ASTRONOMICAL NOTES.

AN important series of observations upon terrestrial refraction is reviewed in the *Bulletin astronomique* for August. They were made at Pulkowa upon three signals in the plain below, whose distances were about 12, 5, and 2 km., with zenith-distances of about 90° 17′, 90° 36′, and 91° 5′. They are very completely discussed as regards temperature, steadiness of images, clear and cloudy sky, hour-angle of sun, etc.; but the most remarkable feature is the persistent negative refraction for the nearest station, under all circumstances, the same for the middle station at temperatures much above the freezing point, and the wide departure of all the observed refractions from those given by standard formulæ. The certain indication of a maximum density of the air at some distance above the ground (due probably to rapid fall of temperature in rising from the latter) deserves further investigation at the hands of geodesists, and astronomers as well, for the latter cannot be assured that their observations, especially at considerable zenith-distances, may not be affected by such abnormal density of strata immediately overhead.

The observation of the spectrum of the new star in the nebula in Andromeda—a matter of the greatest importance—seems to present considerable difficulties. By many observers the spectrum has been pronounced continuous. Dr. Huggins, however, observing on September 9, feels confident of from three to five bright lines between D and *b*. Dr. Vogel notes that the intensity of the colors is somewhat different from ordinary star spectra, and he suspects a dark band on the border of the yellow and green, and a second in the blue between F and G. Dr. von Konkoly of the O'Gyalla observatory, considers the spectrum as belonging to Type III. *b*. He found in the red, yellow, green and blue what seemed to be bright bands on a dark ground. If this suspicion is confirmed, these broad, bright bands would correspond to the hydrogen lines C and F, and to the line D_3, and they would also indicate a very great pressure.

A telegram from the Harvard college observatory announces the discovery by Palisa of a 13th mag. asteroid, which may perhaps be Eudora, which has not been observed since its discovery-opposition in 1880. If it turns out to be a new one its number will be 251. It seems that Palisa discovered 250 while hunting for Rhodope 166, which has only been observed at two oppositions, though the present is the sixth since its discovery. If the Vienna 27-inch refractor is to be given up to asteroid discovery, it is to be hoped that it will be the search for old missing numbers rather than new and faint bodies, which, though easy objects in a 27-inch, would be beyond the reach of any but a few of the largest instruments, and they are generally devoted to more important work.

The late discussion as to the identity of Biela's and Denning's comets (*Observatory*, 1885, pp. 257 and 306), in which it is supposed that violent perturbation by the earth threw Biela into the orbit of Denning at the time of the great meteor-shower of 1872, November 27, would seem to be disposed of in the *American journal of science* (xxx., 322), where it is shown that, in such case, the radiant-point of Biela must have been swung round about 125° or 130°, which would call for an approach to the earth's centre nearer than 4,000 miles. On the hypothesis of identity, then, the comet must have gone *through the earth* somewhere.

NOTES AND NEWS.

THE third international geological congress held in Berlin at the close of last month had an attendance of 239 members, of which three-fifths came from Germany. The next largest number (18) came from Italy, and the United States came, with Belgium, sixth on the list—Canada was not represented. Among those present from the United States were Professors James Hall, Newberry, Brush, H. S. Williams and Dr. Persifer Frazer.

— The superintendent of the geological survey of India gives an account of two meteorites, which are the first that have been examined under the recent order of government for the collection and examination of these objects. One fell on Feb. 9, 1884, at Pirthallee, in the Punjab; the stone was received in three pieces, weighing in all 1160.5 grammes, the specific gravity being 3.40; the shape was roughly cuboidal with rounded edges and indented sides. The other stone fell at Chandpoor last April, it weighed 1201.3 grammes, its specific gravity being 3.25, its shape being roughly cuboidal with rounded edges.

