

sion from dynamical laws, is no other than the well-known dynamical theorem of the conservation of *vis viva* (or of "energy," as some prefer to call it) *supplemented to save the truth of its verbal enunciation*, by the introduction of what is called "potential energy," a phrase which I cannot help regarding as unfortunate, inasmuch as it goes to substitute a truism for the announcement of a great dynamical fact. No such conservation, in the sense of an identity of total amount of *vis viva* at all times, and in all circumstances, in fact, exists. So far as a system is maintained by the mutual actions and reactions of its constituent elements *at a distance* (*i.e.*, by force), *vis viva* may temporarily disappear, and be subsequently reproduced between certain limits. Collision, indeed, between its ultimate atoms, regarded as absolutely rigid, and therefore inelastic (*for that which cannot change its figure can have no resilience*), cannot take place without producing a permanent destruction of it, which there exists no means of repairing. And here we may remark that, this being the case, to ascribe to such atoms any magnitude becomes not only superfluous, but embarrassing. The system of Boscovich has to be accepted in its integrity, if absolute permanence is to be one of the conditions insisted on; and they come to be considered as mere localizations of inertia and such other attributes, including the centralization of force—if any other than this there be—which belong to our notion of material substance. The conservation of energy, then, is in effect no conservation at all in any strict sense of the term, unless so supplemented. It is a fact dynamically demon-