

Parhelia, Coronæ, Glories, and the like; Electricity, in the explanation of Thunder and Lightning, Hail, Aurora Borealis; to which others might be added.]

Clouds.—When vapor becomes visible by being cooled below its constituent temperature, it forms itself into a very fine watery powder, the diameter of the particles of which this powder consists being very small: they are estimated by various writers, from 1-100,000th to 1-20,000th of an inch.²⁶ Such particles, even if solid, would descend very slowly; and very slight causes would suffice for their suspension, without recurring to the hypothesis of vesicles, of which we have already spoken. Indeed that hypothesis will not explain the fact, except we suppose these vesicles filled with a rarer air than that of the atmosphere; and, accordingly, though this hypothesis is still maintained by some,²⁶ it is asserted as a fact of observation, proved by optical or other phenomena, and not deduced from the suspension of clouds. Yet the latter result is still variously explained by different philosophers: thus, M. Gay-Lussac²⁷ accounts for it by upward currents of air, and Fresnel explains it by the heat and rarefaction of air in the interior of the cloud.

Classification of Clouds.—A classification of clouds can then only be consistent and intelligible when it rests upon their atmological conditions. Such a system was proposed by Mr. Luke Howard, in 1802-3. His primary modifications are, *Cirrus*, *Cumulus*, and *Stratus*, which the Germans have translated by terms equivalent in English to *feather-cloud*, *heap-cloud*, and *layer-cloud*. The cumulus increases by accumulations on its top, and floats in the air with a horizontal base; the stratus grows from below, and spreads along the earth; the cirrus consists of fibres in the higher regions of the atmosphere, which grow every way. Between the simple modifications are intermediate ones, *cirro-cumulus* and *cirro-stratus*; and, again, compound ones, the *cumulo-stratus* and the *nimbus*, or *rain-cloud*. These distinctions have been generally accepted all over Europe: and have rendered a description of all the processes which go on in the atmosphere far more definite and clear than it could be made before their use.

I omit a mass of facts and opinions, supposed laws of phenomena and assigned causes, which abound in meteorology more than in any other science. The slightest consideration will show us what a great

²⁶ Kæmtz, *Met.* i. 393

²⁶ *Ib.* i. 393. Robison, ii. 13.

²⁷ *Ann. Chim.* xxv. 1822.