in eastern North America. There was another to the eastward, the Acadian Range, extending from Newfoundland probably to Narraganset Bay in Rhode Island, — a distance exceeding 800 miles, and still another, that of the Ouachita Range in Arkansas (pages 380, 389).

In the Acadian trough the beds of Cape Breton and Nova Scotia are variously flexed, and at the southern end of the trough, in Rhode Island and part of Massachusetts adjoining, there are like evidences of disturbance; and, moreover, the coal is changed to anthracite, and in some places to graphite.

Since the close of the Lower Silurian was an epoch of upturning for the beds then in the northern part of the Acadian trough, it is probable that it was so for the whole trough, including the coast of Maine and the Cambrian beds of the Boston basin. But there is no direct evidence as to this or to later times of disturbance along the belt except in the Nova Scotia, New Brunswick, and Maine regions. Slates, grits, conglomerates, and eruptive rocks occur in the Boston basin above the Cambrian, without fossils or any other evidence of age; and, as described by Crosby and Bouvé, they may be of any period from Cambrian to Carboniferous.

The three ranges, the Appalachian, Acadian, and Ouachita, constitute together the Appalachian *Mountain System*. The length of the whole region of orogenic disturbance is over 2000 miles.

The Gaspé-Worcester trough, which contains some carbonaceous beds, with graphite, at Worcester, underwent post-Carboniferous upturnings. But details are wanting.

It is probable that various dislocations and anticlines over the states north along the Mississippi valley date from this epoch; and in Illinois, several lines of dislocation, between northwest and west-northwest in trend, have been described by Worthen (*Geol. Rep.*, i., 1866). (1) One crosses the Mississippi in Alexander County at the "Grand Chain," where the Trenton forms a ledge across the river; (2) another at Salt Creek Point in Monroe County; (3) another below St. Louis, near the south line of St. Clair County; (4) another at "Cap au Grès," in Calhoun County, "where there is a downthrow of the beds on the south side of at least a thousand feet," and the St. Peters sandstone constitutes the "Cap au Grès"; (5) another, north-northwest in trend, farther north, intersecting Rock River, Grand Detour, and the Illinois River in La Salle County, between La Salle and Utica, bringing the Lower Magnesian limestone to the surface; (6) another, traceable from Bailey's Landing on the west side of the Mississippi to Shawneetown on the Ohio. Of the fifth, he states that "it elevates the Coal-measures 300′ to 400′, showing that the disturbance took place at a period subsequent to the deposition of the Coal formation"; and afterward adds, with reference to the whole series of upturnings, "It is impossible, with the evidence before us at this time, to fix with certainty the relative dates of these disturbances; but it seems quite probable that none of them date back to a period anterior to the Carboniferous epoch; for we find, in general, no want of conformity between the uplifted strata and any of the superincumbent Paleozoic beds."

There are other lines of uplift or undulations farther north across Iowa, as described by McGee (11th *U. S. Geol. Surv.*, *Annual Report*, 338, 1891), which have a trend of N. 30°–40° W. The time of origin is stated to be doubtful, except for one anticline, that of the Cedar Valley, near Davenport, Iowa, which "does not appear to affect the Coal-measures at Davenport and Rock Island."

So far as yet ascertained no great mountain-making events occurred at this time over the Summit Region of the Rocky Mountains. The Carbonif-