does upon each individual ton of matter which the earth consists of, it must pull it as if (mind I say *as if*) it were made up of 360,000 earths. And this is what is meant by saying, that the mass or quantity of gravitating matter constituting the sun is 360,000 times as great as the mass or quantity of such matter in the earth.

(18.) Thus, now, you see, we have weighed as well as measured the sun, and the comparison of the two results leads to a very remarkable conclusion. In point of size, the globe of the sun, being *in diameter* 110 times that of the earth, occupies *in bulk* the cube of that number, or 1,331,000 times the amount of space. The disproportion in bulk, then, is much greater than the disproportion in weight,—very nearly four times greater: so that you see, comparatively speaking, and of course on an average of its whole mass, the sun consists of *much lighter* materials than the earth. And in this respect it agrees with all the four great exterior planets, Jupiter, Saturn, Uranus, and Neptune; while all the others—Mercury, Venus, and Mars—agree much more nearly with the earth, and seem to form a quite distinct and separate family.

(19.) From this calculation of the mass of the sun, and from its diameter, we are enabled to calculate the pressure which any heavy body placed on its surface would exercise upon it, or what power it would require to lift it off. It is very nearly thirty times the power required to lift the same mass here on earth. A pound of lead, for instance, transported to the sun's surface, could not be raised from it by an effort short of what would lift thirty pounds here. A man could no more stand