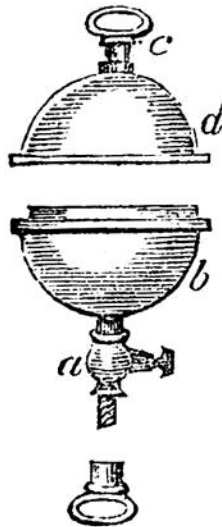


PRESSURE OF THE ATMOSPHERE.

It is scarcely necessary to make the formal statement that the atmosphere exerts a pressure upon all the bodies on which it rests, for as it is a fluid, it must have weight. The weight of 100 cubic inches of atmospheric air at 60° Fahr., the barometer standing at 30 inches, is 30.92 grains, according to Mr. Kirwan's experiments. Sir George Shuckburgh obtained a different result, and fixes its weight at 30.5 grains; but from the experiments of Prout, Dalton, and Henry, it appears that Mr. Kirwan was nearer the truth, as these gentlemen agree in fixing the weight of air at above 31 grains. But whichever of these results we may adopt, it is quite evident that the atmosphere must exert an enormous pressure upon the surface of the earth, and, as it is a fluid, that pressure must be in every direction. It was proved by Galileo and Torricelli, that at the level of the sea the air presses with a force equal to about fifteen pounds upon the square inch. Now supposing the body of an average-sized man to present a surface equal to about two thousand square inches, he will support a weight of nearly thirty thousand pounds. This statement, however, is often misunderstood, and people imagine that we carry the enormous burden upon our shoulders, not remembering that the pressure is distributed over the body, and, being resisted by internal forces, tends rather to support than to oppress.

The Magdeburgh hemisphere is an instrument that very



Magdeburgh Hemispheres.

beautifully illustrates and proves the pressure of the air in every direction. It consists of two hollow brass hemispheres,