

tions; and in addition, strong feelings, we may almost add of animosity, towards the writers whose opinions he sets himself to combat. The result is a readable book, containing much valuable information to those who intend visiting Rome, though occasionally marred by the introduction of hasty writing and hasty feeling. In comparing (p. 151) the mortality from typhoid in London in 1870 with that of Rome in 1876, the deaths in London are stated to have been 2,008, or 10 per cent. higher than the deaths in Rome; whereas the deaths from typhoid in London in 1870 were only 976, giving a mortality from this disease of little more than half that of Rome. Technical knowledge also on occasions fails the author; thus it is strongly asserted (p. 120) that the diurnal fall of temperature takes place almost exclusively between 3 P.M. and sunset, and between 9 or 10 P.M. and sunrise, but the two hours after sunset are those when the temperature is most nearly stationary. The mortality statistics, now published weekly by Cocchi, will soon supply information for a satisfactory handling of various questions which have been raised touching the health of Rome.

THE Missouri (U.S.) Weather Service Report for January last is just received (February 24), from which we learn that at St. Louis the temperature did not rise to freezing from December 11 to January 15; the mean temperature of the first ten days of January was only 9°0, and that of the whole month 26°9, or 4°7 below the average; and at Oregon, in the north-west of the State, the sleighing season ended on January 25, after a continuance of fifty days. The lowest observed temperature was -24°0 at Phelps City on the 3rd, and at Columbia on the 4th; and temperatures nearly as low were noted on these days at many other places. The rain- and snow-fall was moderate in amount, being about two inches in the extreme south-east and south-west and along the low country round the mouth of the Missouri, whilst in the north the fall was considerably under an inch of rain and melted snow. The cold of January, 1857, was much more intense than during last month, the mean temperature of that month being only 19°3, or 12°3 below the average. It is delightful to note the frank, effective manner in which Director Nipher is bringing about uniformity in his observers' reports; thus, after pointing out that "rainy" or "snowy" days are only those on which the rain or melted snow amounts to at least 0·01 inch, he adds that "this international rule is almost universally disregarded by our observers."

THE meteorological observations made at the Hydrographic Office at Pola during 1878 have been issued, with a full abstract for the year, showing the hourly means of pressure, temperature, and wind-velocity. The most prevalent winds by far are from the quarter of the compass from east-north-east to south-east, these comprising nearly half the winds of the whole year, to which there is to be added a small secondary maximum of west-north-west winds. The wind falls to its daily minimum velocity at 5 to 6 A.M., and rises to the maximum so early as noon, hours all but coincident with the daily maximum and minimum temperature. From the three years' observations now available from Pola, it is seen that in common with sea-side stations of the middle and higher latitudes, the A.M. maximum of pressure occurs later in winter than in summer, in contradiction to inland places where it occurs much earlier. Pola being in latitude 44° 52' north, and thus within the belt to which Rikatscheff drew attention some time ago, as characterised by the occurrence, or tendency toward the occurrence, of a third maximum of pressure a little after midnight during the cold months of the year, it is interesting to note that four out of the nine individual Decembers, Januarys, and Februarys, show the occurrence of this third maximum, which also appears in the general means of December and January for the three years. The amount of this third maximum

is very small, and the evidence yet adduced is not sufficient to determine whether it is a real increase of atmospheric pressure, or merely an apparent increase due to undetected instrumental errors.

OUR ASTRONOMICAL COLUMN

BRORSEN'S COMET.—Notwithstanding the track of this comet at the present appearance is a very favourable one for observation in these latitudes during April and May, the theoretical intensity of light at maximum is much less than that attaching to the first appearance in 1846; indeed, in the middle of April, when it is greatest, it is only half that of the middle of March 1846. The comet in that year was never a conspicuous object in ordinary telescopes; it approached pretty near to the earth, and on March 25 its apparent diameter was about 9', corresponding to a true diameter of 126,000 miles.