— We learn from the London *Engineering* that a short time ago a citizen of Boston, while on a visit to England, examined the map which accompanied the charter of the original Massachusetts Bay company, which formed the patent under which English settlements were originally made, and was surprised to see that the eastern boundary was defined by a line drawn from Hull at the southern extremity of Boston harbor to Nahant, a peninsula on the north. Now a rocky island of small dimensions, known as Middle Brewster, lies to the east of this line, and as the colony of Massachusetts never claimed it or

exercised any authority over it, the island was not included in the revolution of 1776. Has the jurisdiction of Great Britain lapsed in course of years? and if it has not, what are the dozen acres of rock worth? At present it is occupied by a few fishermen, and also contains the summer residence of a Boston attorney, who evidently knows the value of peace and quietness as well as that of nine points of the law.

LONDON LETTER.

THE health of the president of the Royal society, Professor Huxley, is a matter of grave anxiety to his numerous personal and scientific friends. The prolonged absence from work in the winter and early spring of this year failed to restore him to anything like his usual vigor, and last summer he judged it prudent to resign altogether most of his public appointments, especially those in connection with the teaching at the science schools, South Kensington. Whether he will retain the presidency of the Royal society is as yet undecided. As the official representative of the society, and indeed of science generally on all public occasions, the social claims upon him at these public appearances are very considerable. The amount of personal attention that has to be given by the president to work which makes no show is also very large, and more than one past president has had to resign the office on this account. At this crisis, therefore, a grave responsibility is cast upon the council and officers. It has been suggested that Professor Huxley should return with Professor Marsh, of New Haven (who is now on his way to Berlin, having attended the British association meeting), and should remain with him for a year, quietly working through his wonderful collection of dinosaurians. The interest of this to Professor Huxley could not fail to be great, as his forecast about twenty years ago of the probable course of geological discovery with regard to this great group has always been regarded as one of the most sagacious divinations of modern times.

Next to the president of the Royal society, the president of the British association for the advancement of science occupies the representative position above referred to. In this case, however, the *personnel* is changed every year. The appointment of Sir William Dawson, principal of McGill college, Montreal, to this distinguished position for the year 1886–87 (September to September) is a graceful recognition of the part which he took in promoting the most successful visit of the association to that city last year. He will succeed Sir Lyon Playfair, whose life-long labors on behalf of the higher scientific education found a natural expression in his recent presidential address at the Aberdeen meeting. One of the most remarkable features of this was the evidence it gave of the extent and variety of its author's reading, no less than sixty references being made in it to various books. Advocating as he did a greatly-increased expenditure on education in pure science, his address has been sharply criticised by those organs of the so-called 'practical men,' to whom everything that savors of the 'endowment of research' is as a red rag to a bull.

Next month will be a time of great political excitement in the United Kingdom, in consequence of the first elections of members of parliament by the new constituencies, created by the recent Reform act, the total number of votes having been increased by two millions. Signs are not wanting that science will be much more largely represented in the new parliament than it ever has been before. Sir J. Lubbock and Sir Lyon Playfair have hitherto been the two chief men to whom the house has looked for counsel and advice in scientific matters. It is expected that the distinguished chemist, Sir Henry Roscoe, will be returned for one division of Manchester, and that Professor A. W. Rucker, late professor of physics in the Yorkshire college, will be returned for one division of Leeds. Several other men of more or less scientific reputation are mentioned as possible candidates in connection with various constituencies.

The condition in which the river Lea has been during the last few months is one which illustrates the need of more scientific knowledge on the part of the legislature. This is a comparatively small river in the north-east of London, from the upper part of which one of the eight water companies which supply the metropolis with water is permitted by acts of parliament to pump daily large volumes of water. By other acts of parliament the suburbs of London (Tottenham, etc.), which in course of time grew up upon its banks, were permitted to pour their sewage into it at a point considerably below the intake of the water company. Of late years the enormous growth of London has practically rendered these suburbs a part of the metropolis itself. The neighborhood is a comparatively poor one, and the river and its banks used to be one of the most important recreation grounds in that district, boating, angling, etc., being freely indulged in. In consequence, however, of the diminution of the flow of water below the company's intake and the increase in the sewage, both of which are authorized by act of parliament, the condition of this part of the river during the past summer can only be likened, with justice,