

dominant line of strike of the older geological formations. But information on this subject is still scanty. In Western Europe, the prevalent line along which terrestrial plications took place during Palæozoic time was certainly from S.W. or S.S.W. to N.E. or N.N.E., and the same direction is recognizable in the eastern States of North America. But the trend of later formations is more varied. The striking contradictions between the actual direction of so many mountain-chains and masses of land, and what ought to be their line according to the theory, seem to indicate that while the effects of internal distortion may have given the first outlines to the land-areas of the globe, some other cause has been at work in later times, acting sometimes along the original lines, sometimes across them.

The main cause to which geologists are now disposed to refer the corrugations of the earth's surface is secular cooling and consequent contraction.²⁹² If our planet has been steadily losing heat by radiation into space, it must have progressively diminished in volume. The cooling implies contraction. According to Mallet, the diameter of the earth is less by at least 189 miles since the time when the planet was a mass of liquid.²⁹³ But the contraction has not manifested itself uniformly over the whole surface of the planet. The crust varies much in structure, in thermal resistance, and in the position of its isogeothermal lines. As the hotter nucleus contracts more rapidly by cooling than the cooled and hardened crust, the latter must sink down by its own weight, and in so doing requires to accommodate itself to a continually diminishing

²⁹² For an able criticism of this view see Fisher's "Physics of Earth's Crust," 2d Edit. Consult also Mr. Reade's "Origin of Mountain Ranges."

²⁹³ Phil. Trans. 1873, p. 205.