The following positions for part of the present month are reduced to 7h. Greenwich time from Dr. Schulze's ephemeris, which has been calculated for Berlin noon—

	R.A.			N.P.D.				R.A.			N.P.D.		
	h.	m.	s.	°	'	"		h.	m.	s.	°	'	"
March 10 ...	1	29	4	90	15	4	March 18 ...	1	55	56	82	59	8
„ 12 ...	1	35	39	88	33	0	„ 20 ...	2	2	51	81	0	0
„ 14 ...	1	42	20	86	46	3	„ 22 ...	2	9	50	78	55	8
„ 16 ...	1	49	6	84	55	2	„ 24 ...	2	16	52	76	47	3

The comet will be nearest to the earth (distance = 0·683) on the night of May 3, its position at the time being between 49 and 55 Camelopardi. Between April 14 and June 11 it will not descend below the horizon of Greenwich, attaining its greatest north declination (65° 30') on May 11, in the head of Ursa Major. The comet was found by Dr. Tempel, as already stated, on January 14, more than a month before the ephemeris by Dr. Schulze commences, and as we remarked in a former note, was thus observed with a much less intensity of light than at any previous opposition. The error of the ephemeris has not yet been published, but it appears not to be large. We shall continue the ephemeris in due course when better advised on this point.

In his report upon the work of the Observatory of Leipsic in 1877, Prof. Bruhns mentions that Herr Harzer a student in that university had, at his request, re-determined the effect of the attraction of Jupiter upon the elements of the comet at the near approach of the two bodies in May, 1842, and with satisfactory results. In 1857 the late Prof. D'Arrest made a first approximation, by the method of the *Mécanique Céleste*, to the orbit which the comet described prior to the great perturbation or on entering the sphere of activity of Jupiter about April 19·5 Berlin time in 1842; the elements at that epoch were found to be as follows (we annex the elements in 1846 at the time of the comet's first discovery for the sake of comparison):

Long. of perihelion ...	1842, April 19·5	1846, Feb. 25·4
„ ascending node ...	133° 26'·7	116° 28'·2
Inclination ...	107° 44' 0	102° 41' 0
Excentricity ...	40° 51' 0	30° 55' 9
Perihelion distance ...	0·59275	0·79338
Log. semi-axis major ...	1·50130	0·65013
Period ...	0·56661	0·49783
	7·078 years.	5·581 years.

It will be seen that the perihelion distance before the encounter with Jupiter was much greater than it now is, a sufficient reason, as was pointed out by D'Arrest, for this comet to have been missed, if it had moved in the orbit which was so much changed in 1842.

MINOR PLANETS.—M. Palisa notifies his discovery of No. 192 at Pola on February 17. At 13h. 47m. m.t. its R.A. was 11h. 10m. 20s., and N.P.D., 84° 6', eleventh magnitude.

Hilda, the most distant of the minor planets, which is

probably in the same region of the sky, has not yet been recovered. The planet which was named *Scylla*, and of which only four observations could be obtained at Pola and Berlin in November, 1875, will probably be difficult to detect again, since the observations, though inadequate to furnish elements with any pretensions to accuracy, sufficiently prove that the inclination of the orbit to the ecliptic must be pretty large. In case any one of our readers should be disposed to examine this point further, we subjoin the four observed positions reduced to longitude and latitude :—

	Greenwich mean time.	Longitude App. E1.	Latitude North.
1875, November	8 ^h 61 ^m 57 ^s ...	48° 5' 2" ...	1° 58' 41" ...
" "	9 ^h 42 ^m 47 ^s ...	47 54 13 ...	2 6 28 ...
" "	22 ^h 56 ^m 05 ^s ...	44 54 44 ...	3 53 18 ...
" "	23 ^h 44 ^m 69 ^s ...	44 43 41 ...	4 0 7 ...

VARIABLE STARS.—Dr. Weiss, Director of the Imperial Observatory at Vienna, announces several new variable stars. One is Lalande 28607, which varies from 7.0 to 8.8 in a period not differing much from four months; this star is further to be noted for its large proper motion, $\Delta\alpha = -0.080s.$, $\Delta\delta = -0".35$. He also confirms variation in the neighbouring double star Lalande 28590, which had been suspected by Struve. Further, the stars in the *Durchmusterung*, +17°, Nos. 2510 and 2511, are found to be variable, the former from 8.0 to 10.0 in rather over eleven months, and the latter, also to the extent of about one magnitude, in a somewhat shorter period, about 9½ months.

M. Ceraski, of the Moscow Observatory, also finds variation in the star, which appears thus in the *Durchmusterung*: mag. 9.2, R.A. 21h. 9m. 25s., Decl. +67° 49' 5".

