

and so few among the older strata, which were formed when the stratified crust of the globe was thinner, and (by this hypothesis) the unsaturated metalloïd bases were more plentiful near the surface?

It appears to us very clear, that the union of the two speculations here brought into comparison is not only practicable, but reasonable, and even necessary. A general cause of *change of form* of the earth's surface and interior parts is supplied by the doctrine of a change of interior heat; abundant admission for water is afforded by the *fractures* necessary (upon this view) to adjust the balance of pressures; and the chemical products can only be properly understood by a suitable hypothesis of chemical action. The interior mass of the globe may yet retain the uncombined bases of earths and alkalis; but the *chemical* products resulting from admission of oxygen to these are not at all the less intelligible, if we suppose the whole mass of the interior to have those general conditions of heat which appear to suit the *mechanical* disturbances of the land and sea. On this point, however, further researches on collateral phenomena may be prosecuted with advantage, and to these we now proceed.

### *Thermal Springs.*

In general, the springs which issue from the earth derive their origin from rain which has descended through fissures of the rocks (especially calcareous rocks), and, in consequence of meeting with natural impediments to further descent,—as beds of clay, dykes, mineral veins, faults,—collects in the rocky reservoirs, rises to the surface, and issues at the point to which access is easiest, whether it be the lowest point of the vicinity or not. The rains which supply such springs descend irregularly; yet, if the subterranean reservoirs be considerable, the discharge is nearly constant in all parts of one year, and in many succeeding years. To each of such springs usually one particular chemical quality is imparted by the rocks through which the