

## OUR ASTRONOMICAL COLUMN

BARNARD'S COMET.—The following ephemeris of this comet for Greenwich midnight is deduced from the elliptical elements of Dr. Berberich, of Strasburg, which assign a revolution of  $5\frac{1}{2}$  years:—

1884	R.A.			N.P.D.			Log. distance from Earth Sun			
	h.	m.	s.							
Nov. 6 ...	22	5	32 ...	101	27	8 ...	0	0041	... 0	1985
8 ...	—	10	28 ...	100	50	3 ...	0	0147	...	
10 ...	—	15	20 ...	100	13	3 ...	0	0253	... 0	2054
12 ...	—	20	8 ...	99	36	8 ...	0	0358	...	
14 ...	—	24	51 ...	99	0	7 ...	0	0463	... 0	2122
16 ...	—	29	30 ...	98	25	2 ...	0	0567	...	
18 ...	—	34	6 ...	97	50	1 ...	0	0670	... 0	2191
20 ...	—	38	38 ...	97	15	5 ...	0	0772	...	
22 ...	22	43	7 ...	96	41	4 ...	0	0874	... 0	2259

The theoretical intensity of light on November 6 is 0.39, and on November 22, 0.24. As previously remarked, it is very desirable that observations of this comet for position should be continued as long as practicable, that its mean motion may be determined with sufficient precision to enable a trustworthy estimate of past planetary perturbations to be obtained. The general resemblance of the elements to those of the short-period comet of De Vico in 1844 will render such an investigation one of much interest.

THE NOVEMBER METEORS.—The earth arrives at the descending node of the first comet of 1866 on the afternoon of Thursday, November 13, and a watch may be favourably instituted on the night of that day for meteors of the stream which appears to lie in the comet's track. Oppöler's definitive elements give for the radiant point, R.A.  $150^{\circ}2$ , N.P.D.  $67^{\circ}2$  (equinox of 1866).

THE LICK OBSERVATORY, CALIFORNIA.—The following is an extract of a letter from Prof. Edward S. Holden, Director of the Washburn Observatory, University of Wisconsin, dated October 17:—"I have just returned from the Lick Observatory, where I have mounted a beautiful meridian-circle by Repsold of 6 (French) inches aperture. It has north and south collimators of the same aperture, and its axis is a telescope of 2.5 inches aperture, which is viewed by an east (or west) collimator for controlling the azimuth, &c. There are two circles, each divided to 2', one fixed, the other movable by a wheel and pinion, so that it is not essential to determine the division errors of any lines except those for each 1°, and those 2' lines belonging to 4 degrees, 90° apart. The room is double throughout, a wooden building 40 X 40 feet inside of a structure in louver-work, which gives a continuous air space all around; and this air space is connected with a tall ventilating tower which enables the free circulation of air to be maintained. It appears to me to be in all respects satisfactory. The Lick Observatory now needs only its 36-inch refractor to be complete, and they hope for this within three years."

It will be remembered that this Observatory is situate on the top of Mount Hamilton.

VARIABLE STAR IN THE ORION-NEBULA.—The late Prof. Schmidt found that the star which he distinguishes as J' (Bond 822 = Liapunov  $\gamma$ ), which follows  $\theta$  Orionis  $34''$ s., and  $5''$  5" to the south of it, disappeared at minimum in his 5-foot refractor, and at maximum reached 9.5m. On April 3, 1878, it was estimated 12.8, equal to Bond 784, but before the end of the month it rose to 9.7. The star may deserve frequent observation.

## GEOGRAPHICAL NOTES

THE Rev. Francis A. Allen has issued a reprint of the paper read by him at the late Congress of Americanists in Copenhagen on Polynesian antiquities. The stupendous Cyclopean monuments, platforms, terraces, walls, colossal statues, scattered over the South Sea Islands are graphically described, and regarded as forming a connecting link between the ancient civilisations of Asia and America. The theory is that America was mainly peopled by two streams of migration from Asia—a nomad Mongolic, proceeding directly by the Straits of Behring, and now represented by the Apaches, Utes, Comanches, and other wild tribes of California, Oregon, Colorado, &c.; and a semi-civilised, proceeding from Further India and China across the islands of the Pacific Ocean to Mexico, Central America,

