

oldest of which dates as far back as the time when the slates of Westmoreland were tilted up; and the most recent (Etna and Vesuvius) is said to be subsequent to the deposition of the tertiary strata.

The distinguished French geologist, M. Elie de Beaumont, has proposed an elaborate theory for the elevation of mountains and systems of mountains. In his work he endeavors to show that mountain chains have been ridged up by the plication of the earth's crust as it contracted, in the direction of great circles on the surface. He considers those chains parallel which lie upon different great circles, although those circles cut one another in two opposite points. Hence, if we prolong the course of a system of mountains, or of strata, so as to form a great circle on the globe, we shall discover what other mountains were of nearly contemporaneous elevation. How far on different sides of such a circle we may regard the parallel chains as contemporaneous, is not definitely settled. But it is clear that some latitude is allowable in this respect.

Another fact comes in to modify inferences from the preceding statements. It is found that along, or near, the same line of dislocation and elevation, mountains have been raised up at different epochs.

Hence coincidence or parallelism of direction does not prove systems of strata to be contemporaneous. But we must rely on the age of the formations disturbed to prove the epoch of elevation.

Beaumont thinks he can identify, in North America, at least four of the systems of mountains which he has described in Europe, by a prolongation hither of the great circles with which they coincide in Europe. One is the *System of Morbihan*, which is very ancient, and which shows itself in Labrador and Canada, and passes northwest of Lake Superior to the Lake of the Woods. The second is the *System of Ballons*, which embraces a large part of the coal fields of New England, Pennsylvania, Virginia, and Tennessee. The third is the *System of the Thuringerwald*, which he finds in the copper region of Lake Superior, etc. The fourth system is that of the *Pyrennees*, which was plicated between the cretaceous and the tertiary periods.

It is supposed by Beaumont that mountain chains have been, to a great extent, suddenly elevated by paroxysmal movements, not by slow upheaval, and that such sudden emergence of large areas has produced those destructions of life on the globe, which seem for the most part to have been sudden and general.

Most geologists adopt the fundamental principle of Beaumont's theory, but are unwilling to accept his ultimate conclusions. There is too much room for the play of fancy in tracing out contemporaneous mountain chains on distant continents. Most of the ranges may be theoretically accounted for, by the reciprocal influence of oceans and continents upon each other.

THE EARLIEST STATE OF THE EARTH.

The theory of internal heat extends no further back in the world's history than to the time when the globe was in a state of fusion from heat. But the mind naturally inquires what the condition of the world was at its commencement, or at the earliest period of which we can obtain any glimpse. The earliest records are so vague that different answers may appear equally satisfactory to the same question. Hence it is that so many *theories of*