

WE notice in one of the morning papers that considerable progress is being made at the great Lambeth factory of Messrs. Maudslay, Sons, and Field, with the large compound engines which are being prepared for the new Italian armour-clad *Il Re Umberto*. According to the contract, these engines are to be of 19,500 horse-power, which is about 7500 horse-power more than that of any vessel yet designed for the British Navy. It is stated that they will actually indicate 21,000 horse-power, or 9000 more than any vessel in the British Navy. These engines, completely made of steel, are expected to drive the *Il Re Umberto*, fully equipped, about 20 knots per hour.

MR. C. C. LACAITA is taking charge of the Sanitary Registration of Buildings Bill in the House of Commons. The Bill as introduced in 1886 consisted of ten sections, and, it will be remembered, made the sanitary registration of all buildings compulsory in towns of 50,000 inhabitants and upwards. The new Bill consists of seventeen sections, and is to apply to all towns or districts of 2000 inhabitants, but it is only to be compulsory in the case of schools, colleges, hospitals, asylums, hotels, and lodging-houses. An important feature of the new Bill is that the local authorities will have to keep a Sanitary Register, in which any building certified in accordance with the proposed Act may be registered, so that a stranger visiting any district would be able to ascertain at the office of the local authority whether any particular house was or was not certified as in a satisfactory sanitary condition. The new Bill will, no doubt, be more acceptable to sanitary experts, seeing that all persons entitled to certify must first obtain a license from the Local Government Board, and provision is made for the appointment of examining Boards. Persons entitled to sign certificates are designated Licentiates in Sanitary Practice.

THE town of Baku was recently threatened with destruction by the sudden outburst of a natural naphtha fountain. This was soon followed by a volcanic eruption from Lok Botan, close to the Ponta railway station, and about ten miles from Baku. The eruption began on the night of January 15, when the inhabitants of Baku were alarmed by a shock like that of an explosion, which made all their window-panes tremble violently, while towards the south-west the sky was illuminated by an intense light, as of some terrific conflagration. The following information, furnished by the railway officials of the Ponta station, appeared in a telegram from the St. Petersburg Correspondent of the *Times* on Monday last:—"Quite suddenly, at eleven o'clock at night, the noise of an explosion was heard, and the summit of Lok Botan shot up an enormous column of fire some 350 feet high. The whole country was instantly lit up brighter than day, and the heat could be felt at nearly a mile from the crater. There was scarcely any wind, so that the column continued to ascend quite vertically, carrying with it, as could be seen, large dark substances which appeared to fall again into the volcano. This lasted with short intervals of subsidence all through the night and the following twenty-four hours, but luckily the matters ejected did not reach the railway station." The *Times* Correspondent says that the volume of muddy liquid thrown out is estimated at half a million cubic *sojenes*—the Russian *sojene* equalling 7 feet—and has spread itself over more than a square mile to a depth of from 7 to 14 feet.

ON the night of January 26 a brilliant meteor was observed at Holmestrand, on the south-east coast of Norway. It went from south-west to north-east, at a rapid pace, and disappeared below the horizon. The light was an intense white, illuminating for a few seconds the whole town as in broad daylight.

A STATUE is to be erected at Christiania in honour of the celebrated mathematician Abel, subscriptions being raised towards it from all parts of Europe.

THE Council of the Royal Meteorological Society have arranged to hold, at 25 Great George Street, S.W. (by permission of the Council of the Institution of Civil Engineers), on March 15 to 18 next, an Exhibition of Marine Meteorological Instruments and Apparatus. The Exhibition Committee are anxious to obtain as large a collection as possible of such instruments; and they will be glad to show any *new* meteorological instruments or apparatus invented or first constructed since last March, as well as photographs and drawings possessing meteorological interest.

