

in 1866. Another meteoric shower occurring annually about the tenth of August has been identified with the third comet of 1862. Also, the shower which occurs on the twenty-seventh of November, and was particularly conspicuous in 1885, has been connected with Biela's comet, first observed in 1826. This is the comet which was parted. The fragments have not appeared to view during several revolutions; and there is reason to think nothing remains but dark trains of stones.

So much is pretty well settled. There are numerous other trains of meteoroidal matters which we have reason to regard as worn out comets. In fact, since we have meteoric displays on nearly every night of the year, must there not be as many meteoroidal trains as there are distinct radiant points from which the meteors shoot? One train, you understand, might touch our atmosphere on one side and another on a different side. To our eyes, the motions of the ignited meteors would be in all directions from the region of contact. That region would be projected on some constellation, and would remain fixed there though the earth rotated. So each radiant point would imply a different contact—a different swarm; and accordingly there must be a hundred swarms or more which touch our atmosphere.

But reflect now, that a meteoroidal swarm is describing an orbit about the sun, and we learn of its existence simply because it happens to pass very near the orbit of the earth, and happens to pass at the time when the earth is there. If it passed at a little greater distance, or passed always when the earth was absent, we should know nothing of the swarm—save possibly as a comet, if not yet too much disintegrated to emit light. How many chances against this favorable concurrence of positions! How many more swarms there must be which never reveal to us their existence! When we reflect that we are brushed by say a hundred of them annually, must we not conclude that there are thousands which sweep through space unnoticed? I think the spaces around us must be full of their motions. Were our vision perfect, we should see the heavens clouded by swarming meteoroids darting in every con-