

which constitute lavas and eruptive rocks. The chemical objections which may be urged against this theory, are numerous, and to my mind insuperable; in addition to which it may be added that it fails to explain the facts connected with the past and present distribution of volcanoes, and is in disaccord with those views of the early condition of the globe most in harmony with the deductions of modern astronomy, physics, and chemistry.

I need not here repeat the arguments in favor of the theory which supposes our earth to be a cooling globe, which has passed through various stages, from an uncondensed nebulous mass to a liquid, and finally to its present solid condition, with a cold exterior; nor to the evidences of a regularly increasing temperature as we descend into its crust, from which it is concluded that at a depth of a few miles a heat of ignition would be attained. If we suppose the solidification of the once liquid globe to have begun at the surface, which became thus covered with a feebly conducting crust, it would not be difficult to admit, as some imagine, a still liquid centre, surrounded by a shell of congealed matter upon which are spread the sedimentary strata. Various and independent arguments from the phenomena of precession, from the theory of the tides, and from the crushing weight of mountain masses like the Himmalah, have, however, been brought against this hypothesis of a thin crust resting upon a liquid centre, and in addition to these another important one of a different order. Judging from the known properties of the rocks with which we are acquainted, solidification should commence not at the surface, but at the centre of the liquid globe, a process which would moreover be favored by the influence of pressure. This augments the melting temperature of matters which, like the rocks and most other solids, become less dense when melted, while on the other hand it reduces the melting point of those which, like ice, become more dense by fusion. Pressure, moreover, it may be mentioned in this connection, increases the solvent power of water for most bodies, whose solution may be described as a kind of melting down with water into a compound whose density is greater than that of the mean of its constituents; the importance of this point will appear farther on. The theory deduced from the above considerations, and adopted by Hopkins and by Scrope, is briefly as follows: the earth's centre is solid, though still retaining nearly the high temperature at which it became solid. At an advanced stage in the solidifying process the remaining envelope of fused matter