

Above the granitic intrusions of the Laurentian chain, although broken and tossed by volcanic upheaval and mineral infusions, geologists identify the earliest sedimentary formation—known as Cambrian—but closely following it are the silurian strata of Quebec, New England and New York, now classified into a dozen lithological groups, until we reach southeastwardly the chambers of the coal chiefly in the mines of Cape Breton and Nova Scotia, and partially in New Brunswick, while southwestwardly, hardly 300 miles distant from Montreal, the devonian or carboniferous formation of Pennsylvania, with its wealth of anthracite, is reached, and its development west of the Alleghanies, with less valuable deposits of bituminous coal, can be followed through Ohio, Kentucky and other districts of the Appalachian chain.

We have traced the Laurentides due northwest from Lake Superior, with a sharp angle of deflection from its eastern direction; but it may not generally be known that not far from Thunder Bay a granite cape plunges south west through Northern Minnesota and is visible above the drift of the glacial period at St. Cloud, Redwood, on the Upper Minnesota, and even to the north west angle of Iowa, at Sioux Falls. From this primary formation, with a general direction of south east, the bluffs of the Minnesota and Mississippi reveal the silurian strata of the New York geological survey, and after passing Illinois and Iowa we reach again the carboniferous formation. The analogy to the geological interval between the primary or Laurentian Adirondacks of Northern New York and the coal bed of the Alleghany range, has become satisfactorily established by Owen's survey, nor is the distant greater—about 300 miles on an air line in each case.

Let us push our geological analogies in another direction. How is it north and west? In the vicinity of Otter Tail Lake and on the rapids of the Red River of the north; Prof. D. D. Owens discovered ledges of limestone in place, containing fossils which he identified with the lower silurian rocks of New York and the magnesian limestone of the Mississippi bluffs, near St. Paul, while below Pembina other limestone rocks revealed fossils of a still later epoch, two degrees higher in the scale of Owen than the limestone ledges at St. Paul. "About twenty miles below (north of) the mouth of the Assiniboine," Owen informs us, "a considerable amount of rock has been quarried, containing fossils identically the same which occur in the lower part of F. 3 in Wisconsin and Iowa (the bluffs at St. Paul are F. 1 on the Professor's scale), in the blue limestones of Indiana, Ohio, Kentucky and Tennessee, and also in the lower silurian of Europe. The *coscinopora* is precisely the same as the coral which is particularly characteristic of the lower beds of the upper magnesian limestone of Wisconsin." I reproduce these observations of thirty years ago not for their novelty, but to illustrate more recent discoveries in the fertile belt of Central British America.