http://www.geology.19thcenturyscience.org/books/1858-Humboldt-Cosmos/README.htm

they are small celestial bodies, which, being attracted by our planet, are made to deviate from their original course, and thus reach the earth enveloped in vapors, and in a high state of actual incandescence. The familiar aspect of these asteroids, and the analogies which they present with the minerals composing the earth's crust, undoubtedly afford ample grounds for surprise ;* but, in my opinion, the only conclusion to be drawn from these facts is, that, in general, planets and other sidereal masses, which, by the influence of a central body, have been agglomerated into rings of vapor, and subsequently into spheroids, being integrant parts of the same system, and having one common origin, may likewise be composed of substances chemically identical. Again, experiments with the pendulum, particularly those prosecuted with such rare precision by Bessel, confirm the Newtonian axiom, that bodies the most heterogeneous in their nature (as water, gold, quartz, granular limestone, and different masses of aërolites) experience a perfectly similar degree of acceleration from the attraction of the earth. To the experiments of the pendulum may be added the proofs furnished by purely astronomical observations. The almost perfect identity of the mass of Jupiter, deduced from the influence exercised by this stupendous planet on its own satellites, on Encke's comet of short period, and on the small planets Vesta, Juno, Ceres, and Pallas, indicates with equal certainty that within the limits of actual observation attraction is determined solely by the quantity of matter.†

This absence of any perceptible difference in the nature of matter, alike proved by direct observation and theoretical deductions, imparts a high degree of simplicity to the mechanism of the heavens. The immeasurable extent of the regions of space being subjected to laws of motion alone, the sidereal portion of the science of the Cosmos is based on the pure and abundant source of mathematical astronomy, as is the terrestrial portion on physics, chemistry, and organic morphology ; but the domain of these three last-named sciences embraces

* [The analysis of an aërolite which fell a few years since in Maryland, United States, and was examined by Professor Silliman, of New Haven, Connecticut, gave the following results: Oxyd of iron, 24; oxyd of nickel, 1·25; silica, with earthy matter, 3·46; sulphur, a trace =28·71. Dr. Mantell's *Wonders of Geology*, 1848, vol. i., p. 51.]—*Tr.*

† Poisson, *Connaissances des Temps pour l'Année* 1836, p. 64–66. Bessel, Poggendorf's *Annalen*, bd. xxv., s. 417. Encke, *Abhandlungen der Berliner Academie* (Trans. of the Berlin Academy), 1826, s. 257. Mitscherlich, *Lehrbuch der Chemie* (Manual of Chemistry), 1837 bd. i. s. 352.