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