

climate, in which even the hardier cereals could not have ripened. How account for a state of things so very unlike the present?

Questions in natural science cannot be resolved with all the certainty of questions in astronomical or mathematical science. Adams and Le Verrier could not only infer from the disturbances of Uranus the existence of a hitherto unknown planet, but even indicate its place in the heavens. But though the varying climatal circumstances of our country, and of northern Europe generally, seem to have depended scarce less surely on the varying physical conditions of another country three thousand miles away, than the irregularities of the planet Uranus did upon the mass and position of the planet Neptune, we question whether any amount of skill, or intimacy of acquaintance with the phenomena, could have led to an *a priori* anticipation of the fact. We shall afterwards show, however, that the climate of northern Europe is mainly dependent on the conditions of Northern America; and that one certain change in its condition gave to our country the severe climate which obtained when *Natica clausa* and *Tellina proxima* lived in the bay of Rothesay; and that it is a result of another certain change in its condition, that the delicate fuschia now expands its purple bells in Bute on the soil by which great deep-lying accumulations of these subarctic shells are covered.

Let us first remark, that during the period of the boreal shells the land was greatly depressed. The subsequent depression,—that represented in the Rothesay excavation by the upper gravel-bed,—that which succeeded the age of the submerged mosses,—that during which the waves broke against the old coast line,—seems to have been restricted to a descent of some thirty, or at most forty, feet beneath the level which the land at present maintains; whereas the previous depression,—that represented by the bed of arenaceous clay and the boreal shells,—must have been a depres-