GEOGRAPHICAL NOTES

THE Council of the Royal Geographical Society have presented a remarkable memorial "to H.M. Commissioners of the University of Oxford, to those of Cambridge, and to the Governing Bodies of either University." The burden of this memorial is that steps ought to be taken for the establishment of professorships of geography in the two universities. The memorial points out forcibly and justly the ignorance of geography in its highest sense, in this country, where it is commonly confounded with mere topography. The Council of the Society, we are pleased to see, show that they possess an adequate conception of the position which geography ought to occupy, and which, indeed, it does occupy in the Universities of Germany, Switzerland, and France. We have often repeated that geography is really the meeting-place of all the sciences, and this is the idea which the Council endeavour to enforce upon the Commissioners and governing bodies of the universities. They show, how, to have an adequate knowledge of geography it is necessary to know something of both the biological and physical sciences, and be able to trace the mutual influence of man and his surroundings. The duties of such a professor as the Council desire to see appointed, the memorial states, would be first, to promote the study of scientific geography, and secondly, to apply geographical knowledge in illustrating and completing such of the recognised university studies as require aid. It is suggested, also, that he might deliver at least one annual discourse on some subject of geographical research. The memorial rightly states that there is no country that can less afford to dispense with geographical knowledge, but we doubt if the number of members of the Geographical Society is any evidence that we have a greater natural interest in the subject than other people. Certainly we ought to have, for our interests are as wide as the world; and as

the memorial states, it would not be difficult to cite instances in which these interests have been seriously compromised by a want of geographical knowledge. Thus, that as a nation, we are far behind, both in our conception and in our knowledge of geography in its highest sense there can be no doubt, but whether this state of things is to be remedied by the founding of professorships of geography at Oxford and Cambridge is another question, which at present we cannot discuss. It appears to us at first sight as if it were beginning at the wrong end. Moreover, is not geography in its highest sense really only a branch of physiography, and would not the want in our university education be most effectually met by a professorship, or perhaps a lectureship, on that subject? At all events we are grateful to the Geographical Society for drawing attention to the importance and comprehensiveness which geography has assumed on the Continent, and to the lamentable want of interest in the subject which exists in this country.

ON the suggestion of the Bishop of Salford a committee has been formed in Manchester for establishing a Society of Commercial Geography. Mr. Armitage, the Bishop of Manchester, Mr. Arthur Arnold, Mr. Hugh Mason, Mr. Slagg, Mr. J. E. Taylor, and others, have joined the committee. We suggested some time ago the utility of forming such societies in our chief commercial centres, and we hope the example of Manchester will soon be followed by our principal seaports. That Manchester stands in need of some education in geographical matters was evidenced by the ignorance of African geography shown at the recent meetings to promote the formation of a railway from Zanzibar to the Lake Region. Similar societies have been found of great service in France. Might it not be well, however, if other towns form similar societies, that some common organisation be formed, and perhaps a common journal be published?

FROM the new Yellow Book of the Chinese Maritime Customs we gather some notes respecting the island of Hainan, the port of which, Kiungchow, has been recently opened to foreign trade. So far it has certainly not proved a commercial Eldorado, but what the real capabilities of the island are it is difficult to judge so long as the greater part remains a *terra incognita* to foreigners. This much, however, may be said in its favour, that it possesses an advantage over many islands of its size, viz., a large navigable river by which access may be gained to the interior, and which partially obviates the necessity for good roads. From the *Kiungchow Record* it appears that gold, silver, copper, tin, and loadstone are found in different parts of the island, but no mention is made of coal. The author of the report we allude to knows that peat exists, and samples of carbonate of copper have been shown him by natives. The number of different kinds of grain and other produce enumerated in the Chinese work referred to as growing in Hainan is surprising, and includes many varieties of rice, millet, Barbadoes millet, wheat, barley, beans, peas, sugar-cane, sesamum, ground-nut, taro, and yam. Of medicines (according to the Chinese pharmacopœia) exported the following are the chief items :—*Ai-fên*, a kind of camphor, obtained from the aborigines and said to be distilled from the leaves of the *Artemisia moxa*, *ho-hsiang*, stalks and leaves of *Betonica officinalis*, bitter cardamoms, cardamoms, the berries of *Abrus precatorius*, the stalks of *Dendrobium ceraia*, and tortoise-shell rind.

THE March number of the organ of the Geographical Society opens with the paper "On the Road to Merv," read at a recent meeting by Sir H. Rawlinson, which now appears, enriched with valuable notes, and illustrated by a map of the Turkoman Steppe and Northern Khorassan. Mr. C. R. Markham's paper "On the Basin of the Helmund, Western Afghanistan," is also published, accompanied by a well-executed map of the region. The Zulu-