

Barth and Sons, of Nuremberg, we glean some interesting data as to the hop production of the world; this firm also exhibits a diagram of hop-prices from 1798 to 1878. Some samples of hops preserved for two years or more by a process, of which the nature is kept secret, are perfect in aroma and colour. Compression, cold, and exclusion of air are elements of the process but do not suffice to account for its success. The total amount of hops grown in the world in 1878 is stated by Messrs. Barth to be—

England	...	...	...	...	650,000
Continental Europe	...	...	...	...	619,000
America	...	...	...	...	220,000
Total	...	...	...	...	1,489,000

Many most instructive data as well as specimens, models and instruments, frequently showing novel applications of scientific principles, may be studied at the Kilburn Show. We had noted for remark the malt-cake exhibited on Stand 586, and the splendid collection of seeds, roots, and models shown by Sutton and Sons of Reading, but the limit of the space at our disposal preclude us from further dwelling upon this exhibition, with its perplexing but most interesting collections.

OUR ASTRONOMICAL COLUMN

THE NEW COMET (SWIFT, JUNE 20).—From observations at Strasburg by Prof. Winnecke on June 21, 26, and July 2, Dr. Küstner, one of his pupils, has computed the following elements of this comet, taking account of all the small corrections:—

Perihelion passage, 1879, April 27^h 3357 M.T. at Berlin.

Longitude of perihelion	42° 28' 30".8	} Mean equinox 1879 ^o .
ascending node	...	...	45° 33' 36".6
Inclination to ecliptic	...	...	72° 59' 52".5
Log. perihelion distance	...	...	9 ^h 948935

Motion—retrograde.

From this orbit it appears that on Tuesday next, July 15, the comet will make an exceedingly close approach to the pole of the equator; at 10h. G.M.T. its calculated position is in right ascension 15h. 20m., and declination 89° 42', but earlier in the evening its distance from the pole may be little over 10'.

We extract the following positions from an ephemeris for Berlin midnight, communicated by Prof. Winnecke:—

1879.	Right Ascension. h. m. s.	North Declination.	Log. distance from Earth.	Log. distance from Sun.
July 11	2 57 59	85 59' 2	0 ^h 2209	0 ^h 1940
12	2 58 6	87 4' 8		
13	2 57 40	88 10' 3	0 ^h 2226	0 ^h 2010
14	2 53 50	89 15' 6		
15	15 18 0	89 39' 2	0 ^h 2247	0 ^h 2080
16	15 6 32	88 34' 3		
17	15 5 33	87 29' 6	0 ^h 2271	0 ^h 2148
18	15 5 36	86 25' 0		
19	15 5 56	85 20' 7	0 ^h 2300	0 ^h 2216
20	15 6 25	84 17' 0		

TEMPEL'S COMET, 1867 II.—In a letter addressed to *The Observatory*, communicating his observations of this comet made during the present reappearance, at Florence, Dr. Tempel remarks: "Since it will approach Jupiter nearer in the year 1882 than in the year 1870, we shall probably have difficulty in seeing it again, if we ever do so." This statement must rest upon some misconception or error of calculation. The mean daily motion at the perihelion passage in the present year would not differ materially from 593^h 18 as fixed by M. Raoul Gautier, and the perihelion passage having taken place about May 6^h 98 G.M.T., it will appear that when the comet is next in aphelion (which is about the nearest point of approach

to the orbit of Jupiter) early in May, 1882, the actual distance between the two bodies is rather more than 0^h 75 of the earth's mean distance from the sun, though in the actual orbit it might happen that at this point the comet and planet approach within 0^h 3. Neglecting the effect of perturbation in the interim, it will be found from M. Gautier's elements that the nearest approach of the comet to Jupiter during the next revolution will occur in October 1881, when their mutual distance will be rather less than 0^h 58. In January 1870, according to Dr. Seeliger's computation this distance was only 0^h 32. Although, therefore, the perturbations during the ensuing revolution may be very sensible, they will not produce so great an effect upon the elements of 1879 as to bear out Dr. Tempel's statement.

Observations of this comet have been made at the Observatory of Rio de Janeiro, where the comet was found independently by M. Cruis. The Emperor of Brazil, who appears to take a personal interest in the proceedings of his astronomical establishment, has communicated these observations to the Paris Academy of Sciences, of which his Majesty is a Corresponding Member.

THE VARIABLE-STAR PIAZZI XIII. 126.—Mr. Burnham draws attention to an interesting discovery he has made respecting this object, viz., that it is really a close double star, the components of nearly equal magnitude 6.2 and 6.5, at a central distance of 0^h 48 on an angle of 80° 4 for 1879.4. Attention was first directed to its variability by Dr. Julius Schmidt, of Athens, in June, 1866. On the 6th of that month he found it 5^h 4m. more conspicuous than *z* Virginis, with a yellowish white light contrasting with the orange tinge of the latter star. Piazzì estimated it 6^h 7m. and 7m., not 8m., as given in his Catalogue; Lalande called it 6^h 7, Brisbane 6, Heis 6^h 7, and it is 7m. on Bremicker's chart; it is No. 1,342 of Lamont, who estimated it only 8m. It is worthy of note that the star occurs in the Uranometry of Al Sufi, translated by Prof. Schjellerup in 1874; it is No. 19 of the constellation Virgo in the catalogue of the Persian astronomer, and rated 5^h 6m. As Mr. Burnham remarks, it will be easy to determine which, if only one, of the stars is variable. The star is B.A.C. 4,531 and No. 1,244 of the new Greenwich Nine-Year Catalogue. Its position for 1880^o is in R.A. 13h. 28m. 18s., N.P.D. 102° 35' 9.

GEOGRAPHICAL NOTES

A PRIVATE letter received at Carlsrona from the commander of the steamer *Vega* reports all on board in good health. The *Vega* left the mouth of the Lena on August 27. At first she made tolerably good progress, although she had to contend with ice and shoals. The voyage was continued to Cape Yakow, but there she was stopped for three days. The steamer got away from there on September 11, and after a difficult passage reached Cape North on the 13th, where she remained beset until the 18th. After that date the steamer could only now and then make progress on account of the ice. On September 28 the expedition attained this present position, which is situated in lat. 67° 6', long. 173° 30'. If the *Vega* had got there two days earlier she would have reached Behring Straits. The ship is not lying in a harbour, but alongside a very low sandy shore, made fast to the ground ice. Every one was well, and there was a good supply of provisions and enough coal on board to steam 2,000 miles. One or two villages had been passed, the inhabitants of which are Tschutsches. Their complexion is tawny and their hair and eyes are black. They dress in clothes made of reindeer skin, reside in skin tents, and live on seal blubber. They are singularly amiable and obliging; the women have their faces tattooed, but the men have not. Their language is very hard to understand, but