

eastern Alps and Carpathians yielded results which showed as a rule relative "defects of mass" in the mountains, and "surplus of mass" in the plains, and such results suggested in geological circles a correlation between crust-movements and conditions of density in the crust. But, since the publication of these measurements, more recent observations taken in the leading European and foreign observatories, have led to the conclusion that there is no immediate connection between the density of the earth's crust and the tectonic structure of the crust.

Pendulum observations are even more important for the determination of the specific gravity of the earth than for questions regarding its form. According to the law of gravitation, the action of two masses is proportional to their size, and inversely proportional to the square root of the distance of their central points of attraction. Hence if a body be simultaneously subjected to the attractive forces of the earth, and of another mass of some considerable gravity, the density of the earth may be calculated from the result.

The two Scotsmen, Maskelyne and Hutton, made in the years 1774 to 1776 a series of admirable experiments at the mountain of Schiehallion, in Perthshire. Their aim was to arrive at the density of the earth by means of the pendulum deviations in the presence of the mass of Schiehallion. The size, form, and weight of the solitary mountain were calculated by trigonometry, and the local deviations of the pendulum were observed as the pendulum was brought into the neighbourhood of the disturbing mass of Schiehallion, the result was a gravity of 4.713 for the earth. Observations have since been taken at many different parts of the world, and various figures have been in later years given for the earth's gravity (4.39, 6.62, and 5.77).

All determinations of the earth's gravity agree in showing that the gravity of the earth as a whole is very much greater than the gravity of the rocky crust, which has an average gravity not exceeding 2.5. Thus we know the important geological fact that the interior of the earth is neither empty nor can it be filled with water, but it must consist of substances of very great weight.

*The Earth's Internal Heat and the Constitution of its Interior.*—It has long been known that the heat of the sun