

MONSIGNOR ELIGIO COSI, Bishop *in partibus infidelium* at Chang-Tong in China, is said to have invented a new alphabet, composed of thirty-three letters, with which all sounds of the Chinese tongue can be clearly expressed; until now 30,000 were requisite. The Emperor of Austria, to whom Monsignor Cosi communicated his invention, presented him with a complete typographical apparatus for a printing establishment.

THE boring of the Arlberg Tunnel is in active progress on the Austrian side of the mountain, and ground will shortly be broken on the Swiss side. The St. Gothard line in its entire length is expected to be in running order in April next.

A RATHER smart earthquake shock was felt at Zermatt on the 3rd inst., and other two on Friday last.

ON Wednesday, September 8, lightning fell on the Sorbonne at about half-past two o'clock. A globe of fire was observed by persons present on the spot. Some of them say it was seen coming from the point of the north-western conductor, which was struck, as well as the south-western, with a great noise. The Sorbonne had, until recently, no lightning conductor, and never, as far as is known, has any thunderbolt struck the venerable abode of the French University. But within the last few months six stems have been erected and connected by an iron bar, making a circuit which goes all over the roof of the immense building. Unfortunately the pit where the earth conductor has been placed is situated at a great distance from the main building, in a courtyard adjoining the laboratory of M. Jamin, and the conductor which connects the roof with this is a square iron box of less than 15 mm. on each side, so that there is not sufficient conductivity in it to establish an efficient connection with the earth. This accident proves the sagacity of M. Karsten, the Schleswig Holstein physicist, who published a table giving a formula for regulating the dimensions of the connecting-rods with their lengths, as is taught by Ohm's laws. It shows also how little the knowledge of lightning-conductors is spread in France, in spite of the several official commissions which have been established by the Government.

DURING the severe thunderstorm which passed over North London on Monday, a peculiar phenomenon was witnessed in the grounds of the Welsh Harp, Hendon, by some gentlemen boating on the lake. A vivid flash of lightning was succeeded by a tremendous peal of thunder, a great ball of fire at the same time descending from the heavens into the water. When the storm had abated over 100 fish of various kinds, including two fine carp, weighing together 23 lb., were found floating dead on the lake.

THE elevation of temperature which has been so remarkable in Paris during the end of August and the beginning of September has been accompanied by the production of a putrid odour spread all over the city, and which has been obnoxious to the public health. A report has just been published by the Prefect of Police, explaining that it must be attributed to the want of water for flushing the sewers, and also to the existence of a number of establishments where sulphate of ammonia is produced, and matters extracted by night-men are dried to be turned into manure. The Prefect of Police says that measures will be taken for producing an enlarged supply of water, and that gradually all the sewage will be conducted to Clichy by the sewers. The completion of this scheme involves the purchase by the city of a large tract of land for utilising these matters, which could not be thrown into the Seine without poisoning the stream.

THE *Daily News* Naples correspondent writes that since the 4th instant Vesuvius has again become more active, and has launched his projectiles in greater number and to a greater height. The seismograph at the observatory is also more animated, and new lava has issued from the side of the cone, flowing, fortunately for the railway, to the north east.

THE new number of the *Canadian Naturalist* (which, we believe, is kept up with difficulty) contains a paper by Mr. G. M. Dawson on the Distribution of the more Important Trees of British Columbia, which has also been printed separately, and another by Principal Dawson, on the Geological Relations and Fossil Remains of the Silurian Ores of Pictou, Nova Scotia. Mr. G. F. Matthew has a paper on Tidal Erosion in the Bay of Fundy. Are such specimens of etymological jugglery as the Rev. J. Campbell's paper on the "Hittites in America" supposed in Canada to have any connection with science? Unfortunately some of our own scientific societies are guilty of encouraging similar elaborate trifling.

FURTHER excavations, the *Times* Geneva correspondent states, made in the ancient glacier bed near Solothurn have produced some very interesting results, and the spot is being daily visited by geologists and sightseers. The debris removed consisted of 4½ metres of drift mixed up with boulders and crystalline erratic blocks. The rock bared measures 20 metres long by 7 wide. It is highly polished by the action of the ice, and traversed by channels, through which the glacier-water found its way into the so-called "giants' pots," or "kettles." These, so far as has yet been ascertained, are three in number. The largest measures 8 metres from west to east, 3·7 from north to south, and is 3½ metres deep. The second is 5½ metres across, and still contains the great boulder or mill-stone by which it was hollowed out. The third is smaller and oval-shaped, and there is reason to suppose that, if the excavations were continued, several more would be brought to light. This interesting relic of the great ice-age, or rather of the last glacial epoch, is at present private property, but a project is on foot for its acquisition by the canton, and preservation as a glacier garden in the manner of that of Lucerne.

