

(dark cumulus) came over from the west. Wind W faint. At about 8 A. M. began to rain. At 10 $\frac{1}{4}$  P. M. Rains, wind W and N W. Air 50°, dew point 45°.

Nov. 15th, 3 A. M. A white and very thick haze obscured the sky. 11 P. M. Snowing, air 24°, dew point 15 $\frac{1}{2}$ °.

Nov. 16th. 3 $\frac{1}{2}$  A. M. Snowing.

Nov. 17th. 5 A. M. cloudy. At 8 $\frac{1}{2}$  A. M. Hailing, air 31°, dew point 23 $\frac{1}{2}$ , wind N E.

Nov. 18th, 1 $\frac{1}{2}$  A. M. Raining.

Nov. 19th. 1 $\frac{1}{2}$  A. M. Sky clear, moon up, no meteors visible to S E in ten minutes. Horizon clouded. Clouds coming up from N W. 3 A. M. Sky covered with dark cumulus.

The foregoing observations are extracted from my journal, and the comments upon them are introduced for the sake of showing as far as is necessary the train of reasoning which has led to the conclusion stated in the beginning of this note.

It will be interesting to have information on this subject from different quarters of our country as having a direct bearing upon the explanation of the meteoric phenomena of last year.

*Meteors on the morning of Nov. 13th, 1834.* By ALEXANDER C. TWINING, Civil Engineer.

For a few days previous to Nov. 13th, of the present year, I was on the watch for extraordinary phenomena in the atmosphere and sky; without however observing more than this one, that on the morning of Nov. 9th, the zodiacal light was more brilliant in the east, than I remember ever to have seen it before. This was perhaps owing to the great clearness of the atmosphere. I noticed it at twenty minutes before 5 o'clock, A. M., and it extended at that time as high as the nebula in Cancer.

On the morning of the 13th I made observations in the open air, for a part of the time between one and two o'clock. Although I saw in the moonlight, one meteor of considerable brightness, I was satisfied very soon that nothing uncommon was visible at that hour and ceased observing. Again, soon after four o'clock, the moon having set, I took a station out of doors. At that time there was evidently an unusual number of meteors. They appeared, for the most part, lower in altitude than 30°; they might be seen in either quarter of the hemisphere; their colour was reddish, and their apparent magnitude very uniformly about that of the planet Mars. Their flights were generally not more than 8 or 10° in length; but one which passed nearly in my zenith, shot through as much as 20°. They were generally attended with trains of several minutes in breadth. Of these I observed but one that continued as long as three seconds. In the course of twenty-five minutes, as nearly as I could judge, I counted thirty of these meteors; and I estimated, from this time and number, and the portion of the hemisphere which my sight took in, that they were appearing at the rate of four in a minute.

Besides the meteors thus described, there were two or three which evidently formed a part of the assemblage. These were different from the first in their courses, crossing their paths at irregular angles and differing also from them in magnitude and colour, being very minute white points, precisely like the multitude of common shooting stars, without trains. But the meteors first described, which seemed to constitute the peculiarity of the scene, were not only alike in magnitude, brilliancy, and, as a general thing, in the intervals between their appearance, but their flights were evidently directed, like those of the meteors of 1833, from a *fixed point*; and not a single meteor that I saw, except the two or three stragglers mentioned above, deviated from this regimen. There could be no question, also, that this fixed point was in the constellation Leo, and was either in the same spot with the "radiant" of last year, or in the vicinity of it; but as no meteors described their paths very near to the constellation Leo, I was not able to fix the point within several degrees.

I have not formed a decided opinion whether this whole display is to be considered a slight recurrence of the meteoric phenomena of Nov. 13th, 1833, or not. It certainly possessed, on a greatly diminished scale, the same general character. There was, to say the least, upon this latter morning, such a regularity and *unity* in the assemblage of phenomena as, when coupled with the magnitude of the meteors, to give the impression of an uncommon and remarkable display.

The zodiacal light was all the time visible, about as high as the neck of "the Lion," but far less bright than on the morning of the ninth.

*West Point, Dec. 2d, 1834.*

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### *Zodiacal Light.*

My attention was first attracted to the appearance of the Zodiacal Light in the morning sky, on the 11th of October. At that time it presented a pyramidal form, resting its broad base on the horizon, and terminating in a faint indefinite extremity near the Nebula of Cancer.

On the 5th of November, I inserted in one of our daily papers, a brief notice of this light, with the hope of directing the attention of astronomers towards it. In the same article were suggested the queries, "whether this light has any connexion with falling stars, and whether it would sustain any remarkable change on or about the 13th of November?" The "change" contemplated was, that it would about that time pass by the sun, apparently, and become visible in the evening sky after twilight. It continued to be observed in the morning, (but not in the evening) until after the 13th of November. As soon after that time as the absence of the moon permitted observation, namely, on the 19th, the extreme parts of the same luminous pyramid were recognized in the west immediately after twilight; but, owing to the low angle made by the ecliptic with the western horizon at this time, the light was carried so near the horizon in the south-west as to have its distinctness much impaired. It could, however, be traced a little above the two bright stars in the head of Capricornus. From that time to the present, (Dec. 27th,) it has been seen on every