

WE are informed that the lists of papers, &c., appended to Mr. C. R. Markham's "Fifty Years' Work of the Geographical Society," referred to in our leading article of last week, were not compiled by Mr. Rye.

THE additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus* ♀), from India, presented by Mr. G. R. J. Glennie; a Rhesus Monkey (*Macacus erythreus* ♀) from India, presented by Miss Richardson; a Malbrouck Monkey (*Cercopithecus cynosurus* ♂) from West Africa, presented by Mr. J. Pope; a Black-faced Kangaroo (*Macropus melanops* ♂) from Australia, presented by Miss Drax; a Black-headed Gull (*Larus ridibundus*), European, presented by Master Rew Lloyd; two Common Kestrels (*Tinnunculus alaudarius*), British, presented by Masters John and Charles Godfrey; a Snow Bunting (*Plectrophanes nivalis*), North European, presented by Mr. H. A. Macpherson; a ——— Monkey (*Macacus*, sp. inc. ♂) from Hainan Island, China, deposited; a Sooty Mangabey (*Cercocebus fuliginosus* ♂) from West Africa, an Ariel Toucan (*Ramphastos ariel*) from Brazil, a Naked-footed Owllet (*Athene noctua*), European, an Ornamental Hawk Eagle (*Spizaetus ornatus*), a Black Tortoise (*Testudo carbonaria*), an Argentine Tortoise (*Testudo argentina*) from South America, two Radiated Tortoises (*Testudo radiata*) from Madagascar, purchased; a Gaimard's Rat Kangaroo (*Hypsiprymnus gaimardi*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

COMET 1881 *f* (DENNING).—From the elements of the orbit of this comet it is evident that it was a much more conspicuous object about the time of perihelion passage in the middle of September, than when it was detected by Mr. Denning on the morning of October 4, and its not having been sooner discovered can only be attributed to the general prevalence of clouded skies in September. Mr. Denning writes us that from September 2 to 29 he could not make a single observation before sunrise, owing to cloudy weather, but that on the mornings of September 29 and October 1 he missed the comet "in some unaccountable manner." The comet having escaped in September, the systematic examination of the sky, which is now pursued by him, is thus explained.

It ought now to be possible to decide by calculation from accurate positions, whether the comet be one of short period or not. The resemblance of the orbit to that of the fourth comet of 1819 has been pointed out. That comet was undoubtedly moving in an elliptical orbit of very limited dimensions: a computation founded upon a new reduction of the observations made at the Observatory of Paris, which alone are precise enough for the purpose, has led Mr. Hind to a period of revolution of 5'155 years, which is somewhat longer than that deduced by Encke in 1820 from the same observations as they were published at the time by Bouvard. At the previous aphelion passage in 1817 the comet would pass in close proximity to the planet Jupiter, and considerable perturbations may have then occurred. In the interval between the perihelion passage of the comet of 1819 and that of Mr. Denning's comet there are twelve periods of 5'151 years, and the comet would again be greatly disturbed by Jupiter near aphelion in 1853, so that it is possible to explain to a great extent the differences between the orbits of 1819 and 1881, but that the period of revolution should not have undergone material alteration at the same time, may perhaps be considered as an argument against the identity of the comets. However, as we have intimated, the question should soon be decided by direct calculation. Less than a fortnight's observations have been shown in more cases than one to be sufficient to give pretty close approximations to the periods of comets moving in small ellipses, as in the case of De Vico's comet of 1844, for which from only eight days' observations M. Faye inferred a revolution of 5'15 years, the correct one being 5'46 years, or that of Brorsen's comet at its first appearance in 1846, when from ten days' observations Mr. Hind assigned a revolution of 5'519 year; the true one being 5'569 years.

