

§ 7. **Results of the Attractive Influence of Sun and Moon on the Geological Condition of the Earth.**—Many speculations have been offered to account for supposed former greater intensity of geological activity on the surface of the globe. Two causes for such greater intensity may be adduced. In the first place, if the earth has cooled down from an original molten condition, it has lost, in cooling, a vast amount of potential geological energy. It does not necessarily follow, however, that the geological phenomena resulting from internal temperature have, during the time recorded in the accessible part of the earth's crust, been steadily decreasing in magnitude. We might, on the contrary, contend that the increased resistance of a thickening cooled crust may rather have hitherto intensified the manifestations of subterranean activity, by augmenting the resistance to be overcome. In the second place, the earth may have been once more powerfully affected by external causes, such as the greater heat of the sun, and the greater proximity of the moon. That the formerly larger amount of solar heat received by the surface of our planet must have produced warmer climates and more rapid evaporation, with greater rainfall and the important chain of geological changes which such an increase would introduce, appears in every way probable, though the geologist has not yet been able to observe any indisputable indication of such a former intensity of superficial changes.

Prof. Darwin, in investigating the bodily tides of viscous spheroids, has brought forward some remarkable results bearing on the question of the possibility that geological operations, both internal and superficial, may have been once greatly more gigantic and rapid than they are now.³¹

³¹ Phil. Trans. 1879, parts i. and ii.