mass of the planet, as compared with water—the standard to which the specific gravities of terrestrial bodies are referred—is a question of prime importance. Various methods have been employed for determining the earth's density. The deflection of the plumb-line on either side of a mountain of known structure and density, the time of oscillation of the pendulum at great heights, at the sea-level, and in deep mines, and the comparative force of gravitation as measured by the torsion balance, have each been tried with the following various results:

Plumb-line experiments on Schichallien (Maskelyne and Playfair) gave as the mean density of the earth			4·713
Do. on Arthur's Seat, Edinburgh (James)			*5·316*
Pendulum experiments on Mont Cenis (Carlini and Giulio)			4·950
Do. in Harton coal-pit, Newcastle (Airy)			6·565
Torsion balance experiments (Cavendish, 1798)			5·480
Do.	do.	(Reich, 1838)	5·49
Do.	do.	(Baily, 1843)	5·660
Do.	do.	(Cornu and Baille, 1872–73)	5·50–5·56

Though these observations are somewhat discrepant, we may feel satisfied that the globe has a mean density neither much more nor much less than 5·5; that is to say, it is five and a half times heavier than one of the same dimensions formed of pure water. Now the average density of the materials which compose the accessible portions of the earth is between 2·5 and 3; so that the mean density of the whole globe is about twice as much as that of its outer part. We might, therefore, infer that the inside consists of much heavier materials than the outside, and consequently that the mass of the planet must contain at least two dissimilar portions—an exterior lighter crust or rind, and an interior heavier nucleus. But the effect of pressure must necessarily increase the specific gravity of the interior, as will be alluded to further on.

§ 2. **The Crust.**—It was formerly a prevalent belief that