The following positions of Mr. Denning's comet are from an ephemeris calculated by Dr. Oppenheim for Berlin midnight:—

		R.A.			Decl.	Log. distance from	
		h.	m.	s.		Sun.	Earth.
October	28	...	10 10	0 ...	+ 14 51'6		
	30	...	10 13	1 ...	14 52'2	... 0'0685	... 0'0411
November	1	...	10 15	52 ...	14 53'1		
	3	...	10 18	35 ...	14 54'5	... 0'0888	... 0'0503
	5	...	10 21	7 ...	14 56'4		
	7	...	10 23	30 ...	14 58'7	... 0'1084	... 0'0582
	9	...	10 25	44 ...	15 1'4		

The intensity of light on November 9 is less than half that on the day of discovery.

HERSCHEL'S "GARNET SIDUS."—This variable star, the μ Cephei of our Catalogues, appears to require more regular observation than, to judge from published statements, it has of late received, and is an object well deserving the attention of some one of our many amateurs. No doubt satisfactory observations are attended with some difficulty from the high colour of the star, but on that account the results of a single observer may perhaps be deemed more reliable. Mr. Webb, in the new edition of his "Celestial Objects for Common Telescopes," assigns it a period of five or six years, which is assuredly a mistake. It has been included amongst the irregular variables, and its period may be usually about 430 days, instead of several years. Argelander, as an approximation to the period, gives 431'8 days, from observations between 1848 and 1863, but there are very material perturbations. He considered that the period of increase of brightness is greater than that of decrease in the proportion of 4 to 3. The position of μ Cephei for 1882 is in R.A. 21h. 39m. 53'7s., Decl. + 58° 14' 21".

This star, which was not observed by Flamsteed, is the first of Ptolemy's $\delta\mu\rho\rho\alpha\rho\alpha\iota$, under the constellation Cepheus, which he places in 13° 40' of Pisces with 64° north latitude. If we carry back the position of the variable star from the second Radcliffe catalogue to the reputed epoch of Ptolemy's catalogue—the first year of Antoninus, or A.D. 138—we find its longitude to be in 14° 16' of Pisces, with north latitude 64° 7', so that, as was first shown by Argelander (*Astron. Nach. Ergaunungsheft*), the identity is beyond doubt.

GEOGRAPHICAL NOTES

THE St. Petersburg Correspondent of the *Times* writes as follows:—The question of the existence of volcanoes in Central Asia, especially on the Kuldja frontier, has always been a matter of doubt and discussion among geologists and Russian explorers. The Governor of Semiretchinsk, Gen. Kolpakofsky, had already fitted out expeditions to settle the question—once in 1878, and again in 1879; but owing to the difficulties of reaching the mountains, which the Chinese consider impassable, and also to the disorders which were then taking place in Kashgar, both expeditions were unsuccessful. This year General Kolpakofsky again set himself to the task, and now reports that he has at last discovered the perpetual fires in the Thian Shan range of mountains. He telegraphs that the mou ta'in Bai Shan has been found twelve miles north-east of the City of Kuloja, in a basin surrounded by the massive Ailak Mountains, and that the fires which have been burning there from time immemorial are not volcanic, but proceed from burning coal. On the sides of the mountain there are caves emitting smoke and sulphurous gas. The *Official Messenger*, referring to this interesting telegram, observes that the question as to the existence of volcanic formations in Central Asia, which has so long agitated the learned world, is now irrevocably decided in the negative, and bears the testimony of many Russian explorers. Mr. Schuyler also, in his "Turkistan," mentions that these perpetual fires in the mountains referred to by Chinese historians were considered by Severtzoff, who explored the region, as being caused by the ignition of the seams of coal or the carburetted hydrogen gas in the seams. The same author further mentions that Capt. Tosnoffsky, another Russian explorer, was told of a place in the neighbourhood from which steam constantly rose, and that near this crevice there had existed from ancient times three pits, where persons afflicted with rheumatism or skin diseases were in the habit of bathing.

MR. DORWARD, of the China Inland Mission, has lately made a lengthened journey in the Chinese province of Hunan, of which he has sent home somewhat full particulars. He was absent from Wuchang, opposite Hankow, on the Yang-tsze-kiang, for five and a half months, and visited almost every part of this