WE have on our table the following publications:—"Familiar Wild Flowers," by F. E. Hulme (Cassell); "On the Educational Treatment of Incurably Deaf Children," by W. B. Dalby (Churchill); "Brain and Nerve Exhaustion," by Mr. Stretch Dowse (Baillièrè); "Lectures on the Science and Art of Education," by Joseph Payne (Longmans); "The Morals of Evolution," by M. J. Savage (Trübner); "Animal Magnetism," by R. Heidenhain (Kegan Paul); "Stonehenge Plans, Descriptions, and Theories," by W. M. F. Petric (E. Stanford); "Ambulance Lectures," by Lionel A. Weatherly, M.P. (Griffith and Farran); "Astronomy, Text-Books of Science," by R. S. Ball (Longmans); "The Land and Freshwater Shells of the British Isles," by R. Rimmer (Bogue); "British Wild Flowers by Natural Analysis," by J. Messer (Bogue); "Glimpses of England," by J. R. Blakiston (Griffith and Farran); "Radical Mechanics of Animal Locomotion," by Mr. Wainwright (Van Nostrand).

THE additions to the Zoological Society's Gardens during the past week include a Common Cuckoo (*Cuculus canorus*), European, presented by Mr. G. Chandle; a Stock Dove (*Columba oenas*), European, presented by Mr. A. Basil Brooke; a Common Raven (*Corvus corax*), European, presented by Mr. W. A. Mitchison; a Rufescent Snake (*Leptodira rufescens*) from South Africa, presented by the Rev. G. H. R. Fiske, C.M.Z.S.; a Horned Lizard (*Phrynosoma cornutum*) from Texas, presented by Mrs. Budgett; a Vervet Monkey (*Cercopithecus lalandii*), from South Africa, two Bull Frogs (*Rana mugiens*) from Nova Scotia, deposited.

OUR ASTRONOMICAL COLUMN

FAYE'S COMET.—The following places of this comet are adapted, like those previously given in this column, to Berlin midnight or to about 11h. Greenwich time:—

	R.A.			N.P.D.			Log. distance from Earth.	
	h.	m.	s.	°	'	"	Earth.	Sun.
Sept. 23	23	53	48	83	24.3	...	0.0422	0.3174
25	—	52	45	83	46.9	...	0.0406	...
27	—	51	46	84	10.0	...	0.0393	0.3134
29	—	50	51	84	33.3	...	0.0384	...
Oct. 1	—	50	2	84	56.8	...	0.0379	0.3094
3	—	49	18	85	20.5	...	0.0377	...
5	—	48	40	85	44.1	...	0.0378	0.3054
7	—	48	9	86	7.7	...	0.0383	...
9	23	47	46	86	31.0	...	0.0390	0.3015

It will be seen that the nearest approach of the comet to the earth (1.09) occurs within this period, and the circumstances are as favourable for observation as they can be at this appearance. An observation by M. Pechüle at Copenhagen on September 1 shows that the ephemeris of Prof. Axel-Möller requires only the small correction of -1.6s, in R.A., and +15" in N.P.D. In no case has the motion of a comet of short period been followed with more striking success than that of Faye's comet has been during the thirty-seven years which have elapsed since its discovery, through the masterly investigations of the Swedish astronomer. Nor has he confined himself to following the comet during this interval: he has confirmed in a great degree the inferences drawn by Leverrier with respect to the conditions attending the near approach of the comet to Jupiter, about the time of nodal passage in the year 1816, having previously calculated with precision the effect of an approximation of the two bodies within 0.64 in March, 1841, and assigned accurate elements for December 25, 1838. (See the *Proceedings* of the Academy of Sciences at Stockholm, January, 1873.)

SCHABERLE'S COMET (1880, APRIL 6).—The theoretical brightness of this comet, discovered seven months since, is on the increase, and we subjoin an extract from the ephemeris calculated by M. Bigourdan, from elements founded upon normal places for April 10, 28, and May 16. It is for Paris midnight, and the intensity of light at discovery is taken = 1.

	R.A.			N.P.D.			Log. distance from Earth.		Intensity of light.
	h.	m.	s.	°	'	"	Earth.	Sun.	
Sept. 28	6	39	45	76	35.5	...	0.2882	1.03	
30	6	37	16	77	32.0	...	0.2817	...	
Oct. 2	6	34	35	78	30.3	...	0.2751	1.06	
4	6	31	42	79	30.4	...	0.2685	...	
6	6	28	38	80	32.3	...	0.2620	1.10	
8	6	25	20	81	35.9	...	0.2556	...	
10	6	21	50	82	41.4	...	0.2494	1.14	
12	6	18	6	83	48.6	...	0.2434	...	
14	6	14	9	84	57.6	...	0.2376	1.17	

The maximum brightness is attained about November 4, near which date the following are the comet's approximate positions:—

12h. G.M.T.	R.A.			N.P.D.			Log. distance from Earth.	
	h.	m.	s.	°	'	"	Earth.	Sun.
Nov. 2	5	25	23	96	51	...	0.2029	0.3762
6	5	12	52	99	21	...	0.2024	0.3819
10	4	59	53	101	46	...	0.2047	0.3875
14	4	46	35	104	1	...	0.2108	0.3931

