mines; and although it may not be sufficient in itself to account for all the results that have been obtained by experiment, it is worthy attention. Mr. Ivory has calculated that one degree of heat will be evolved from air when under a condensation equal to 1-180; and if a volume of air be suddenly reduced to half its bulk, the heat given out would be equal to 180°.

But solids as well as vapours give out heat when they suffer compression. A piece of iron, by frequent hammering, may be raised to a red heat. Now it may be easily deduced that the mineral constituents of the earth undergo compression in proportion to their nearness to the centre, and consequently their temperatures will be in the same proportion. There are two antagonist forces acting upon the body of the earth, centrifugal force and gravitation. The rapid revolution of the earth on its axis generates a force which urges every particle to leave its combination, and to fly off into space as an independent mass of matter—this is the centrifugal force; but its influence is restrained by the force of gravitation, which gives each particle a tendency to fall to the centre, and entirely prevents the separation which would follow from the unrestrained activity of the centrifugal force. But the effects of the two forces are not less distinct than the laws by which they are governed. The centrifugal force increases with the distance from the centre; the force of gravity increases as the distance diminishes. It will therefore follow, that the density of the earth increases in proportion to the depth from the surface; and as heat is given out by compression, the subterranean temperature must increase with the depth.

Admitting the truth of the arguments that have been employed, and the deductions that may be drawn from them, it is not difficult to account for the various results that have been obtained by experiments on the internal heat at different places. It is well known that the earth consists of a great variety of substances, having distinct physical properties. There are some that have a great capacity for heat; there are others that are good conductors; while a third class may be altogether devoid of both these properties. If we could suppose all the mineral compounds that compose the earth's body to be perfect conductors of heat, there would be a constant current towards the surface, and a radiation from it. There is such a current; but all the mineral masses are not