by Mr. Bochett, a working man—will be read; and it has been arranged that the reading of these papers shall be followed by a discussion. It is hoped that employers and employed will both be largely represented at the meeting. The Hon. Secretary will be glad to send tickets for the platform or for reserved seats to anyone who may apply for them.

IN the Report of the Newcastle Public Libraries Committee for 1886-87, it is stated that, at the annual stock-taking in June-July 1886, only three volumes were found to be unaccounted for. Only sixteen volumes have been lost since the opening of the Library in 1880. During the same period the issue of volumes has reached a total of 1,538,445.

A NEW edition of the catalogue of books in the juvenile lending department connected with Newcastle Public Library has just been issued. A glance at the contents, as the compiler truly says, will show that in this juvenile department "a wonderful wealth of entertainment is placed at the command of the young people of Newcastle." No fewer than two thousand carefully selected volumes are at their disposal. During the seven years the Library has been open, the Committee has more than doubled the stock of books in this collection, and 215,092 volumes have been lent to children.

A VISITOR to the beaver colony at Amlid, some distance from Christiansand, in Norway, to which we referred some months ago, states that the colony has flourished considerably during the summer, and is now probably the largest in Norway. Sometimes as many as a dozen animals may be seen at a time in the water. The huts are built close to the shore, and have two stories, one above and one below the surface of the water. The walls are made of timber, laid as in a human dwelling, whilst the roof is covered with twigs and mud. All the aspen-trees in the vicinity have now been felled, and the animals have begun to attack the birches. Trees upwards of 18 inches in diameter at the root have been cut down. The animals appear to have most use for the branches, many stems stripped of the same lying about in the woods. The material required is dragged to the waterside along regular "log runs," such as wood-cutters leave in forests, and in some places roots crossing the same have been gnawed off, so as to make the run smooth. Shortly after an increase in the colony the new-comers begin to build a new house. Not one of the animals has as yet been killed, and visitors come from all parts for the purpose of watching their peculiar mode of living. It has been found that sentinels are posted, giving the alarm to the rest of the colony in case of danger. When such an alarm is given, all the animals leave their dwellings for the water.

READERS of Icelandic Sagas will remember that in the celebrated Njal's Saga there is a record of an attack on Njal's dwelling, Bergthorshval (named after his wife, Bergthora), and of its being burned, with the whole of Njal's kin. In order to demonstrate the historical accuracy of the Saga, a member of the Iceland Archæological Society some two years ago proposed to excavate the spot where Njal's dwelling was said to have stood. This was done last year, and resulted in the discovery, at a depth of some 6 feet, of a layer of ashes, remains of charred beams, &c. But this was not all. Below the ashes three lumps of some substance of a spongy nature, dirty-white in colour, were found; and Dr. Storch, Director of the Royal Agricultural Laboratory in Copenhagen, by whom these lumps have just been analyzed, pronounces them to be ancient curdled milk and cheese. Such milk, called *Skyr*, was much liked in Iceland in remote times, and was often solidified to a kind of cheese by the fluid matter being pressed out. Strangely enough, the Saga mentions the fact of women bringing *Skyr* to extinguish the fire. Dr. Storch, by slowly treating fresh *Skyr* to a temperature of a little more than 100° C., has thereby obtained a substance in every respect similar to that found in the supposed ruins of Njal's dwelling.

THE additions to the Zoological Society's Gardens during the past week include a Striped Hyæna (*Hyæna striata*) from North Africa, presented by Mr. Ernest Heydon Marquis; a Crested Porcupine (*Hystrix cristata*) from Suakim, presented by His Grace the Duke of Hamilton, K.T., F.Z.S.; two Common Squirrels (*Sciurus vulgaris*), British, presented by Mrs. Henry Alex. Hankey; a Horned Tragopan (*Ceriornis satyra* ♂) from the South-eastern Himalayas, presented by Mr. R. J. Lloyd Price; a Vinaceous Dove (*Turtur vinaceus*) from West Africa, presented by Mr. R. H. Mitford; three South African Scorpions (*Scorpio* ——) from South Africa, presented by Mr. W. K. Sibley; a Zebu (*Bos indicus*) from Africa, two Sandwich Island Geese (*Bernicla sandvicensis*) from the Sandwich Islands, deposited.

