

The names and nationality of these two unfortunate travellers have not been ascertained yet, according to our contemporary.

FROM a Japan paper we learn that at the Botanical Garden in Aichi *ken*, an Indian tea-plant, has been planted as an experiment. The leaves have lately been gathered and treated in the same manner as the Uji tea, and it has been found that the product of dried tea is greater in proportion to the quantity of leaves used than in the case of Japanese plants. Tea-growers are, in consequence, said to be devoting their attention to the new plant.

THE additions to the Zoological Society's Gardens during the past week include a Plantain Squirrel (*Sciurus plantani*) from Java, a Smooth Snake (*Coronella levis*) from Hampshire, presented by Mr. D. Tober; a Plantain Squirrel (*Sciurus plantani*) from Java, presented by Mrs. Elliot; a Common Spoonbill (*Platalea leucorodia*), European, presented by Mr. W. H. St. Quintin; a Common Kestrel (*Tinnunculus alaudarius*), European, presented by Mr. J. Young; two Central American Agoutis (*Dasyprocta isthmica*) from Central America, a Variable Squirrel (*Sciurus variabilis*), a Common Boa (*Boa constrictor*) from South America, two West African Pythons (*Python seba*) from West Africa, a European Pond Tortoise (*Emys europæus*), European, two Glass Snakes (*Pseudopus pallasi*), a Lacertine Snake (*Coleopeltis lacertina*), a Common Snake (*Tropidonotus natrix*-var.), South European, deposited; a Fraser's Squirrel (*Sciurus stramineus*) from Ecuador, a Ring-tailed Coati (*Nasua rufa*), a Cayenne Lapwing (*Vanellus cayennensis*) from South America, three Californian Quails (*Callipepla californica*), purchased; two Gayals (*Bibos frontalis*) from Assam, two Sumatran Porcupines (*Hystrix longicauda*) from Sumatra, an Indian Crocodile (*Crocodilus palustris*) from India, received in exchange.

OUR ASTRONOMICAL COLUMN

HARTWIG'S COMET.—Prof. Winnecke, in a circular issued from Strassburg on October 5, expresses the opinion that it is highly probable the comet discovered by Dr. Hartwig on September 29 was observed in the year 1506, and at his request Dr. Hartwig has submitted the point to calculation, using the first approximation to the orbit which we gave last week. Laugier computed elements of the comet of 1506, from the rough accounts left by European chroniclers and one in the Chinese annals, but his places were necessarily very arbitrarily fixed in this case, as may be seen on referring to his communication presented to the Academy of Sciences at Paris on January 26, 1846. It has not been consequently from any striking similarity between the orbits that Prof. Winnecke has been led to conjecture the identity of the comets, but rather, it would appear, from a general resemblance of track, allowance being made for the somewhat later appearance in the year of the comet of 1880. The Chinese observations do certainly in some cases enable us to make reliable approximations to the orbits of comets, as, for instance, in 568 and 1337; indeed for the latter comet they furnish a remarkably good outline of its apparent path, considering the difficulties which in many cases attend the interpretation of the Chinese accounts: nevertheless for the great majority of comets recorded in their annals the descriptions are unfortunately totally insufficient for this purpose, one very common failing being the omission of dates corresponding to the positions given, as for the comet of A.D. 178, which must have passed very near the earth from the long track it described in the heavens.

As regards European observations of the comet of 1506, Pingré tells us (on the authority of the Chronicles which, according to his excellent custom, are named in his margins), that a comet was seen in the month of August in the north, or between the north and east, or lastly between the west and north, and as the comet was not distant from the Pole, so that it appeared in the evening after sunset, and in the morning before sunrise, it may have had at different hours of the night the various positions mentioned by the historians. It had a long and bright tail which extended "between the fore and hind-wheels of the chariot." On August 8 a Polish historian, an eye-witness, says it was seen near the Pole above "the seven stars or the stars of the great chariot;" on the following night it was

situated amongst the same stars, and later, on several nights, it was seen below them; declining by the signs Cancer, Leo, and Virgo, it attained the northern part of the horizon and disappeared on August 14. Some writers limit its appearance to eight days; others say it was visible for three weeks, or even a month.

