

and 13th of November, 1833, the fire-balls and shooting stars all emerged from one and the same quarter of the heavens, namely, in the vicinity of the star γ in the constellation Leo, and did not deviate from this point, although the star changed its apparent height and azimuth during the time of the observation. Such an independence of the Earth's rotation shows that the luminous body must have reached our atmosphere from *without*. According to Encke's computation* of the whole

* Encke, in Poggend., *Annalen*, bd. xxxiii. (1834), s. 213. Arago, in the *Annuaire* for 1836, p. 291. Two letters which I wrote to Benzenberg, May 19 and October 22, 1837, on the conjectural precession of the nodes in the orbit of periodical falls of shooting stars. (Benzenberg's *Sternsch.*, s. 207 and 209.) Olbers subsequently adopted this opinion of the gradual retardation of the November phenomenon. (*Astron. Nachr.*, 1838, No. 372, s. 180.) If I may venture to combine two of the falls of shooting stars mentioned by the Arabian writers with the epochs found by Boguslawski for the fourteenth century, I obtain the following more or less accordant elements of the movements of the nodes :

In Oct., 902, on the night in which King Ibrahim ben Ahmed died, there fell a heavy shower of shooting stars, "like a fiery rain;" and this year was, therefore, called the year of stars. (Conde, *Hist. de la Domin. de los Arabes*, p. 346.)

On the 19th of Oct., 1202, the stars were in motion all night. "They fell like locusts." (*Comptes Rendus*, 1837, t. i., p. 294; and Fræhn, in the *Bull. de l'Académie de St. Pétersbourg*, t. iii., p. 308.)

On the 21st Oct., O.S., 1366, "*die sequente post festum XI. millia Virginum ab hora matutina usque ad horam primam visæ sunt quasi stellæ de cælo cadere continuo, et in tanta multitudine, quod nemo narrare sufficit.*" This remarkable notice, of which we shall speak more fully in the subsequent part of this work, was found by the younger Von Boguslawski, in Benesse (de Horowic) de Weitmil or Weithmül, *Chronicon Ecclesiæ Pragensis*, p. 389. This chronicle may also be found in the second part of *Scriptores rerum Bohemicarum*, by Pelzel and Dobrowsky, 1784. (*Schum., Astr. Nachr.*, Dec., 1839.)

On the night between the 9th and 10th of November, 1787, many falling stars were observed at Manheim, Southern Germany, by Hemmer. (Kämtz, *Meteor.*, th. iii., s. 237.)

After midnight, on the 12th of November, 1799, occurred the extraordinary fall of stars at Cumana, which Bonpland and myself have described, and which was observed over a great part of the earth. (*Relat. Hist.*, t. i., p. 519-527.)

Between the 12th and 13th of November, 1822, shooting stars, intermingled with fire-balls, were seen in large numbers by Kloden, at Potsdam. (Gilbert's *Ann.*, bd. lxxii., s. 291.)

On the 13th of November, 1831, at 4 o'clock in the morning, a great shower of falling stars was seen by Captain Bérard, on the Spanish coast, near Carthagena del Levante. (*Annuaire*, 1836, p. 297.)

In the night between the 12th and 13th of November, 1833, occurred the phenomenon so admirably described by Professor Olmsted, in North America.

In the night of the 13-14th of November, 1834, a similar fall of shoot