physical history of the region, the boundaries of its raised sea bottoms, the shores of the great continent on which the mammoths lived, the period when the gold ore was formed, and when the watershed of the Ural chain was elevated.]

CHAPTER IV.

Attempts to Discover General Laws in Geology.

Sect. 1.—*General Geological Phenomena.*

BESIDES thus noticing such features in the rocks of each country as were necessary to the identification of the strata, geologists have had many other phenomena of the earth's surface and materials presented to their notice; and these they have, to a certain extent, attempted to generalize, so as to obtain on this subject what we have elsewhere termed the Laws of Phenomena, which are the best materials for physical theory. Without dwelling long upon these, we may briefly note some of the most obvious. Thus it has been observed that mountain ranges often consist of a ridge of subjacent rock, on which lie, on each side, strata sloping from the ridge. Such a ridge is an *Anticlinal Line*, a *Mineralogical Axis*. The sloping strata present their *Escarpements*, or steep edges, to this axis. Again, in mining countries, the *Veins* which contain the ore are usually a system of *parallel* and nearly vertical partitions in the rock; and these are, in very many cases, intersected by another system of veins parallel to each other and nearly *perpendicular* to the former. Rocky regions are often intersected by *Faults*, or fissures interrupting the strata, in which the rock on one side the fissure appears to have been at first continuous with that on the other, and shoved aside or up or down after the fracture. Again, besides these larger fractures, rocks have *Joints*,—separations, or tendencies to separate in some directions rather than in others; and a *slaty Cleavage*, in which the parallel subdivisions may be carried on, so as to produce laminæ of indefinite thinness. As an example of those laws of phenomena of which we have spoken, we may instance the general law asserted by Prof. Sedg-