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.

As to the plateau in the north of the Khangai Mountains, it is covered with rich meadows, while the slopes of the hills are clothed with forests of larch; the Siberian cedar-tree also makes its appearance. In the lower valleys the Mongols carry on some agriculture.

The above account is followed by an ethnographical sketch of the Ordos-Mongols and the Daldas.

The results obtained by the expedition are very important. A survey has been made of a stretch of no less than 4400 miles. Latitudes and longitudes have been determined at sixty-nine places. Two hundred photographs, 700 specimens of mammals and birds, a bulky herbarium, and rich collections of lizards, insects, mollusks, and rocks have been brought in. M. Berezovsky still remains in the region he has become so fond of, and he wrote last February, from Hoi-siang, that his journeys about Si-ning and Tai-tchan have enriched his collection with 500 more specimens of birds, some of which are very interesting.

P. A. K.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, November 17.—"Specific Inductive Capacity." By J. Hopkinson, M.A., D.Sc., F.R.S.

Colza Oil.—This oil has been found not to insulate sufficiently well for a test by the method of my former paper. Most samples, however, were sufficiently insulating for the present method. Seven samples were tested with the following mean results:—

No. 1. This oil was kindly procured direct from Italy for these experiments by Mr. J. C. Field, and was tested as supplied to me—

$$K = 3{\cdot}10.$$

No. 2 was purchased from Mr. Sugg, and tested as supplied—

$$K = 3{\cdot}14.$$

No. 3 was purchased from Messrs. Griffin, and was dried over anhydrous copper sulphate—

$$K = 3{\cdot}23.$$

No. 4 was refined rape oil purchased from Messrs. Pinchin and Johnson, and tested as supplied—

$$K = 3{\cdot}08.$$

No. 5 was the same oil as No. 4, but dried over anhydrous copper sulphate—

$$K = 3{\cdot}07.$$

No. 6 was unrefined rape purchased from Messrs. Pinchin and Johnson, and tested as supplied, the insulation being bad, but still not so bad as to prevent testing—

$$K = 3{\cdot}12.$$

No. 7. The same oil dried over sulphate of copper—

$$K = 3{\cdot}09.$$

Omitting No. 3, which I cannot indeed say of my own knowledge was pure colza oil at all, we may, I think, conclude that the specific inductive capacity of colza oil lies between 3·07 and 3·14.

Prof. Quincke gives 2·385 for the method of attraction between the plates of a condenser, 3·296 for the method of lateral compression of a bubble of gas. Palaz (*La Lumière Électrique*, vol. xxi. 1886, p. 97) gives 3·027.

Olive Oil.—The sample was supplied me by Mr. J. C. Field—

$$K = 3{\cdot}15.$$

The result I obtained by another method in 1880 was 3·16.

Two other oils were supplied to me by Mr. J. C. Field.

Arachide.—K = 3·17.

Sesame.—K = 3·17.

A commercial sample of *raw linseed oil* gave K = 3·37.

Two samples of *castor oil* were tried: one newly purchased gave K = 4·82; the other had been in the laboratory a long time, and was dried over copper sulphate—

$$K = 4{\cdot}84.$$

The result of my earlier experiments for castor oil was 4·78; the result obtained subsequently by Cohen and Arons (*Wiedemann's Annalen*, vol. xxviii. p. 474) is 4·43. Palaz gives 4·610.

Ether.—This substance as purchased, reputed chemically pure, does not insulate sufficiently well for experiment. I placed a sample, purchased from Hopkin and Williams as pure, over quicklime, and then tested it. At first it insulated fairly well, and gave K = 4·75. In the course of a very few minutes K = 4·93, the insulation having declined so that observation was doubtful. After the lapse of a few minutes more observations became impossible. Prof. Quincke in his first paper gives 4·623 and 4 660, and 4·394 in his second paper.

Bisulphide of Carbon.—The sample was purchased from Hopkin and Williams, and tested as it was received—

$$K = 2{\cdot}67.$$

Prof. Quincke finds 2·669 and 2·743 in his first paper, and 2·623 in his second. Palaz gives 2·609.

Amylene.—Purchased from Burgoyne and Company—

$$K = 2{\cdot}05.$$

The refractive (μ) index for line D is 1·3800,

$$\mu^2 = 1{\cdot}9044.$$

Of the benzol series four were tested: *benzol*, *toluol*, *xylol*, obtained from Hopkin and Williams, *cymol* from Burgoyne and Company.

In the following table the first column gives my own results, the second those of Palaz, the third my own determinations of the refractive index for line D at a temperature of 17°·5 C., and the fourth the square of the refractive index:—

			μ	μ^2.
Benzol	2·38	2·338	1·5038	2·2614
Toluol	2·42	2·365	1·4990	2·2470
Xylol	2·39	—	1·4913	2·2238
Cymol	2·25	—	1·4918	2·2254

For benzol Silow found 2·25, and Quincke finds 2·374.

Linnean Society, November 17.—Prof. St. George Mivart, F.R.S., Vice-President, in the chair.—Mr. A. Bennett drew attention to new British plants, viz. (1) *Arabis alpina*, gathered on the Cuchillin Mountains, Isle of Skye; (2) *Juncus alpina*, obtained in Perthshire; and (3) *Juncus tenuis*, got near Galloway, Kirkcudbrightshire.—Mr. W. H. Beeby made remarks on *Carex cæspitosa* from Shetland.—Photographs of a branched palm (*Borassus flabelliformis*) was shown for Surgeon-General Bidie, of Madras, and a letter thereon read. The tree is growing near Tanjore, at a village named Paducottah, and is remarkable in being divided into eight branches.—Mr. W. Wilson sent for exhibition branches with ripe berries of *Taxus baccata*, and its variety *hybernica*, produced by natural cross-fertilization: these were grown in Central Aberdeenshire.—Mr. T. Christy showed a new species of *Strophanthus* from the Niger; it is distinguished by its brown velvety seed and intensely bitter taste.—Mr. D. Morris exhibited the following specimens: (1) a fibre from Vera Cruz, named Broom Root, which examination showed to be the root fibres of *Epicampus macroura*, known as "Raviz de Zacaton" by the Mexicans, its yearly value in export is £60,000; (2) another Mexican fibre, "Ixtli," much used for nail-brushes, &c., in Britain, by reason of its short tough fibre, is found by the Kew authorities to be derived from *Agave heteracantha*.—Mr. J. G. Baker showed *Lycopodium albidum*, a new species from the Andes of Ecuador; it is allied to *L. clavatum*, but without chlorophyll except at the base. He also showed *Neobaronia xiphoclades*, a new Papilionaceous plant from Madagascar, obtained by the Rev. R. Baron.—A paper was read by Mr. P. Geddes, on certain factors of variation in plants and animals.—Then followed a paper on the Copepoda of Madeira and the Canary Islands, by Mr. I. C. Thompson. In all, sixty-five species were obtained. Of these, six are new to science, and three probably of generic significance. Twenty-three are known in British waters, and of these fourteen belong to the family Harpacticidæ. There is a similarity in species in the different islands, but the numbers of each vary greatly.

Geological Society, November 9.—Prof. J. W. Judd, F.R.S., President, in the chair.—The following communications were read:—Note on the so-called "Soapstone" of Fiji, by Henry B. Brady, F.R.S. The Suva deposit, which has a composition very similar to that of the volcanic muds at present forming around oceanic islands in the Pacific, is friable and easily disintegrated. The colour ranges from nearly white to dark gray, the mass being usually speckled with minerals of a darker hue. Under the microscope the rock presents the character of a fine siliceous mud with crystals of augite, &c.,