

WE learn from *Science* that Dr. Thomas Featherstonhaugh, a grandson of the famous pioneer geologist, has just returned from a visit to Florida, and has brought back an interesting collection of aboriginal remains. He thoroughly examined a mound of damp sand on the shore of Lake Apopka, about the geographical centre of the State, and farther south than any previous researches of the kind. The mound was 50 feet in diameter and 14 feet high, and was covered with a dense growth of palmetto and other trees. It was found to be full of fragmentary bones and pottery, so numerous that Dr. Featherstonhaugh estimates that there could have been no less than four hundred bodies deposited there. A few Venetian beads near the top indicated intrusive burials, but below 4 feet there were no evidences of any intercourse with whites. Four shapely hatchets were recovered, also a charm-stone, and numerous specimens of decorated pottery. The whole find was presented to Major Powell, and by him turned over to the National Museum.

ALL hope has now been abandoned of saving Prof. J. Mainwaring Brown, who occupied the Chairs of English Language and Literature and of Political Economy in the University of Otago, New Zealand. He was one of an exploring party, being accompanied by Mr. White and Major Goring, which set out on an expedition to the neighbourhood of Lake Manapouri. One morning, Mr. Brown left his tent for a stroll in the bush, and, shortly after, a terrific storm of snow, wind, and hail burst over the district, and lasted without intermission for three days. His companions made every effort to find him, but without avail. Large search-parties were formed, but no tidings were obtained of the unfortunate gentleman. An enterprising newspaper proprietor in Otago despatched a special search-party at his own cost, and the Government have sent a steamer to Smith Sound, in the hope of obtaining some intelligence.

AT the Royal Institution, Dr. Sidney Martin will, on Thursday next (February 21), begin a course of four lectures on the venom of serpents, and allied poisons, including those used in the Middle Ages; and Lord Rayleigh will, on Saturday (February 23), begin a course of eight lectures on experimental optics (polarization, fluorescence, wave-theory, &c.). Mr. Harold Crichton-Browne will give a discourse on Friday evening (February 22), entitled, "In the Heart of the Atlas."

A CORRESPONDENT writes to point out that the planet Venus is now visible before sunset even in London. A few days ago he saw it at 4.30 p.m., thirty minutes before sunset, and as it was then very distinct he has no doubt that he could have seen it earlier if he had looked for it.

MR. HAROLD P. BROWN AND MR. GEORGE WESTINGHOUSE, Jun., have had a public discussion on the respective merits of alternating and continuous electrical currents. Mr. Brown, apparently not having satisfied Mr. Westinghouse, issues the following challenge, which we take from one of the electrical papers:—"I challenge Mr. Westinghouse to meet me in the presence of competent electrical experts, and take through his body the alternating current, while I take through mine a continuous current. The alternating current must not have less than 300 alternations per second (as recommended by the Medico-Legal Society). We will begin with 100 volts, and will gradually increase the pressure 50 volts at a time, I leading with each increase, each contact to be made for five seconds, until either one or the other has cried enough, and publicly admits his error. I will warn Mr. Westinghouse, however, that 160 volts alternating current for five seconds has proved fatal in my experiments, and that several men have been killed by the low-tension Jablochkoff alternating current." In other words, says Mr. Harold Brown, "I invite you to have a current passed

(through your body which I know (though you do not) will kill you, and I invite competent electrical experts to be present at the death which is sure to ensue." Mr. Brown and his experts will make preparations for what they all know to be an experiment highly dangerous to life, and which some of them believe must be fatal to Mr. Westinghouse, and if the latter is foolish enough to agree to his opponent's idiotic proposition, and the result is what Mr. Brown says is certain, then Mr. Brown and his experts will find themselves lodged in gaol awaiting their trial for murder, and being accessories to murder. If Mr. Brown knew a pistol was loaded which Mr. Westinghouse declared was not, and then induced the latter to fire it into his head to test which was right, Mr. Brown and the gallows would run the risk of being acquainted, while the experts who aided and abetted him would have an opportunity of trying the effects of some years' penal servitude. This fastian "challenge" does not make Mr. Brown any more accurate than he was before, but it must make every man of common-sense pretty certain that he can be an excessively foolish person, and that the chances are, when Mr. Brown is particularly positive about anything, he is wrong.

