the density is proportional to the increase of the pressure, which gives a density of 8·23 at half the terrestrial radius and of 10·74 at the centre. From another law proposed by Prof. Darwin, the density at half the radius is only 7·4, but thence toward the centre increases rapidly up to infinity.[32] Dr. Pfaff believes that the mean terrestrial density of 5·5 is not incompatible with the notion that the whole globe consists of materials of the same density as the rocks of the crust.[33] It is possible that the gases dissolved in the hot magma of the nucleus, with their very high tension, may counteract the effects of compression and thus reduce density.

Analogies in the solar system, however, as well as the actual structure of the rocky crust of the globe, suggest that heavier metallic ingredients possibly predominate in the nucleus. If the materials of the globe were once, as they are believed to have been, in a liquid condition, they would then doubtless be subject to internal arrangement, in accordance with their relative specific gravities. We may conceive that, as in the case of the sun, as well as of the solar system generally (*ante*, p. 25), there would be, so long as internal mobility lasted, a tendency in the denser elements of our planet to gravitate toward the centre, in the lighter to accumulate outside. That a distribution of this nature has certainly taken place to some extent, is evident from the structure of the envelopes and crust. It is what might be expected, if the constitution of the globe resembles, on a small scale, the larger planetary system of which

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[32] See Fisher "Physics of Earth's Crust," 2d edit. chap. ii. Legendre supposed that the density being 2·5 at the surface, it is 8·5 at half the length of the radius and 11·3 at the centre. More recently E. Roche calculated these densities to be 2·1, 8·5 and 10·6 respectively.

[33] "Allgemeine Geologie als exacte Wissenschaft," p. 42.