With respect to Chinese observations, Pingré quotes from Gaubil's manuscript, of which he made so much use, which was preserved in the Dépôt de la Marine at Paris in his time, but since understood to be lost, and from Mailla and Couplet. We have now the fuller translations by Biot and Williams. We read that in the first year of the epoch Ching Tih, in the reign of Woo Tsung, on the day Ke Chow of the 7th moon (1506, July 31), a star was seen to the west without the boundary of Tsze Wei (the circle of perpetual apparition). . . . After some days it had a short tail. It was seen between the sidereal divisions Tsan (determined by δ Orionis) and Tsing (by μ Geminorum), the Chinese sidereal divisions, it must be remembered, being intervals of right ascension with wide limits of declination reckoned from the determining star of the division, which we have here taken from Biot. It gradually lengthened, extending in a north-westerly direction towards or to Wan Chang (θ, ζ, φ Ursæ Majoris). On August 10 it was bright, and moved to the south-east, it lengthened to about 5° and swept the upper of the stars Hea Tae (ν, ξ, Ursæ Majoris), and entered within the space Tae Wei Yuen (Biot's *Thai-Wa*), a space between stars in Leo and Virgo, to which, as also to Tsze Wei, the circle of perpetual apparition mentioned above, constant reference is made in the Chinese cometary observations. For the limits of this space Williams may be consulted. Biot and he substantially agree in their translations. Dr. Hartwig assumes the perihelion passage in 1506 to have occurred on July 1, old style, and with the elements of 1880 finds a track of which it is remarked, "Die Uebereinstimmung des so gefundenen Laufes mit dem wirklich beobachteten ist eine vollständige." The track is thus given:—

|             | R.A.  | Decl. | R.A.        | Decl.           |
|-------------|-------|-------|-------------|-----------------|
| July 19 ... | 97°1  | +39°3 | Aug. 18 ... | 250°1 ... +54°5 |
| 29 ...      | 106°6 | 61°3  | 28 ...      | 258°1 ... 37°0  |
| Aug. 8 ...  | 201°9 | 77°9  |             |                 |

We should incline to characterise the presumed identity of the comets of 1506 and 1880 as one rather of possibility than of high probability.

From observations at Strassburg on September 29 and October 1, and one at Leipzig on October 3, Mr. Hind has deduced the following elements:—

Perihelion passage, September 6<sup>g</sup> 9182 G.M.T.

|                                      |            |            |
|--------------------------------------|------------|------------|
| Longitude of perihelion ... ..       | 81° 1' 37" | } App. Eq. |
| „ ascending node ... ..              | 44 19 47   |            |
| Inclination of orbit ... ..          | 38 28 11   |            |
| Logarithm of perihelion distance ... | 9°558048   |            |
| Motion—retrograde.                   |            |            |

As regards position the comet may be observed for many weeks, but the brightness will be rapidly declining. Since it was not detected till three weeks after perihelion passage, it is desirable that observations should be continued as long as practicable, if the character of the orbit is to be decided at this appearance.

GEOGRAPHICAL NOTES

THE newly published volume of the Geographical Society's *Journal* contains some useful and even valuable contributions to geography. The veteran traveller, Capt. R. F. Burton, furnishes a memoir respecting the new map of Midian constructed by the officers of the Egyptian General Staff. Capt. Burton however, as might be expected, supplies geographical information beyond that given by the Egyptian officers. He also contributes a second paper of a different character on the subject of a visit to Lissa and Pelagosa. Even more valuable than Capt. Burton's first paper is Lieut. R. C. Temple's account of the country traversed by the second column of the Tal-Chotiali field-force in the spring of 1879, with his sketch-map of part of the country passed over by it between Candahar and India. This memoir has evidently been drawn up with elaborate care, and embodies a mass of important information. The notes upon some astronomical observations made in Kordofan and Darfur