would cease in these directions and be continued by the particles more distant from the equator, passing over these arrested ones, till sufficient had been translated to build up the solid of equilibrium.

In the case of a particle of matter passing from near the poles to the equator, the translating force, or the resultant of gravity and the centrifugal force in the direction tangent to the curvature at the particle's position at any instant, starts with a value of zero at the poles, reaches a maximum value in latitudes 45°, and becomes zero again at the equator. If the translating force had been constant in value throughout, the particles would proceed towards the equator at a uniform rate, without any influencing the motions of the remainder; reaching the equator their motion would be arrested by the equal and opposite movements of the particles in the opposite hemisphere, and successive filaments of particles, passing over these arrested ones, would eventually develop the solid of equilibrium. Let us see what would be the effect on a particle moving from the poles to the equator, under the influence of a translating force varying in value as pointed out.

A particle, starting from near the poles, will be under the influence of a constantly increasing translating force till latitude 45° is reached, so that up to this point our particle proceeds on its course without being affected by the movements of adjacent particles, for those more in advance than itself are moving with a greater velocity than itself, whilst those less advanced are proceeding with a smaller velocity; the result of this will be a dispersion of the particles, and their almost independent progress. At latitude 45° the particle will have attained its maximum velocity of translation, ignoring the particle's inertia, and assuming that a maximum is attained at the instant of maximum cause; whilst immediately beyond, its motion will be constantly retarded until it ceases at the equator. If, instead of considering the motion of a single particle we consider that of a filament extending from the poles to the equator, we will have one part of it in which the motions are being accelerated, the other in which they are being retarded; it will be evident that similar effects would be produced if we considered the first half of our filament as having motion in one direction, the remaining portion as having motion in the opposite. Now, we have thus two filaments of particles moving in opposite directions and meeting in latitude 45°, with, as a result, the thrusting of both filaments away, in this latitude, from the surface they have been moving over; each succeeding and accompanying filament will follow the same movement; the particles, from towards the centre, flowing in and distributing themselves about the resulting area of reduced pressure that would be caused by this "thrusting out" and consequent partial formation of a vacuum, would result in an accumulation of particles about this parallel, where the maximum translating velocity was acquired; it is therefore in this position that the greatest depth of translated matter will be found when the whole mass has reached its condition of equilibrium, from whence there will be a gradual diminution in depth, in either direction, towards the poles and equator.

We have assumed that our particles will have acquired their maximum velocity in latitudes 45° for convenience of illustration; but in practice we know that it will be some distance nearer the equator that this will be attained; how much nearer will depend on the value of the translating force, and the momentum the particles will acquire under it; a simple enough