

magnesium, and sundry other bodies in the sun, and of several of the same in the fixed stars and the nebulæ. There is little uncertainty about these determinations. Like an expert who identifies the handwriting of a criminal when he who penned it may have fled a thousand miles away, this little instrument, by an analysis of light that has wandered a thousand years away from its source, declares the nature of the luminous body that sent it forth. *One sort of matter* exists throughout all the wide realm which human vision has traversed.

One *ether* extends through all. The conditions under which light is propagated are identical upon Sirius and in the apartment lighted by a jet of gas.

*Gravitation* reigns over all. The phenomena discerned in the motions and phases of the stars and the nebulæ are such as attest the dominance there of the same law as holds the earth in its orbit, or guides an apple to the ground.

The law of *rotation* reigns over all. From the revolving moon to the vicissitudes of the variable stars—winking night and day in regular alternation—and even to the spiral nebulæ whose stupendous gyrations have given shape to their flowing vestments—every where the equilibrium of celestial bodies, like that of a top or a gyroscope, is maintained by rotation.

Our own firmament of stars, which we are not permitted to view as we view the nebulæ, from a distance, reveals even to a beholder from within the fact of its rotation, as the progress of a sloop upon a river is revealed by the apparent motions of the trees upon the banks. Mädler has announced the discovery of the astounding fact that the entire firmament is describing a slow and majestic gyration about a centre which, to us, seems located in the Pleiades. In this common whirl of a million suns our sun participates, and, with his retinue of planets, moves forward