OUR ASTRONOMICAL COLUMN.

THE NEW ALGOL VARIABLES, Y CYGNI AND R CANIS MAJORIS.—Mr. Chandler has just published in *Gould's Astronomical Journal*, No. 163, his elements for these two interesting variables. In the case of Y Cygni, it will be recollected (see NATURE, vol. xxxv. pp. 307, 329) that before its period had been fully determined by observation, Mr. Chandler concluded, from the analogy of all the then known stars of the type, that it would prove to be about thirty-six hours. This is now found to be correct, the actual period being 1d. 11h. 56m. 48s. The ground upon which the inference was based was the circumstance that with the other stars of the type the shorter the period of the star the higher is the ratio which the time of oscillation bears to the entire period. The first exception to this rule is R Canis Majoris, the variable star discovered by Mr. Sawyer last March (see NATURE, vol. xxxvi. p. 376), the duration of the oscillation for this star being 5h. instead of 6h., as it should be on the same principle.

The following are the elements of the two stars:—

	Y Cygni.	R Canis Majoris.
Epoch	1886, Dec. 9, 11h. 14m. 30s.	1887, Mar. 26, 14h. 58m. 30s.
Period ...	1d. 11h. 56m. 48s.	1d. 3h. 15m. 55s.
Brightness at maximum	7·1m. ...	5·9m.
Brightness at minimum	7·9m. ...	6·7m.
Duration of decrease ...	4h. ...	2·5h.
Duration of increase ...	4h. ...	2·5h.
Stationary maximum brilliancy	28h. ...	22h.

MINOR PLANET NO. 271.—This object has received the name of Penthesilea.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1887 DECEMBER 11–17.

(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 December 11

Sun rises, 7h. 58m.; souths, 11h. 53m. 22·9s.; sets, 15h. 49m.: right asc. on meridian, 17h. 12·9m.; decl. 23° 1′ S. Sidereal Time at Sunset, 21h. 9m.

Moon (New on December 14, 19h.) rises, 3h. 11m.; souths, 8h. 47m.; sets, 14h. 14m.: right asc. on meridian, 14h. 6·5m.; decl. 7° 27′ S.

Planet.	Rises. h. m.	Souths. h. m.	Sets. h. m.	Right asc. and declination on meridian. h. m. °
Mercury..	6 7 ...	10 32 ...	14 57 ...	15 51·2 ... 18 26 S.
Venus.....	3 33 ...	8 46 ...	13 59 ...	14 4·9 ... 9 56 S.
Mars	0 47 ...	6 54 ...	13 1 ...	12 12·5 ... 0 44 N.
Jupiter....	5 37 ...	10 6 ...	14 35 ...	15 24·9 ... 17 47 S.
Saturn....	19 28*...	3 16 ...	11 4 ...	8 34·1 ... 19 10 N.
Uranus ...	2 9 ...	7 43 ...	13 17 ...	13 1·6 ... 5 52 S.
Neptune..	14 44 ...	22 24 ..	6 4*...	3 45·0 ... 18 3 N.

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

Dec.	h.	
11	8	Venus in conjunction with and 2° 37′ south of the Moon.
12	11	Venus at least distance from the Sun.
12	18	Jupiter in conjunction with and 4° 16′ south of the Moon.
13	9	Mercury in conjunction with and 3° 24′ south of the Moon.

Variable Stars.

