

The width is 40 miles for the higher part, and 25 to 30 for the lower western portion. Farther west is the central basin of Tennessee, a region of Lower Silurian rocks. Tennessee thus owes its grander features, its high eastern table-land, and its transverse plain beyond at a lower level, to movements attending the making of the Appalachian Mountains, and the denudation which ensued.

The Cumberland Table-land is continued northeastward through Virginia and Pennsylvania to southern New York and the Catskills; and in this northern part it is over 4000 feet high, and fronts the Hudson River Valley with precipices of nearly 2000 feet. The Great Valley of East Tennessee becomes, as the Professors Rogers observed, the Shenandoah Valley in Virginia, the Cumberland Valley in Pennsylvania, the Kittatinny of New Jersey, and the Newburg part of the Hudson River Valley in New York.

This prolongation of prominent features, orographic and denudational, gives an individual character to the Appalachian Range. Lesley's colored geological map of Pennsylvania, the first in his geological atlas of counties, illustrates well the interlocking flexures in the rocks as they pass through the state, with the great table-land region on the west and north. The facts are displayed also on his topographical map of the state, a reduced copy of which is introduced on page 730.

(9) The making of the Appalachian Mountains went forward after the close of the Carbonic era, and hence the mountains stand as a fitting time-boundary to Paleozoic history. (10) During all Paleozoic time, the preparatory work of making the rocks was slow in progress. Moreover, the deposition of the 30,000 to 40,000 feet of strata took place within a gradually deepening trough, or geosyncline, the deepening so gradual that the deposition kept pace with it. The great trough had an area as long and wide as that of the future mountain range. The Paleozoic strata in it have consequently a thickness 20,000 to 25,000 feet greater than the same series of strata in Indiana and Illinois — regions outside of the geosyncline. This depth is made certain by the fact that the Carboniferous marshes nowhere lay much above the sea level when the Paleozoic series was completing.

(11) Facts indicate that the trough had some subordinate longitudinal flexures *along its bottom*; but still, as the diminution westward in the thickness of the beds shows, it was one trough.

The knowledge of the Appalachian facts led Professor James Hall to suggest in 1859 that a similar trough of deposition preceded the upturning in all cases of mountain-making. It was the first statement of this grand principle in orography.

2. The Post-Triassic or Palisade System of Ranges in Eastern North America.

The Palisade mountain system comprises eight to ten *independent ranges*. They occur at intervals over a region 1000 miles long, extending from Nova Scotia and Prince Edward Island on the north, southwestward to the