MR. JOHN MURRAY, of the *Challenger* Expedition Office, Edinburgh, writes to us that the passage placed within inverted commas in one of our Notes on Jan. 27 was not a quotation from his address to the Royal Society of Edinburgh. We may explain that the passage was quoted from what professes to be "a condensed report of the address" in the January number of the *Scottish Geographical Magazine*. In this "condensed report" Mr. Murray is represented as having said that "money grants of considerable annual value are devoted to the maintenance of learned Societies in London and Dublin." Our only object was to point out that so far as London is concerned this statement is misleading.

THE additions to the Zoological Society's Gardens during the past week include a Black-winged Peafowl (*Pavo nigripennis* ♀) from Cochin China, presented by Mr. John Marshall; a Cayenne Lapwing (*Vanellus cayennensis*) from South America, purchased; six Long-fronted Gerbilles (*Gerbillus longifrons*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

COMET BROOKS (1887 *b*).—This object was observed at Paris on January 27 as a circular nebulosity of about 1'5 in diameter, with a small but fairly bright nucleus, almost stellar in appearance, and situated not quite in the centre of the coma. The comet was estimated as of the 12th magnitude.

Dr. Rud. Spitaler, Vienna Observatory, has computed the following elements and ephemeris:—

$$T = 1887 \text{ March } 23 \cdot 01985 \text{ Berlin M. T.}$$

$$\left. \begin{aligned} \pi &= 89 \quad 26 \quad 17 \\ \Omega &= 283 \quad 0 \quad 15 \\ i &= 102 \quad 25 \quad 29 \end{aligned} \right\} \text{Mean Eq. } 1887 \cdot 0$$

$$\log q = 0 \cdot 19021$$

Error of middle place ($O - C$).

$$d\lambda \cos \beta = + 9'', \quad d\beta = - 5''.$$

Ephemeris for Berlin Midnight

1887	R.A.	Decl.	log Δ	log r	Brightness
	h. m. s.				
Feb. 12	1 59 34	+ 73 5'6"	0'07734	0'21040	1'39
16	2 35 23	68 19'5"	0'08193	0'20660	1'39
20	2 59 23	63 27'4"	0'09016	0'20314	1'36
24	3 16 58	58 41'5"	0'10154	0'20007	1'31
28	3 30 42	+ 54 9'1"	0'11553	0'19744	1'25

The brightness on January 25 is taken as unity.

COMET BARNARD (1887 *c*).—Barnard's comet was observed at Paris on January 26, and seemed to be of much the same brightness and dimensions as Brooks's comet appeared on the following night, but it differed somewhat as to its nucleus, there being a central condensation forming a diffused nucleus about 4" or 5" in diameter. The comet is steadily diminishing in brightness. The following elements and ephemeris are by Prof. E. Weiss:—

$$T = 1886 \text{ November } 23 \cdot 6302 \text{ Berlin M. T.}$$

$$\left. \begin{aligned} \pi &= 284 \quad 27 \quad 58 \\ \Omega &= 257 \quad 14 \quad 17 \\ i &= 85 \quad 22 \quad 5 \end{aligned} \right\} \text{Mean Eq. } 1887 \cdot 0$$

$$\log q = 0 \cdot 15454$$

Error of middle places ($O - C$).

$$d\lambda \cos \beta + 4'' - 3'', \quad d\beta = 1'' - 9''.$$

Ephemeris for Berlin Midnight

1887	R.A.	Decl.	log Δ	log r	Bright-ness
	h m. s.	° ' "			
Feb. 12	20 4 1	+ 37 25' 2"	0.33827	0.26127	0.83
16	20 16 44	39 50' 3"	0.34157	0.26929	
20	20 29 54	42 12' 3"	0.34566	0.27733	0.74
24	20 43 32	44 30' 2"	0.35051	0.28538	
28	20 57 38	+ 46 43' 4"	0.35638	0.29341	0.66

The brightness on January 24 is taken as unity.