THE additions to the Zoological Society's Gardens during the past week include a Tropical Squirrel (*Sciurus astuans*) from Bolivia, presented by Mr. P ter Suarez; four Marbled Polecats (*Putorius sarmaticus*) from India, presented by Colonel Sir Oliver B. C. St. John, K.C.S.I., R.E.; eight Indian Gerbilles (*Gerbillus indicus* 2 ♂ 6 ♀) from India, presented by Dr. J. Gilbert; a Jackdaw (*Corvus monedula*), British, presented by Mr. Basil Carter; an Areolated Tortoise (*Homopus areolatus*), seven Tuberculated Tortoises (*Homopus femoralis*), two well-marked Tortoises (*Homopus signatus*), a Robben Island Snake (*Coronella phocorum*), two Infernal Snakes (*Boodon infernalis*), two Aurora Snakes (*Lamprophis aurora*), a Many-spotted Snake (*Coronella multimaculatus*) from South Africa, presented by the Rev. G. H. R. Fisk, C.M.Z.S.; an Adorned Ceratophrys (*Ceratophrys ornata*) from Buenos Ayres, presented by Captain Hairley.

OUR ASTRONOMICAL COLUMN.

NEW MINOR PLANET.—M. Charlois discovered a new minor planet, No. 284, on February 8, at the Nice Observatory. M. Charlois has named No. 277 Elvira.

OBSERVATIONS OF VARIABLE STARS.—Mr. Paul Vendall publishes in *Gould's Astronomical Journal* the results of his observations of a few variable stars in 1888. The observations compare as follows with the ephemerides given week by week in NATURE:

Star.	Observed.	Calculated.
R Ursæ Majoris...	Oct. 22 M ...	Nov. 7 M
R Scuti	Aug. 6 m ...	Aug. 15 m
η Aquilæ	June 12.98 M ...	June 12.88 M
	July 25.76 M ...	July 25.96 M
	Sept. 6.50 M ...	Sept. 7.00 M
S Sagittæ	Sept. 27.9 m ...	Sept. 27.9 m
	Sept. 30.5 M ...	Sept. 30.9 M

WINNECKE'S PERIODICAL COMET.—An exceedingly valuable memoir on the motion of this comet has recently been published by Dr. von Haerdtl, *Privatdocent* for Astronomy in the University of Innsbruck. The most interesting point of this memoir, which was communicated to the Imperial Academy of Sciences of Vienna, lies in the evidence it supplies that an increase is necessary in the accepted value for the mass of Jupiter. After referring to the early history of the comet, its probable identity with Comet 1766 II., and with that discovered by Pons on February 6, 1808, and its rediscovery by the same observer on July 18, 1819, Dr. von Haerdtl commences the detailed treatment of the observations made during the four last periods when it was seen—viz. 1858, 1869, 1875, and 1886, discussing the individual observations, some 462 in all, with great thoroughness, and forming normal places and computing the resulting

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° 05'; sets, 17h. 17m.: right asc. on meridian, 22h. 49m.; decl. 11° 48' S. Sidereal Time at Sunset, 3h. 8m.

Moon (at Last Quarter on February 23, oh.) rises, 17h. 59m.*; souths, 1h. 12m.; sets, 8h. 10m.: right asc. on meridian, 11h. 09m.; decl. 10° 42' N.

Planet.	R.ses.		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.		Decl.		h. m.
	h.	m.	h.	m.	
U Cephei ...	0	52.5	81	17 N.	Feb. 17, 19 9 m
R Ceti ...	2	20.4	0	41 S.	,, 22, 18.49 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 Lyrae ...	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 γ 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 Illecillewaet 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 Illecillewaet 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 *Castilleja miniata*. The heaps of boulders above the forest region form a refuge for a great