North India, presented by Lieut. E. A. P. Hobday; three Black-eared Marmosets (*Hapale penicillata* ♂ ♂ ♂) from South-East Brazil, presented by Mr. H. F. Makins, F.Z.S.; a Purple-faced Monkey (*Semnopithecus leucoprymnus* ♀) from Ceylon, presented by Mr. J. W. Dring; a Common Heron (*Ardea cinerea*), British, presented by Mr. T. E. Gunn; a Leach's Laughing Kingfisher (*Dacelo leachi*) from Queensland, presented by Dr. Carl Lumholtz; a Laughing Kingfisher (*Dacelo gigantea*) from Australia, presented by Mr. E. R. Oliver; a Great Grey Shrike (*Lonius excubitor*), British, presented by Mr. J. Pratt, F.Z.S.; a Spotted Bower Bird (*Chlamydodera maculata*) from Australia, presented by Lieut.-Col. W. Hill James; four River Frogs (*Rana fortis*) from Germany, presented by Mr. G. A. Boulenger, F.Z.S., a Green Turtle (*Chelone viridis*) from West Indies, presented by Mr. J. Wyan Thomas; a Tarantula Spider from Brazil, presented by Mr. C. A. Craven, C.M.Z.S.; a Common Boa (*Boa constrictor*) from South America, deposited; a Chimpanzee (*Anthropopithecus troglodytes* ♀), a Bosman's Potto (*Perodicticus potto* ♂) from West Africa, a Duyker-bok (*Cephalophus mergens* ♀) from South Africa, a Ring-tailed Coati (*Nasua rufa*) from South America, two Blood-stained Finches (*Carpodacus hæmorrhous*) from Mexico, a Snow Bunting (*Plectrophanes nivalis*), North European; an Angola Vulture (*Gypohierax angolensis*) from West Africa, a Guatemalan Amazon (*Chrysotis guatemalæ*) from Central America, four Elegant Grass Parrakeets (*Euphema elegans*) from South Australia, two Wild Ducks (*Anas boschas*), two Call Ducks (*Anas boschas*, var.), two Common Wigeon (*Mareca penelope*), two Common Pintails (*Dafila acuta*), six Common Teal (*Querquedula crecca*), two Muscovy Ducks *Coirina moschata*), European, two Mandarin Ducks (*Æx galericulata*) from China, purchased; a Common Wombat (*Phoscolomys wombat*) from Tasmania, received in exchange.

OUR ASTRONOMICAL COLUMN

THE TOTAL SOLAR ECLIPSE OF 1889, JANUARY 1.—The general circumstances of most of the total eclipses of the sun more or less available for physical observations before the close of the present century have been already described in this column: it remains, however, to make reference to that which will take place on January 1, 1889, and which will be total in the western part of the United States.

The central eclipse commences on the North Pacific Ocean in about longitude 178° E. and latitude 53° N.; it occurs with the sun on the meridian in 137° 57′ W. and 36° 42′ N., and ends in about 95° W. and 52° 15′ N. It strikes the American coast in the State of California in latitude 38° 50′, and the town of Hamilton, according to our approximate computation, would appear to be upon the central line: here the middle of totality occurs at 1h. 40m. 34s. local mean time, with the sun at an altitude of nearly 25°, and the duration of the total phase is 2m. 4s. The important observatory lately established on Mount Hamilton is outside of the zone of totality, the magnitude of the eclipse at that station being 0·98, and the middle at 1h. 45m. The following are points upon the line of central eclipse:—

Longitude	112° 34′ W.	Latitude	43° 15′ N.	Sun's altitude	15°·9
,,	106 14 ,,	,,	46 15 ,,	,,	10·2
,,	100 21 ,,	,,	49 9 ,,	,,	5·0

It will be seen that the sun will set totally eclipsed on British territory after the total phase has crossed the Assiniboine River and the southern extremity of Lake Winnipeg.

The second total solar eclipse in 1889 was described in NATURE in June 1877. It will be visible in Martinique, St. Lucia and Barbados, but with the sun at a low elevation, totality continuing about one minute and three-quarters, and will meet the coast of Africa in Angola in about 10° south latitude, where the total phase will have a duration of 3m. 30s., the sun at an altitude of 56°.