Star.	R.A. h. m.	Decl. ° ′		h. m.	
U Cephei	0 52·3	81 16 N.	Dec. 12,	0 25	*m*
			,, 17,	0 5	*m*
Algol	3 0·8	40 31 N.	,, 11,	20 23	*m*
λ Tauri	3 54·4	12 10 N.	,, 11,	1 9	*m*
			,, 15,	0 2	*m*
ζ Geminorum	6 57·4	20 44 N.	,, 14,	19 0	*M*
R Canis Majoris	7 14·3	16 11 S.	,, 11,	3 28	*m*
			,, 17,	23 3	*m*
U Coronæ	15 13·6	32 4 N.	,, 14,	20 47	*m*
R Scuti	18 41·5	5 50 S.	,, 12,		*M*
β Lyræ	18 45·9	33 14 N.	,, 14,	20 0	*M*
Y Cygni	20 46·6	34 10 N.	,, 14,	22 4	*m*
			,, 17,	21 58	*m*
δ Cephei	22 25·0	57 50 N.	,, 16,	2 0	*m*

M signifies maximum; *m* minimum.

Meteor-Showers.

	R.A.	Decl.	
Near Pollux	117°	31° N.	Rather swift.
From Leo Minor	143	39 N.	Swift; streaks.
Near λ Draconis	158	72 N.	

M. POTANIN'S JOURNEYS IN EAST TIBET AND EAST GOBI.

A CONDENSED report of the results obtained by the three years' journey of MM. Potanin, Skassy, and Berezovsky, in China, Amdo plateau of Tibet at the sources of the Hoang-ho, and East Gobi, has just appeared in the Russian *Izvestia* of the Geographical Society (iii. 1887.) Without repeating what has already been mentioned in his letters, M. Potanin gives in his paper a masterly sketch of the physical characteristics of the various regions explored by his expedition.

The route followed was from Peking, across the Utai-shan mountains which border the Peking depression in the west, and where the well-known Utai Buddhist monasteries are situated, to the city of Kuku-khoto. Thence south, across the Ordos region, to Lan-tcheu, capital of the Han-su province, and to San-tchuan on the middle Hoang-ho, where M. Potanin spent the winter of 1884–85, while M. Skassy wintered at the above city, and M. Berezovsky at Hoi-siang, on the Sy-tchuan frontier of the Han-su province. Thence the expedition proceeded south-east to Min-tcheu on the Tao-he, and to Sun-pan. Lun-an-fu was the utmost point reached towards the south, and the expedition returned to Lan-tcheu to spend the second winter at the Humbum monastery, close by Si-nin. The third summer was spent for the return journey, which was made *viâ* Kuku-nor, across the mountains which separate the Tsaidam from the Mongolian plateau, and the cities of Han-tcheu and Su-tcheu. Then, taking a course due north, the expedition crossed the Gobi, as also several ridges continuing the Ek-tag Altai in the east, and the Hanghai ridge, and reached the Orkhon River, whence it proceeded to Kiakhta and across Siberia to Russia.

The Peking plain, covered with fertile loess, is separated by a series of three ridges built up of gneisses and limestones, from the plateau of the Ordos, watered by the middle Hoang-ho. Of Europeans, only M. Przewalski, the missionary Huc, and M. Potanin's expedition have visited the Ordos—a plateau about 3300 feet high, covered with shifting sands, the best part of which is on their eastern border. Owing to the moistness brought by the numerous streams which flow towards the Hoang-ho, the sands on the eastern border are not so bad as those described further west by M. Przewalski, and the *barkhans* are covered with bushes of *Shyavyk*, *Artemisiæ*, *Hedysarum lævi*, and thickets of the *Pugionium cornutum*—a new shrub discovered by Przewalski; sometimes dark growths of Thuja cover the *barkhans*. The hollows between the sandy hills are either covered with some bushes or occupied by the fields of the Mongols, who chiefly grow *setaria*, buckwheat, and hemp. The wet depressions, covered by meadow-grasses and partly with Halophytes, and called *tchaidams*, are enlivened by the herds and the mud huts of the half-nomadic Mongols. The sands are steadily moved by the winds from the south-west towards the north-east, and this constant motion explains why the Chinese gave to the sand-desert the name of Sha-he, or "River of Sand."

