

that "We all had to hold our heads away back to see them," nevertheless Watchung lies 20 mi. away from his great circle, and the meteors would hardly have required any noticeable exertion to see them pass along his path.

The height of the meteors at the Ontario Station was computed by Chant from Ontario reports. Three of these give remarkably concordant results, 26.2, 26.7, 26.3, mean 26.4 mi.* based on two sketches of the path across Orion, and on one instrumental determination of the angular altitude of a telephone pole past whose top the meteors were observed to go. Other computations were based on estimates solely, which required diminution of reported altitudes by one-half or one-third. Unfortunately, instead of resting on the three best observations, Chant used a mean of 26, 31.1, and 43.6, or 34 mi., which gave a considerable overweight to the poor observations. **There seems to be no reason to abandon the height 26.4 miles at the Ontario Station.**

The earth-shaking detonations which accompanied the passage of the meteors in Ontario (but were not reported elsewhere) argue for the lower height. According to Denning,† in 90 good instances of detonating fireballs, the average height at ending was 20.3 mi. About half ranged from 20 to 28 mi. Only 4 were above 34 mi. The sound limit or level for audible detonations seems to lie about 34 mi.; the few above that are uncertain . . . It is not the swift meteors that are detonating, for they rarely fall below 45 mi. . . . The slow, long-pathed fireballs from low radiants are generally responsible, for they traverse lower regions of the air.

But all the computers except Chant, including Denning, insist on a height of 34 mi. or more at the Ontario Station, for dynamical reasons, combined with the tacit assumption of identical meteors and great circle paths. If the meteors were identical from Saskatchewan to the equator, then they must have travelled as satellites of the earth through the upper atmosphere, with velocity not less than 4.9 mi./sec, the velocity in a circular orbit. But the resistance of the air at 25 mi. height, it was computed, would have slowed down the meteors and brought them into the Atlantic long before reaching the equator, unless the height at the Ontario Station was considerably more than 26 mi.; hence 26 mi. was rejected.

To the writer it seems that all the facts of observation can be reconciled qualitatively after abandoning the hypothesis of simplicity of the phenomena (implied in identity of the meteors and in great circle paths), and by considering the spheroidal form of the earth and its diurnal rotation. The former has been considered in this connection by no one, the latter only by Pickering, but only in computing the deviation producible by the eastward "wind" of the rotating atmosphere; this he

*Computed by the writer, taking account of the curvature of the earth, which was omitted by Chant.

†*Observatory*, 49, p. 314-315, 1926.