to form over it. For still, according to the conclusions of Fourier, it would require an immense period to cool the internal parts, so that they should lose their fluid incandescent state after a crust of some twenty miles thick had been formed over them.

2. There is the case of currents of lava, which cool at their surface, so as to permit men to walk over them, while for years, and even decades of years, the lava beneath is in a molten state, and sometimes even in motion. And if a crust can thus readily be formed over lava, why might not one be formed over the whole globe, while its interior was in a melted state; and if a crust only a few feet in thickness can so long preserve the internal mass of lava at an incandescent heat, why may not a crust upon the earth, many miles in thickness, preserve for thousands of years the nucleus of the earth in the same state? True, if we immerse a solid piece of metal in a melted mass of the same, the fragment will be melted; *because it can not radiate the heat which passes into it;* but keep one side of the fragment exposed to a cold medium, as the crust of the earth is, and it will require very much stronger heat to melt the other side. If the crust of the globe were to be broken into fragments, and these plunged into fluid matter beneath, probably the whole would soon be melted, if the internal heat be strong enough. But so long as its outer surface is surrounded by a medium, whose temperature is at least —70°, nothing but a heat inconceivably powerful, can make much impression on its interior surface.

3. A globe of water intensely heated at its center, and covered by a crust of ice, is not a just illustration of a globe of earth in a similar condition, covered by a crust of rocks and soils. For between the ice and water there is no intermediate or semi-fluid condition. As soon as the ice melts, there exists a perfect mobility among the particles; so that the hottest, because the lightest, would always be kept in contact with the surrounding crust of ice, and melt it continually more and more; especially as ice, being a perfect non-conductor of heat, would not permit any of it to pass through, and by radiation prevent the melting. On the other hand, between solid rock and perfectly fluid lava, there is every conceivable degree of spissitude; and of course every degree of mobility among the particles. Hence, they could not in that semi-fluid stratum, arrange themselves in the order of their specific gravities; and therefore, the layer of greatest heat would not be in contact with the unmelted solid rock. True, the heat would be diffused outwards, but so long as the hardened crust could radiate the excess of temperature, the melting would not advance in that direction. This would take place only when the heat was so excessive, that the envelope could not throw it off into space.

FORMER IGNEOUS FLUIDITY OF THE EARTH.

We have already shown that probably the interior of the earth is in a state of igneous fluidity. We now advance a step farther, and say, that previous to the formation of the lowest solid rocks, the whole globe was in a state of igneous fusion, and that its present crust has been formed by the cooling of the surface by radiation. Many of the proofs of this position are also the strongest arguments for the present internal heat of the earth.

Proof (1). *The Spheroidal Figure of the Earth.*—This is the strongest of all the proofs. The form of the earth is precisely