and Peru. On their way across the archipelagoes these peoples left traces of their presence in Micronesia, Hawaii, Tahiti, and especially Easter Island, the last-named distant only some 2600 miles from the mainland of South America. The resemblances between these monuments and those of Peru and Mexico are dwelt upon, and they are further compared with those of Java (Boro-Boro), Cambodia (Angkor-Vaht), and others in Southern Asia. The theory, which is not altogether novel, is supported by other arguments based on considerations of traditions, usages, religions, languages, and the like, brought together from various sources not always of a trustworthy character. It is suggested that the Chinese tradition of the discovery of Fusang by the monk Hoën-Shin may not be altogether an idle tale. Allusion is made to Schoolcraft's exploded legend of Hiawatha; and some more than doubtful authorities are referred to in proof of the affinities between the American languages and those of Japan, North-East Siberia, and Indo-China. Nevertheless, if not always critical, the paper is learned and lucid, and worth reprinting, if only for the great number of data here brought together as bearing directly or indirectly on the point at issue.

HERR VON HAARDT contributes an instructive memoir to the last number of the *Proceedings* of the Vienna Geographical Society on the services rendered to the progress of the geographical sciences by the Austrian navy. A brief historical survey is given of the famous *Novara* Expedition round the world (1857-59); of the survey of the Adriatic coastlands by Capt. T. Ritter (1871); the simultaneous determination of the magnetic relations in the same waters by Lieut. J. Schellander; the expedition of the *Friedrich* and *Donau* to the East Asiatic seaboard (1868); the second voyage of the *Donau* to Asia and South America (1874-76); the circumnavigation of Borneo by Capt. T. F. von Oesterreicher; the circumnavigation of Africa by the *Helgoland* and *Friedrich* (1874-75); the voyages of the *Pola* to Jan Mayen and the Arctic Ocean (1882-83); Weyprecht's discovery of Franz-Josef Land, &c. The memoir concludes with a brief reference to the expeditions now in progress or promised in the near future, such as that of the *Saida* to Australasia (1884-86); of the *Aurora* to South America (1884-85); of the *Helgoland* to the West African seaboard, and of the *Fruntsberg* to the Indian Ocean.

THE same periodical contains the first part of what promises to be a very valuable contribution to the physiography of Caucasia. Much useful information is here brought together from the latest sources regarding the orography, river systems, administrative divisions, and statistics of that region. The present area of the northern section (Cis-Caucasia) is given at 4037 German geographical square miles, of the southern (Trans-Caucasia), 4400; total, 8437, or 2740 more than that of the British Isles.

To this journal F. Blumentritt also sends an account of the little-known Negrito tribes of the district of Principe in the Island of Luzon, Philippine Archipelago. These aborigines, collectively known as Atas (Aetas), and showing distinct physical resemblances to the non-Malay wild tribes of Malacca, are being gradually evangelised by the Spanish missionaries stationed at Baler. Hemmed in between the semi-civilised Tagalans and the fierce Ilongotes, both of mixed Malay stock and speech, they have already been largely affected by Malay influences. But although their language contains numerous Tagala words, expressions, and even grammatical forms, its fundamentally distinct character has been clearly determined. For the purpose of comparison useful vocabularies of about 150 words are appended in five languages: Spanish, Tagala, Negrito of Mariveles (Bataan), Negrito of Zambales, and Negrito of Baler (Principe).

At the opening meeting of the Royal Geographical Society on Monday, Mr. Joseph Thomson gave an eloquent and highly interesting account of his recent explorations in the country of the Masai. Both the country and the people are of the greatest interest to science, and, as was shown last week, Mr. Thomson's botanical collections are decidedly novel. One or two zoological novelties he has also obtained, and we shall be glad to have the detailed account of his discoveries, which will appear in his forthcoming work.

It appears from the *Anglo-New Zealand and Australian Times* that Mr. H. O. Forbes, F.R.G.S., is organising a scientific expedition with the view of exploring the botany and zoology of the Mount Owen Stanley Mountains, the great cen-