THE ROUSDON OBSERVATORY.—We have received Mr. Peek's report on the astronomical work done at the Rousdon Observatory, Lyme Regis, in 1886. During the year, 146 nights were available for observation, the most cloudy month having been February, and the clearest December. Selected lists of long-period variable stars are under systematic observation with the 6.4-inch equatorial. The following comets have also been observed: 1885 *d* and *e*, 1886 *a*, *b*, *c*, *e*, and *f*. The great nebula in Andromeda is under regular observation. We would suggest to Mr. Peek the propriety of publishing the observations of cometary positions at as early a date as is possible; their value is much increased by speedy publication.

MINOR PLANET NO. 264.—This asteroid has been named Libussa by Prof. Peters, of Clinton, U.S.A., the discoverer.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1887 FEBRUARY 13-19

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on February 13

Sun rises, 7h. 20m.; souths, 12h. 14m. 25.5s.; sets, 17h. 8m.; decl. on meridian, 13° 21' S.; Sidereal Time at Sunset, 2h. 42m.

Moon (at Last Quarter February 15) rises, 22h. 48m.*; souths, 4h. 27m.; sets, 9h. 55m.; decl. on meridian, 7° 5' S.

Planet	Rises	Souths	Sets	Decl. on meridian
	h. m.	h. m.	h. m.	° ' "
Mercury ...	7 43 ...	12 38 ...	17 33 ...	13 7 S.
Venus ...	8 1 ...	13 22 ...	18 43 ...	8 28 S.
Mars ...	7 56 ...	13 16 ...	18 36 ...	8 33 S.
Jupiter...	23 43* ...	4 44 ...	9 45 ...	12 11 S.
Saturn...	13 29 ...	21 37 ...	5 45* ...	22 19 N.

* Indicates that the rising is that of the preceding evening and the setting that of the following morning.

Occultations of Stars by the Moon (visible at Greenwich)

Feb.	Star	Mag.	Disap.	Reap.	Corresponding angles from vertex to right for inverted image
			h. m.	h. m.	° ' "
13 ...	94 Virginis ...	6 ...	5 26 ...	6 22 ...	38 305°
14 ...	ξ Libræ ...	6 ...	1 4 ...	2 6 ...	52 202

Feb. 13 ... 12 ... Jupiter in conjunction with and 3° 43' south of the Moon.

Variable Stars

Star	R.A.	Decl.	h. m.
	h. m.	° ' "	h. m.
U Cephei ...	0 52' 3"	81 16' N.	Feb. 15, 20 58 <i>m</i>
S Piscium ...	1 11' 7"	8 20' N.	18, <i>M</i>
R Arietis ...	2 9' 7"	24 32' N.	15, <i>M</i>
Algol ...	3 0' 8"	40 31' N.	13, 18 50 <i>m</i>
ζ Geminorum ...	6 57' 4"	20 44' N.	13, 4 0 <i>M</i>
R Bötis ...	14 32' 2"	27 14' N.	17, <i>M</i>
δ Libræ ...	14 54' 9"	8 4' S.	17, 0 57 <i>m</i>
U Coronæ ...	15 13' 6"	32 4' N.	14, 1 37 <i>m</i>
V Coronæ ...	15 45' 5"	39 55' N.	14, <i>M</i>
U Ophiuchi...	17 10' 8"	1 20' N.	15, 2 41 <i>m</i>
and at intervals of 20 8			
T Herculis ...	18 4' 8"	31 0' N.	Feb. 18, <i>M</i>
β Lyræ... ..	18 45' 9"	33 14' N.	20, 22 0 <i>M</i>
R Lyræ ...	18 51' 9"	43 48' N.	13, <i>m</i>
δ Cephei ...	22 25' 0"	57 50' N.	13, 4 0 <i>m</i>
R Cassiopeæ ...	23 52' 7"	50 46' N.	15, <i>M</i>

M signifies maximum; *m* minimum.

