

is necessarily and invariably destroyed. The destruction may be total, or may fall short of totality in any proportion according to the directness of the impact, and the proportion of the moving masses; but whenever contact occurs between such bodies, *vis viva* disappears, and, once lost, is gone for ever. Taking such a system in its entirety (*where force exists not*), there is no possibility of its reproduction. There is therefore a necessary and unceasing drain on the *vis viva* of such a system. Everything which constitutes an event, whatever its nature, exhausts some portion of the original stock. Such a system has no vitality. It feeds upon itself, and has no restorative power. All relative motion in it tends rapidly to decay, or at all events to a final state, when there will occur no more collision, *i.e.*, when phænomena cease altogether; when the *minimum* of *vis viva* consistent with the conservation of momentum is attained; and nothing remains but either a single *caput mortuum*, journeying through space, or a multitude of such, travelling different ways; having parted company never to meet again.

(7.) It will of course be urged that this reasoning takes for granted the law just mentioned of the conservation of momentum estimated in any given direction: since we cannot assert *à priori* that two inelastic bodies, after collision, *must* move on with a common velocity and unchanged joint momentum. Of course it does so. But the object of the hypothesis we are combating is to exhibit collision as *a substitute for force; i.e.*, to give an account of the acknowledged laws of motion without introducing the conception of force. We are therefore