VARIABLE STARS.—In 1859 Hencke of Driesen drew attention to a star in Carrington's Redhill Catalogue which he had found to be variable. It is No. 1902, and was observed on three nights in March and April 1856, the magnitude being twice noted 9·5 and once 10·5. Hencke had observed it 8m. at the time he wrote, but believed it had probably been invisible with his means for some years previously. His notice appears in Peters' *Zeitschrift fiir populare Mittheilungen aus dem Gebiete der Astronomie*, &c., vol. i. p. 131. The star is not found in the catalogues of Fedorenko or Schwerd. Its approximate position for the beginning of 1885 is in R.A. 12h. 44m. 49s., N.P.D. 7° 39′·8.

At p. 150 of the Redhill Catalogue Carrington mentions that Oeltzen's No. 515, a seventh magnitude once observed by Schwerd had been looked for ineffectually. Oeltzen had re-examined his reduction of the observation which was made at Speyer on October 19, 1826, and found it correct. The star's place for 1885 is in R.A. 8h. 27m. 54s., N.P.D. 6° 52′·7. Close to this position there is a star in Fedorenko's catalogue from Lalande's observations (Nos. 1305-6) which is once called 8m., and once 5·6, the observations having been apparently made on March 19 and 20, 1790. It is 6m. in Groombridge, and 7m. in the *Durchmusterung* and in the Radcliffe Catalogue. Perhaps the discordance in Lalande's published estimates is occasioned by a misprint, and unfortunately there are several obvious errors of this kind in the catalogue deduced from his observations. The star in question is Groombridge 1431.

While writing upon polar variables we may once more refer to Bradley 396, R.A. (1885) 2h. 53m. 58s., N.P.D. 8° 58′·6, which, unless the existence of very improbable errors of estimation in the various catalogues is admitted, would appear to vary between the fifth and seventh magnitudes at the least, and there is a suspicion that the period may not be long.

A minimum of χ Cygni was due on May 22, and a maximum may be expected about November 16; from three determinations Schmidt found that the minimum preceded the maximum 178 days. The average period since 1877 has been 408½ days. The variable is the true χ (Bayer) Cygni, not the 17 Cygni of the catalogues.

GEOGRAPHICAL NOTES

THE fifth fascicule of A. E. Nordenskjöld's "Popular Scientific Appendix to the Voyage of the *Vega*" ("Studier och Forskningar föranledda af mine resor i höga norden") will be most welcome to the general reader, and we hope it may be translated into English. It contains a profusely illustrated, lively sketch, by M. Hans Hildebrand, on art among lower primitive populations. The drawings of the Chukches are especially remarkable. Caravans of sledges drawn by reindeer or by dogs, hunting scenes, splitting drift-wood, and sea-hunting, are most interesting, and not the slightest mistake is possible as to what the Chukche artist intended to represent. The Chukches are as successful, too, in drawing subjects less known to them, such as the *Vega* at its winter-quarters, or two men of the crew exercising in fencing. The most remarkable piece is that given to Baron Nordenskjöld by Lord Walsingham, which is reproduced by means of photography. The original is drawn on walrus-skin, and represents on the borders of the skin the shores with their hills, Chukche settlements, and a variety of scenes from Chukche life on shore; while the interior contains a variety of scenes from sea-hunting, harpooned whales pretty well represented with their waterspouts, ships, boats, and so on. The Europeans, sometimes with umbrellas, sometimes fighting with Chukches, are perfectly recognisable. The engravings showing the carvings in bone that are made by Chukches and Esquimaux are also very interesting, whilst other drawings allow us to compare the Northern primitive art with the art of Boshmans and North American Indians. M. Hildebrand's remarks on the art of prehistoric man and his parallels with the Normannic drawings—also well illustrated—will be equally attractive to the general reader. The same fascicule contains the first pages of a paper on the life of insects in Arctic regions, by M. Christopher Aurivillius.

THE *Bolletino* of the Italian Geographical Society for May contains a brief account of Signor Maurizio Buonfanti's late expedition across North Africa. The traveller, leaving Tripoli early in the month of April 1881, proceeded first in the direction of Lake Chad, mainly along the route already followed by Denham and Clapperton, Barth, Rohlfs, and other modern explorers. His chief object was to penetrate into the hitherto unexplored region stretching south from Adamawa, which territory was reached by the direct road from Kuka on Lake Chad through