23 22 ...	6 57*...	9 14·9 ... 17 11 N.
Uranus...	22 8*...	3 32 ...	8 56 ...	13 21·4 ... 7 53 S.
Neptune..	10 16 ...	17 59 ...	1 42*...	3 50·9 ... 18 26 N.

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

Feb. h.
18 ... 4 ... Venus at greatest elongation from the Sun, 47° east.

Variable Stars.

Star.	R.A. h. m.	Decl. ° ′		h. m.	
U Cephei	0 52·5 ...	81 17 N. ...	Feb. 17,	19 9	*m*
			,, 22,	18·49	*m*
R Ceti	2 20·4 ...	0 41 S. ...	,, 17,		*M*
λ Tauri...	3 54·6 ...	12 11 N. ...	,, 17,	18 32	*m*
R Canis Majoris ...	7 14·5 ...	16 11 S. ...	,, 17,	2 39	*m*
		and at intervals of		27 16	
U Monocerotis ...	7 25·5 ...	9 33 S. ...	Feb. 20,		*M*
S Canis Minoris ...	7 26·7 ...	8 33 N. ...	,, 22,		*m*
S Cancri	8 37·6 ...	19 26 N. ...	,, 20,	19 22	*m*
U Hydræ	10 32·1 ...	12 48 S. ...	,, 22,		*M*
R Hydræ	13 23·7 ...	22 42 S. ...	,, 17,		*M*
R Lyræ	18 52·0 ...	43 48 N. ...	,, 18,		*m*
U Cygni	20 16·2 ...	47 33 N. ...	,, 20,		*M*
X Cygni	20 39·0 ...	35 11 N. ...	,, 18,	2 0	*M*
δ Cephei	22 25·0 ...	57 51 N. ...	,, 19,	0 0	*M*

M signifies maximum; *m* minimum.

Meteor-Showers.

	R.A. °	Decl. °	
From Canes Venatici ...	181 ...	34 N. ...	February 20. Very swift; white.
Near τ Herculis ...	... 238 ...	46 N. ...	February 17.
,, ρ Herculis ...	... 260 ...	36 N. ...	February 20. Swift.

GEOGRAPHICAL NOTES.

A PAPER of more than usual interest was read at Monday's meeting of the Royal Geographical Society, by the Rev. W. Spotswood Green, on his explorations in the glacier regions of the Selkirk Range, British Columbia, in the summer of 1888. This range is generally included in the Rocky Mountains, although, as Mr. Green showed, it is in many respects distinct from them. After crossing the Rockies by the Canadian Pacific Railway, and plunging into the valley of the Columbia River, the Selkirk Range lies before the traveller. It has been but little explored, and some of its glaciers were probably visited for the first time by Mr. Green. The Selkirk Range is entirely bounded by the great bend of the Columbia and its tributary, the Kootenie, and the drainage of all its glaciers finds its way into the Columbia in some part or other of its course. Under many difficulties, owing to the densely forest-clad nature of the ground, the want of guides and porters, the necessity of opening up new routes, and other causes, Mr. Green visited some of the higher parts of the range, and explored, and in some cases named, its previously unvisited glaciers. After crossing the Rockies proper, curiously ridged prairie hills have to be passed, and all the ranges between these and the Columbia have a smooth rounded outline, forming a strong contrast to the ranges on the other side of the watershed. These latter form a complexity of glacier-clad ranges, many peaks rising quite as high as those on the watershed. Among the higher ranges an immense number of small glaciers lie in the hollows, and two extensive snow-fields are to be found within the limits of Mr. Green's map. One of these, being the source of the best-known glacier in the whole region, on account of its being so clearly visible from the railway, Mr. Green has called the great Illecellewaet firn, after the river of which it is the true source. This ice-field, probably 500 feet thick, to the southward extends down into a valley as the Geikie Glacier, and to the eastward, having been joined by ice-streams coming from the Dawson Range, it pours into Beaver Creek Valley as the Deville Glacier. All these glaciers show evidence of shrinking. An immense moraine exists in the valley below the Illecellewaet Glacier. Some of the blocks of quartzite in the moraine are of huge dimensions, one being 50 feet long, 24 feet thick, and 33 feet high. Mr. Green set up some poles at a little distance from the end of the glacier, and found that after thirteen days the ice had melted a vertical foot over its whole surface, and the centre of the glacier had moved 20 feet. The Geikie Glacier, about 4 miles long and 1000 yards wide, is a much more interesting ice-stream. Sheltered from the sun's rays by high cliffs, it flows along a level valley, so that one can walk across its lower portion in various directions without trouble. As it descends from the firn, it is much broken; then its surface becomes level, but with numerous transverse crevasses. Flowing round a bend, longitudinal fissures are set up, crossing the others, and forming such a multitude of *séracs* that the surface presents an appearance more like some basaltic formation with the columns pulled asunder than anything else I can think of. This beautiful structure gives place to the frozen waves of a *mer de glace*, and the glacier terminates in longitudinal and slightly radiating depressions and crevasses. The level of perpetual snow in these mountains may be put down at 7000 feet, and the upper limit of the forest at 6000 feet. Red snow, caused by the presence of *Protococcus nivalis*, is of frequent occurrence. Like most of the rest of British Columbia, the Selkirks are covered with forests, all the trees attaining huge dimensions. These forests are being devastated by fires, often caused by sparks from the engines on the new railway. Beneath the living trees, thousands of prostrate trunks lie piled in every conceivable position, and in every stage of decay. Exploration and mountaineering under such circumstances are attended with enormous difficulties. Above the forest region, the slopes of the mountains are as profusely covered with flowers as the "Alp" region of the Swiss mountains; the most conspicuous plant being the *Castilleia miniata*. The heaps of boulders above the forest region form a refuge for a great