

my fellow-travelers saw the greatest swarm of shooting stars between half past two and four o'clock. A very meritorious observer of the phenomena of meteors, Coulvier-Gravier, contributed an important essay to the Institute at Paris upon *la variation horaire des étoiles filantes*. It is difficult to conjecture the cause of such an *hourly variation*, an influence of the distance from the hour of midnight. If, under different meridians, the shooting stars do not become especially visible until a certain early hour, then, in the case of their cosmical origin, we must assume, what is still but little probable, viz., that these night, or, rather, early morning hours, are especially adapted to the recognition of the shooting stars, while in other hours of the night more shooting stars pass by before midnight invisible. We must still long and patiently collect observations.

The principal characters of the solid masses which fall from the air I believe I have treated of with tolerable completeness (*Cosmos*, vol. i., p. 129), in reference to their chemical relations and the granular structure, especially investigated by Gustav Rose in accordance with the state of our knowledge in the year 1845. The successive labors of Howard, Klaproth, Thénard, Vauquelin, Proust, Berzelius, Stromeyer, Laugier, Dufresnoy, Gustav and Heinrich Rose, Bous-singault, Rammelsberg, and Shepard, have afforded a rich material,\* and yet two thirds of the fallen meteoric stones, which lie at the bottom of the sea, escape our observation. Although it is striking that, under all zones, at points most distant from each other, the aërolites have a certain *physiognomic* resemblance—in Greenland, Mexico, and South America, in Europe, Siberia, and Hindostan—still, upon a closer investigation, they present very great differences. Many contain  $\frac{96}{100}$  of iron; others (Siena) scarcely  $\frac{26}{100}$ ; nearly all have a thin black, brilliant, and, at the same time, veined coating: in one (Chantonay) this crust was entirely wanting. The specific gravity of some meteoric stones amounts to as much as 4.28, while the carbonaceous stone of Alais, consisting of crumbling lamellæ, showed a specific gravity of only 1.94. Some (Juvenas) have a doleritic structure, in which crystallized olivin, augite, and anorthite are to be recognized separately; others (the masses of Pallas) afford merely iron, containing nickel and olivin; and others,

\* The metals discovered in meteoric stones are nickel, by Howard; cobalt, by Stromeyer; copper and chromium, by Laugier; tin, by Berzelius.