

A LARGE Horticultural Exhibition is to be held at Berlin in September 1885.

A COFFEE plantation has been established by a landowner in the neighbourhood of Rome. It is stated that he realised a fair profit with this year's harvest, which consisted of 2 tons of coffee per hectare.

A NEW mud-crater has formed at the foot of Mount Etna, measuring some 500 metres in diameter. The mud ejected by it flows towards Monte Furmento and the pine forest of Biancavilla.

THE additions to the Zoological Society's Gardens during the past week include a Vervet Monkey (*Cercopithecus lalandii* ♀) from South Africa, presented by Mr. J. A. Cameron; an Asiatic Wild Ass (*Equus onager* ♂) from South-Western Asia, presented by Lieut.-Col. R. A. Crawford; a Short-eared Owl (*Asio brachyotus*), a Lesser Kestrel (*Tinnunculus cenchris*) from Griqualand West, South Africa, presented by Mrs. L. Weil; a Common Cormorant (*Phalacrocorax carbo*), British, presented by Mr. S. S. Mossop; a Macaque Monkey (*Macacus cynomolgus*) from India, deposited; two Tasmanian Wolves (*Thylacinus cynocephalus*) from Tasmania, a Reindeer (*Rangifer tarandus* ♂) from Labrador, a Golden-winged Woodpecker (*Colaptes auratus*) from North America, a South American Rat Snake (*Spilotes variabilis*) from South America, purchased.

OUR ASTRONOMICAL COLUMN

THE SATURNIAN SYSTEM.—Dr. W. Meyer, late Assistant-Astronomer at the Observatory of Geneva, has published in t. xxix. of *Mémoires de la Société de Physique et d'Histoire Naturelle de Genève* a determination of the dimensions of Saturn's rings and of the orbits of six satellites, and the mass of the planet, founded upon observations made at the Observatory, with a filar-micrometer on the Merz refractor of 10 inches aperture, presented to that institution by the late Prof. Plantamour. The observations in question were made during the opposition of 1881, and upon a system which it was believed would give the measures a superiority over those obtained with the same instrument in the previous year. The memoir on Saturn and his satellites, which has been separately published, is preceded by a very minute description of the Plantamour equatorial by Prof. Thury. The measures are printed in detail with the elements of reduction employed; they extend from August 15 to December 19. Dr. Meyer considers that Mimas was certainly observed on five nights, though he remarks: "Même dans la colossale lunette de Vienne, c'est un objet très délicat, qui est rarement visible quand il n'est pas près d'une élongation." On November 4, at 10h. 31m., a very faint object was observed, approximately in the position— $\alpha = 254''$, $\gamma = -35''$, which, by means of Prof. Asaph Hall's ephemeris, Dr. Meyer identifies as Hyperion. In the discussion of the orbits of the satellites (Enceladus, Tethys, Dione, Rhea, Titan, and Japetus) provisional elements are assumed, and are corrected in the usual manner by equations of condition. In order to determine the mean motions, the Geneva results are compared with those of Bessel in the case of Titan, while for other satellites the comparison is made with the epochs deduced by Jacob from his measures at Madras in the years 1856-58, it being considered that, in view of the precision attaching to them, little would be gained by having recourse to the older observations, especially as difficulties attend their explanation in many cases.

The mass of the ring is concluded to be very minute, certainly very much less than the value assigned by Bessel; it is stated that with the aid of Tisserand's theory, taken in connection with the results of observation, $\frac{1}{1647}$ was found for a higher limit. The most probable mass of the planet deducible from the Geneva observations is $\frac{1}{3482.5}$, agreeing within the probable error with that assigned by Jacob, and that derived by Prof. Asaph Hall from the Washington measures of Japetus.

The following are the periods of the satellites and their mean distances from Saturn, determined by Dr. Meyer:—

	Sidereal revolution				Mean distance	
	d.	h.	m.	s.	In arc	In equatorial radii of Saturn
Enceladus ...	1	8	53	6.92	34.350	3.866
Tethys ...	1	21	18	25.62	42.751	4.812
Dione ...	2	17	41	9.29	54.757	6.163
Rhea ...	4	12	25	11.57	76.484	8.608
Titan ...	15	22	41	23.16	176.910	19.911
Japetus ...	79	7	49	24.84	514.711	57.930

THE VARIABLE STAR U GEMINORUM.—Mr. Knott has succeeded in observing another maximum of this irregular variable, which appears to have taken place on October 22, though there was very little change for four days after that date. On October 18 it was below 13.3 m. From his previous observations compared with this one, Mr. Knott infers that there has been a double period in 160 days.

ENCKE'S COMET.—M. Otto Struve has notified that an ephemeris of this comet, extending from the beginning of the present month to the beginning of May next, has been prepared by Dr. Backlund, and that it was intended to communicate it to astronomers direct from Pulkowa.

WOLF'S COMET.—M. Gonnessiat, of the Observatory at Lyons, has calculated elements of this comet from observations extending over forty-five days: he finds the period of revolution 6.862 years. The following ephemeris is deduced from his orbit:—

At Paris Midnight							
	R.A.			N.P.D.		Log. distance from Earth	Intensity of light
	h.	m.	s.	°	'		
November 21...22	57	13	...	93	6.0	0.0035	0.74
23...23	2	11	...	93	31.4		
25...23	7	11	...	93	54.9	0.0169	0.70
27...23	12	13	...	94	16.4		
29...23	17	18	...	94	36.0	0.0300	0.65
December 1...23	22	23	...	94	53.8		
3...23	27	30	...	95	9.8	0.0425	0.61

The intensity of light on September 21 is taken as unity.

GEOGRAPHICAL NOTES

AT the last meeting of the French Geographical Society Dr. Paul Heis read a paper upon the results of his journey through the valley of the Meikong, and further north into the unexplored region which separates Indo-China, properly so-called, from Tonquin. Dr. Heis has made several discoveries likely to be of service to anthropologists, geologists, and mineralogists, and has brought back with him a collection of insects and reptiles, as well as a meteorological register, which was checked four times a day during the whole of his journey. Leaving Saigon on December 12, 1882, he ascended the Meikong as far as the 18th parallel, at which point he turned off from the main stream in order to go up its affluent, the Nancham, and endeavoured to reach Luang-Prabang through the hitherto unexplored region known in Annam as the principality of Tranninh. This region is infested by Chinese brigands, called Hos, who drove him back to the Meikong, and seized the greater part of his baggage. Reascending the river to Luang-Prabang he remained there for eight months, exploring the country in various directions, notably along the Nancham, which took him close to the region of the Hos, so that he was again compelled to retrace his steps. Being prevented from returning eastward, he went through the Siamese part of Burmah, reascended the Meikong as far as Chieng-sen, thence, passing from the basin of the Meikong to that of the Meinam, he reached Chieng-mai, and so made his way on foot to Bangkok, following the course of the Meinam. From Bangkok he went to Chantalun, on the west coast of Siam, and thence on foot to Baltambang, traversing the plain of the Saphyrs, where 4000 Burmese are employed in the search for precious stones. After visiting the ruins of Angkor, he reached Saigon on June 12 last.

THE oldest Geographical Society in Europe has hitherto been regarded as that of Paris, founded in 1821, but according to a paper recently read before the Verein für Erdkunde at Dresden by Dr. Ruge, this honour belongs to the "Cosmographic Society" of Nuremberg. It was established about 1740, and first came before the public in 1746, and was connected with Homann's establishment in Nuremberg. The founder of the latter was the well-known cartographer, Johann Homann, on