Meteor-Showers

On February 17, a radiant near ν Herculis, R.A. 238°, Decl. 48° N. On February 20, from Coma Berenices, R.A. 180°, Decl. 33° N.; and another from near ρ Herculis, R.A. 263°, Decl. 36° N. Other radiants of the week:—Near λ Draconis, R.A. 165°, Decl. 73° N., and near β Ophiuchi, R.A. 260°, Decl. 0°.

GEOGRAPHICAL NOTES

In a private letter from Mr. H. M. Stanley, published yesterday, he says that when he reached Cairo he found that all the political authorities and experts there were opposed to the idea of his taking the Congo route. They thought that as the Expedition was to be armed with several hundred Remingtons and a machine-gun of the latest invention it was to be an offensive force, conducted after strict military rules, and that Mr. Stanley would therefore meet with no insuperable difficulties either by the Karagwé or by the Masai route. On this point he undeceived them, and he also showed that if serious fighting were necessary his men would be wholly unable to meet great masses of native warriors. Besides, the probable result of a struggle with Uganda would be that Mr. Mackay, the missionary, and the French Bishop and Père, now in Mwang'a's power, would be murdered. The total length of each land journey is given by Mr. Stanley as follows:—Congo route: Mataddi to Stanley Pool, 235 English miles; Stanley Falls to Lake Albert, 360 English miles—total 595 English miles. Karagwé route: Zanzibar to Lake Albert, 950 English miles. Masai route: *via* Taveta, Kenia, and Turkan, 925 English miles. Mr. Stanley also calculates the length of the various routes by days, assuming that only an average of six miles could be made daily. Congo route: land journeys, 99 days; Zanzibar to Congo, by steamer, 20 days; Lower Congo, by steamer, 3 days; Upper Congo, by steamer, 35 days. Total, 157 days. Karagwé route: land journey, 156 days. Masai route: land journey, 154 days.

The most important contribution to the new number of the *Bulletin* of the Paris Geographical Society is the series of maps of the River Ogové in West Africa, by Lieut. Mizon. These maps, which are on the scale of about 1 kilometre to an inch, and refer to the whole course of the river as surveyed by Lieut. Mizon, are executed with much care. In the brief text which accompanies the maps, the author describes his method of observation, and gives the positions of some of the more important points. M. Jamkowski contributes an article on Fernando Po, in which he gives some welcome information on the curious people known as Bubis, who inhabit the mountainous districts of the island. Other papers in this number are on the "Ksour" of Bouda (West Sahara), by M. Chatelier; two papers on Tonquin, by Lieut. Gouin; and a paper on the expedition of General de Bussy in the Deccan in the eighteenth century.

In the *Bulletin* of the American Geographical Society, No. 2, 1886, Commander H. C. Taylor, U.S.N., describes the various projects which from time to time have been advanced for the construction of a canal across Nicaragua, and attempts to show that this is the most favourable route for a canal between the Atlantic and Pacific. Dr. G. E. Ellis gives an interesting *résumé* of the history of the Hudson's Bay Company, 1670-1870.

LAKE TAHOE, long regarded as the deepest fresh-water lake in the United States, must now take the second place. Capt. C. E. Dutton, of the U.S. Geological Survey, made, in July 1886, a series of soundings at Crater Lake, Oregon, with unexpected results. The mountain wall that surrounds the lake is 900 feet high; the average depth is 1500 feet, and the maximum 1996.

To the January number of *Petermann's Mitteilungen*, Dr. Theobald Fischer contributes the first part of a study of the coasts of North Africa, in which he attempts to account with precision, on geological and meteorological bases, as well as by the action of the sea, for the various features of the North African coast. The present instalment deals mainly with the Algerian and Tunisian coast, and the investigation forms part of a detailed study which Dr. Fischer is making of the whole Mediterranean coasts. The paper is accompanied by maps, while another map illustrates the distribution of languages in Germany and Austria, the accompanying text being by Prof. F. Held. Dr. Possewitz contributes a paper on the laterite outcrops in the Island of Banka.