In the highlands which connect the Tibet mountains with those of Shan-si the expedition spent fifty days. Thick layers of loess cover there the horizontal layers of salt-bearing sandstones and conglomerates. The region is a high plateau deeply burrowed by the *cañons* of the rivers, which sometimes are 2000 feet deep, and are cut both through the loess and the sandstones. The narrow *cañons* are mostly waterless, while the broader ravines are watered by rivers and therefore are the seat of many villages. There is little wind or rain, and the atmosphere is charged with dust.

In Tibet the expedition crossed only the Amdo plateau, separated from the Mongolian plateau by the Nan-shan ridge. For 400 miles the expedition crossed there a region the lowest parts of which rise above 7000 and 8000 feet. Even the Hoang-ho at Gui-dui has an altitude of 7600 feet, and the valley of the E-tsin at the Pabor-ta-sy monastery is 8000 feet high; the valleys of the Urunvu and the Tumun-guan are at altitudes of from more than 9000 to 10,000 feet. The highest parts of the plateau rise, however, to 12,000 feet, and Lake Kuku-nor is spreading its waters at the height of Alpine peaks, *i.e.* 10,700 feet. Still higher grassy plateaus, where it never rains but often snows, and marshes spread over large areas, rise to the south of the lake. Only a few of the mountain-ridges which inclose this plateau are snow-clad. It has a quite original flora, discovered by General Przewalski. Forests are few; as to the high meadows, they are inhabited by nomad Tangutes, and, on lower levels, by a mixed population of Chinese and settled Mongols described under the name of Daldas.

The Alpine highlands watered by the northern tributaries of the Blue River, which separate the Amdo high plateau from the Chinese lowlands, are the most picturesque part of China. The routes which cannot follow the bottoms of the narrow and rocky valleys pass over the mountains, flights of steps being cut in the rocks, or wooden balconies being built along the steep slopes of the rocky hills. Suspended bridges, swinging under the weight of a mule, cross streams which flow in a succession of rapids and waterfalls. The Chinese monsoons deposit all their moistness on the south-eastern slopes of the mountains; thick forests, of Conifers on higher levels and of deciduous trees lower down, clothe the mountain slopes. Maples, lime-trees, oaks, *Helwingiæ*, and a number of shrubs and climbing plants are growing in impracticable thickets, while all crags are thickly covered with ferns, mosses, and orchids. Mollusks (*Bulymus* and *Helix*) cover the crags by thousands. And finally at the foot of the mountains the sub-tropical flora—palms, bamboos, banana-trees, and tea-trees—makes its appearance.

The villages and the towns—clean and well-watered—are strikingly picturesque, as the houses (with windows, like our European dwellings) are built in the shape of amphitheatres on the slopes of the steep forest-clothed hills. In some towns the roofs of the houses are the workshops and sitting-places of the inhabitants. The valley of the "Golden Lakes"—Kser-ntso—with its background of snowy peaks is especially picturesque.

As to the region crossed between the Amdo plateau and Kiakhta, it is sharply divided into two parts. The southern is a true desert, which stretches towards the north as far as the Khangai Mountains. The Nan-shan rises as an immense snow-clad wall on its southern border; then comes a narrow strip of inhabited and cultivated land, which is followed by a gravelly desert, where only a few trees of *Haloxylon Ammodendron*, and bushes of *Calligonum* and *Ephedra* grow here and there, while the course of the E-tsin is marked by narrow strips of meadows covered with *Elymus*. The depression of the E-tsin, which flows into the Gashiun-nor, has an altitude of only about 3000 feet, and it is bordered in the north by the Tostu ridge, and three other parallel ridges, of which the northern is snow-clad. The valleys which separate these four ridges are waterless; old river-beds, now dry, are seen on their bottoms, but even the *Haloxylon* forests which formerly grew in their valleys are now disappearing, only decayed trees having been seen by the expedition.