SWIFT'S NEW COMET.—Mr. Lewis Swift, writing from Rochester, New York, on August 18, gives some particulars of his observation of a cometary object on August 11, and explains the cause of his delay of a week in notifying his discovery. On the 11th he observed a nebulous object elongated in the direction of the sun in the field with and about 1° distant from the small bright nebula H. I. 262, the position of which for 1880 is in R.A. 11h. 20m. 32s., N.P.D. 22° 45' 2", and having been familiar with the neighbourhood for many years, he supposed it to be a comet, but could detect no motion before the sky clouded. On the morning of the 17th, the sky being clear after the moon had set, he examined the spot, but the nebulous object was missing, and a search until daylight failed to recover it. He then cabled his discovery and made it known to astronomers in the United States. The position, he says, would not differ much from R.A. 11h. 28m., N.P.D. 22°. The comet was first detected with his comet eyepiece, power 25, and examined with powers 36 and 72; it was faint, but not very faint. We have not heard that it has yet been seen elsewhere. The place given is not upon the track of Pons' comet of 1812, the return of which is shortly expected, and for which it is much to be desired that a strict search should be maintained. Sweeping-ephemerides prepared under Prof.

Winnecke's direction will be found in the *Vierteljahrsschrift der Astronomischen Gesellschaft*, 12. Jahrgang, 2. Heft.

THE BINARY STAR 85 PEGASI.—By five nights' recent measures of the close stars in this system, Mr. Burnham has satisfactorily established their binary character, which had been rendered probable by his earlier measures; the mean result is—
1880.59 ... Position, 298° 3 ... Distance, 0".65.

For the distant companion Mr. Burnham finds from six nights' observations—
1880.57 ... Position, 25° 0 ... Distance, 15".41.

GEOGRAPHICAL NOTES

THE sixth issue of Behm and Wagner's "Population of the Earth" has just been issued. Since the last issue several censuses have been taken, and the results of these, combined with the natural increase of the population, have added something like seventeen millions to the inhabitants of the globe. The population of the earth is now stated to be 1,455,923,550, as compared with 1439 millions two years ago. Europe has 315,929,000 inhabitants, or 32.5 per square kilometre; Asia, 834,707,000, or 18.7 per sq. kil.; Africa, 205,679,000, or 6.9 per sq. kil.; Australia and Polynesia, 4,031,300, or 0.4 per sq. kil.; and the Polar Regions 82,000, mostly divided between Iceland and Greenland. The *Bevölkerung* is just too soon to be able to utilise the results of the censuses of the United States and of Austria, which are taken this year, and that of our own country will not of course be available for at least two years. The editors have, however, made a very careful calculation of the present population of the States, on the basis of registration and emigration statistics, and find the probable population of the present year to be 48,000,000. The section of the work relating to Roumania and the Balkan Peninsula is specially valuable, and must have cost the editors a vast amount of trouble, considering the untrustworthy and imperfect nature of the data at their command. The areas of these countries, as well as of several other regions on the globe, including Africa, are mainly given from careful planimetric measurements made under the direction of the editors. The area of Roumania is given as 129,947 square kilometres, and the population as 5,376,000; Servia, 48,657 sq. kil., 1,589,650 population; Montenegro (after the Berlin Treaty), 9,475 sq. kil., population 286,000; European Turkey, including the dependencies of East Rumelia, Bulgaria, Bosnia, and Herzegovina, 339,211 sq. kil., population 8,866,500; of Asiatic Turkey the area is given as 1,899,206, and the population 16,320,000. For Afghanistan, the *Bevölkerung* gives the details of the various tribes and populations contributed to NATURE by Mr. Keane in January last. It also gives Mr. Keane's table of the Turkoman tribes (NATURE, vol. xxi. p. 111), which is wrongly attributed to Prof. Vámbéry. The statistics of the Indian Archipelago have cost the editors great trouble, mainly owing to the confused and unsystematic way in which the Batavian Government compile their statistics. There is a very detailed and careful *résumé* of the areas and populations of the various Polynesian island groups. The result reached by the new estimation of the area of Africa in the *Bevölkerung* is 29,283,390 square kilometres, of which about 6½ millions are forest and cultivable land, the same are in prairies and light woods, 1½ million bush, 4½ millions steppe, 10½ millions desert, and 170,000 lakes. A new planimetric measurement of South America made by Dr. Wisotzki gives the area as 17,732,128 square kilometres. The total area of the North Polar lands is given as 1,301,100 square kilometres, and of the South as 666,000.

THE French scientific expedition headed by Prof. d'Ujfalvy, the celebrated French explorer of Central Asia, has arrived at Nijni Novgorod, on its way to Turkestan, to explore Bokhara and the whole of Afghanistan north of the Hindoo Koosh. The expedition will proceed to Tashkend, where it will pass the winter, *via* Siberia, taking the steamer from Nijni Novgorod to Perm, the train thence to Ekaterinburg, the post-road to Turmin, the steamer again to Semipalatensk, and completing the distance to Tashkend by post-road. As soon as possible in the spring the expedition will set out for Samarcand, and, after exploring the antiquities in the Zerafshan district, will cross the border into Bokhara, proceeding thence, at the completion of the exploration of the Khanate, to the Pamir Walkhan, Badakshan, and other little known Afghan possessions in the Hindoo Koosh.