

THE British Consul in Hainan, in his last report, says that during the past year he has made two journeys in that island, one to certain prominent hills near Hoihow, known as the "Hummocks," which lie fifteen miles to the west, on the road to Ch'eng-mai, the other a gunboat cruise to Hansui Bay. The people at both these places, and presumably all along the north-west coast, though believing themselves Chinese, speak a language which is not only not Chinese, but has a large percentage of the words exactly similar to Siamese, Shan, Laos, or Muong. The type of the people, too, is decidedly Shan, without the typical Chinese almond eye. At one time (1000 years ago) the Ai-lau or Nan-chau Empire of the Thai race extended from Yun-nan to the sea, and the modern Muongs of Tonquin, like the Shans of the Kwangsi province, the ancestors of both of which tribes belonged to that empire, probably sent colonies over to Hainan; or the Chinese generals may have sent prisoners of war over. It is certain that some at least of the unlettered, but by no means uncivilized, tribes in the central parts of Hainan speak a type of language which is totally different from that spoken by the Shan-speaking tribes of the north-west coast. Yet the Chinese indiscriminately call all the non-Chinese Hainan dialects the Li language. The subject, Mr. Parker says, is one of great interest, well worth the attention of travellers. It was his intention to pursue the inquiry when making a commercial tour of inspection round the island, but his transfer to another post compels him to abandon his scheme.

THE additions to the Zoological Society's Gardens during the past week include a Brown Capuchin (*Cebus fatuellus*) from Guiana, presented by Mr. Edward Solomon; two Black Swans (*Cygnus atratus*) from Australia, presented by Lady William Osborne Elphinstone; a Greater Spotted Woodpecker (*Dendrocopos major*), two Common Cormorants (*Phalacrocorax carbo*), British, presented by Sir H. B. Lumsden, K.C.S.I.; a Greater Sulphur-crested Cockatoo (*Cacatua galerita*) from Australia, presented by Mr. F. R. Brown; two Common Rheas (*Rhea americana*) from the Argentine Republic, deposited; an Erxleben's Monkey (*Cercopithecus erxlebeni* ♂) from West Africa, a Victoria Crowned Pigeon (*Goura victoria* ♀) from the Island of Jobie, two Wonga-Wonga Pigeons (*Leucosarcia picata*) from New South Wales, a Rosy-billed Duck (*Metopiana peposaca* ♀) from South America, twenty Common Teal (*Querquedula crecca*), European, purchased; a Thar (*Capra jemlaica*), two Burrhel Wild Sheep (*Ovis burrhel* ♂ ♀), an Axis Deer (*Cervus axis* ♂), four Temminck's Tragopans (*Cerionis temmincki*), a Himalayan Monaul (*Lophophorus impeyanus*), bred in the Gardens.

#### OUR ASTRONOMICAL COLUMN.

COLOURS ON THE SURFACE OF MARS.—During the last opposition of Mars a series of observations was made by Prof. Pickering with the object of determining the general colour of this planet's disk, and that of the various markings distributed over its surface. In a preliminary account of this work which he has contributed to the June number of *Astronomy and Astro-Physics*, we are made acquainted with some of the observed facts, which will be read with keen interest, as we are nearing a time when like observations can be repeated. The instruments used were the 12-inch and 15-inch at Cambridge, and the 13-inch at Arequipa, Peru. With the two former sixty paintings were made, together with sixty-six uncoloured drawings, and with the latter some of the more recent observations were undertaken. The general light from the planet, although usually termed ruddy, was found to lie about midway between that of a candle and electric light of equal brilliancy, being somewhat bluer than the former and redder than the latter.

Great difficulty seems to have been found in matching Mars's colour in the day and night time, the presence or

absence of the bluish white light reflected from the atmosphere bringing about a great difference in the colour of the pigments used. The colour finally settled upon may be represented by equal parts of dragon's blood and sienna. The ruddiness, as the limb was approached, gave way to a distinct yellow tint, due perhaps to atmospheric absorption, an effect, as Prof. Pickering remarks, which is quite at variance with the action of our own atmosphere. In addition to these colours grays and greens have been noticed, indeed at times the greens have been more intense than the red. The grey objects were found, when the seeing was very good, to have a slightly yellowish tinge about them, but when viewed by daylight a browner tint more accurately represented their colour.

Numerous observations were made also with the intention of determining the colour of those parts more darkly tinted, and the colour of the canals; but Prof. Pickering only mentions that there were indications of slight colour alterations, reserving his opinion on these points in order not to bias those of other observers, who will be able in the coming opposition to examine this planet's surface from this point of view.

During the months of July and August the planet, excepting for its low altitude, will be most favourably situated for observation, the opposition occurring on August 4, when its distance from the earth will be about 35,000,000 miles.

OBSERVATIONS OF THE MOON.—The *Monthly Notices* (vol. lii., No. 7) contains, besides the observations of the right ascensions and north polar distances of the moon made during the year 1891 at the Radcliffe Observatory, Oxford, a comparison of these results, with the tabular places taken from Hansen's lunar tables. The two suppositions on which these results are compared are, as Mr. Stone says: (1) that the mean times found in the usual way from the sidereal times at mean noon given in the *Nautical Almanac*, were not altered in scale, or affected with any different systematic errors of determination, by the adoption in 1864 of a different ratio of the Julian year of 365 $\frac{1}{4}$  "mean solar days" to the mean tropical year; (2) that the "mean times" which accurately correspond to a given "sidereal time of a meridian" were necessarily changed in 1864 by the use of a different ratio of the "Julian year," and therefore of the "mean solar day" to the mean tropical year, to fix the tabular right ascensions of the clock stars at the meridian transits. It is from these tabular right ascensions of the clock stars that the observed right ascensions are deduced by the aid of clocks; and the right ascensions thus found are finally rendered definite by the direct reference to the positions of the sun deduced from the north polar distances and obliquities of the ecliptic.

During the period included in the years 1847 to 1863 the mean annual error in longitude of Hansen's tables amounted to  $-1''\cdot85$ , no regular law of increase being indicated. Taking the case of those observations made up to the end of last year, the mean annual error, as shown in the third table, has steadily increased from the year 1863 at an average rate of  $0''\cdot75$  per annum, the error now amounting to as much as  $19''\cdot30$ . If the corrected argument be used for taking out the mean annual error of Hansen's tables during the same period, this value becomes  $-1''\cdot49$ , which differs from  $-1''\cdot85$  (the value for the preceding period) by a quantity which in such a case is very small.

A PLANET BEYOND NEPTUNE?—For some time it has been thought that in all probability our sun is accompanied by one or two other planets which lie outside the orbit of Neptune. The idea gained a considerable footing in many minds after Prof. Forbes's paper, which he read in 1880 before the Royal Society of Edinburgh, his prediction being based on cometary aphelia positions. In order to investigate this question more fully, Mr. Isaac Roberts, having obtained the necessary approximate positions of these hypothetical bodies, undertook to make a search for them, employing the method of long exposure photography. The result of this search he communicates to the May number of the *Monthly Notices*.

The probable position indicated by Prof. Forbes lay between R.A.'s 11h. 24m. and 12h. 12m., with declinations  $0^{\circ}$  to  $6^{\circ}$  north; and over this region Mr. Roberts took two sets of eighteen plates, each plate covering more than four square degrees, the exposure being of 90 minutes' duration. A close examination of the plates showed that, in Mr. Roberts's words, "no planet of greater brightness than a star of the fifteenth magnitude exists on the sky area herein indicated."