

one negative has been employed is due, as the authors say, to pressure of other work and to necessary alterations in the instrument, but they hope to repeat the investigation next autumn. In the table showing the positions, the authors compare their results with those of Vogel and Pihl, and they find that a small difference, depending on the adopted position of the fundamental star, is apparent between the former's declinations, while Pihl's right ascensions differ slightly, though systematically, this discrepancy being due very probably to the different methods of determining the parallels. The memoir concludes with a map showing the relative positions of the stars plotted direct from the x and y coordinates.

L'ASTRONOMIE.—The February number of this journal contains many articles of interest. Prof. Stanislas Meunier gives an account of a meteorite that fell in Algeria; this meteorite has proved to be of iron, containing as much as 91.32 per cent., and a polished surface, when treated with an acid, showed the well-known Widmannstätten figures. M. Flammarion, in addition to an account of "Les Pierres Tombées du Ciel," with reference to "Les Anciens Volcans de la Lune," lately advocated by Prof. Coakley in *Astronomy and Astrophysics*, gives the fourth out of six chapters dealing with the question, "Comment Arrivera la fin du Monde." M. J. Fényi, director of the Observatory of Kalocsa, gives an account of the enormous solar eruption (383,000 kilometres high) that occurred on October 3 last, while a short note on some curious appearances undergone by comet Swift includes six drawings by M. Lorenzo Kropp, taken between March 18 and April 25, and the three photographs taken at the Lick Observatory by Mr. Barnard, all of which indicate the results of tremendous actions, whether they be due to the influences of different forces, "attraction, repulsion, chaleur, électricité, or changements d'état, qui aïssent sur ses astres gazeux dans leur voisinage du soleil." M. Weinck of Prague describes the results of his examination of the Lick negatives with reference to the lunar crater Flammarion, and gives a drawing (which, by the way, can be well seen by half closing the eyes) of its surroundings, together with the three new craters. This number also includes a general summary of the meteorology of the preceding year, the results being given in diagrammatic form, bringing out clearly the diurnal and monthly changes.

JUPITER'S FIFTH SATELLITE.—Mr. Barnard, who has been continuing his observations with respect to the fifth satellite of Jupiter, communicates the results he has obtained to the *Astronomical Journal* (Nos. 285-86). The values of the elongation distances deduced from the measures at elongations are, for eastern elongation, $48^{\circ}089 (\pm 0.061)$, and for western elongation, $47^{\circ}621 (\pm 0.176)$, the probable errors of a single determination being $\pm 0''.23$ and $\pm 0''.47$ respectively. These values are equivalent to the following distances:—

| | |
|---------------|-------------------------|
| E. elongation | 112,500 \pm 143 miles |
| W. " " | 111,412 \pm 412 " |

The values for the period he gives as

| | | h. | m. | s. |
|--------------------------|-----|-----|-------|-------|
| September 10–October 21 | ... | P = | 11 57 | 23.72 |
| September 10–October 28 | ... | P = | 11 57 | 23.30 |
| September 10–November 20 | ... | P = | 11 57 | 22.73 |

the mean, when proportional weights are applied, being—

11h. 57m. 23.06s.

Among some other figures which Mr. Barnard gives are:—

| | | |
|----------------------------------|-----|-----------------------|
| Hourly motion | ... | 30° 111 |
| Velocity in orbit | ... | 16.4 miles per second |
| Equatorial Hor. Par. | ... | 21° 51' |
| Distance from surface of Jupiter | ... | 67,000 miles (about). |

While working at this satellite he has also been led to measure the equatorial and polar diameters of Jupiter himself, and the following numbers show the values he has deduced, the observations being made through smoked glass:—

| | | |
|---------------------|-----|-----------------------|
| Equatorial diameter | ... | 89,790 \pm 65 miles |
| Polar | ... | 84,300 \pm 80 miles |

GEOGRAPHICAL NOTES.

THE *Times* Berlin correspondent furnishes some interesting notes of Dr. Baumann's recent journeys in the region of the Nile sources, which confirm Mr. Stanley's identification of the

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Mountains of the Moon. In Urundi the kings were supposed to be lineal descendants of the moon, and the white traveller was hailed as being the returned ghost of a lately-deceased chief. On September 11 the expedition crossed the Akenyaru, which is not, as supposed, a lake, but a river, though the name "Nyanza" is often applied to it. Dr. Baumann also discovered that the so-called Lake Mworengo is in reality a river which flows into the Akenyaru, and came to the conclusion that there was no extensive sheet of water in Ruanda or North Urundi. On September 19 Dr. Baumann arrived at the source of the Kagera (Alexandra Nile), which rises at the foot of the precipitous and wooded hills which form the watershed between the basins of Rufizi and the Kagera. This mountain chain is known to the natives by the name of the "Mountains of the Moon," and is held in peculiar reverence by them. Here Dr. Baumann maintains the real source of the Nile to be, for if "it be acknowledged that the Kagera is the chief feeder of the Victoria Nyanza, it follows that the headwaters of the Nile can be none other than those of the Kagera itself in the Mountains of the Moon in Urundi, within the boundaries of German East Africa."

THE often-discussed scheme of an expedition to the North Pole by way of Franz Josef Land has been revived by Mr. F. G. Jackson, who proposes to lead an expedition next summer, if the means for equipping a ship are forthcoming. Mr. Jackson's plan is to travel with a small party, and establish a chain of depots northward from the most northerly accessible landing-place in Franz Josef Land. He would remain during winter in the most advanced post, and push on each summer with dog-sledges, until the pole is reached. The plan rests on the hypothesis of Franz Josef Land extending to the pole, just as Dr. Nansen rests on the hypothesis of a transpolar current, but the evidence of the great extension of the land is not very satisfactory. Mr. Jackson's previous Arctic experience is not stated, nor is there any indication given as to whether he intends to travel at his own expense or to appeal for pecuniary help.

THE British South African Company have reserved the Zimbabwe Ruins and the area within a radius of one mile from the top of Zimbabwe Hill for archaeological and scientific purposes, and no settlements, farms, or mines will be permitted within that radius.

A BEAUTIFULLY illustrated report on the regulation of Swiss torrents, by the late M. de Salis, has recently been published by the Swiss Government. The natural erosion and surface change which go on at the present day so rapidly among the steep slopes of a mountainous country as to be frequently cataclysmic in their intensity, have to be avoided or endured in inhabited regions. A frequent source of floods is the damming up of a large river by the mud and stones brought down by a freshet in a small tributary. The method of combating this effect is to build a succession of weirs, and cut a parallel canal so that the sediment is caught and the overflow regulated before the escaping water reaches the main valley.

MR. MACKINDER'S fourth Royal Geographical Society's educational lecture, delivered last week, dealt with Central Asian trade- and travel-routes, under the title of "The Gates of India and China."

TWENTY YEARS IN ZAMBESIA.

MR. F. C. SELOUS, the famous hunter and explorer of South Central Africa, gave a summary of his travels to the Royal Geographical Society on Monday evening. His address was illustrated by an exhibition of unusual interest in the tea-room, where a large collection of stuffed specimens of the characteristic African mammalian fauna was arranged. Photographs and various objects illustrative of the rapid development of Mashonaland since the Chartered Company took possession were also shown.

Mr. Selous commenced his African wanderings in 1871, and except for occasional visits to England he has travelled and traded in that continent ever since. In 1872 he and some companions penetrated into Matabeleland to hunt elephants, and had an amusing interview with the chief, Lo-Bengula. Although at that time not an explorer in the scientific sense, the accurate memory of his early wanderings over the country enabled Mr.