Subsequent research has shown that this theory will not hold; for this, among other reasons, that we now know gneissic rocks of almost all ages in the geological Thus in Scotland the gneissic rocks are of scale. Laurentian and Silurian age; in Devon and Cornwall we have gneiss both of so-called Devonian and Carboniferous ages. In the Andes there are gneissic rocks of the age of the Chalk, and in the Alps of the New Red, Liassic, Oolitic, and Cretaceous series; and in 1862 I saw in the Alps an imperfect gneiss of Eocene date pierced by granite veins, these strata being of the age of some of the soft and often almost horizontal strata of the London and Hampshire basins. It is therefore now perfectly well known to geologists that the term Primitive, as applied to gneiss, is no longer tenable; and the old theory has been abandoned.

I have stated that regions occupied by metamorphic rocks are apt to be much contorted. There seems, in fact, to be an intimate connection between excessive disturbance of strata and metamorphism. But by what means were masses of strata many thousands of feet thick bent and contorted, and often raised high into the air, so as to produce existing scenic results by affording matter for air and water to work upon? Not by igneous pressure from below raising the rocks, for that would stretch instead of crumpling strata, in the manner in which we find them in the Alps, Norway and the Highlands, or in less degree in Wales and Cumberland; but rather because of the radiation from the earth of heat into space, gradually producing a shrinkage of the earth's crust, which, here and there giving way, became crumpled along lines more or less irregular, producing partial upheavals, even though the absolute bulk of the globe was diminishing by cooling