thin and irregular, and the coals themselves contain an excess of moisture and much ash and sulphur. In this western country the sandstones and mud rocks, usually associated with coal, are gradually replaced by limestones, indicating deeper water and conditions unfavourable to the formation of coal beds, as pointed out by Professor Hall.

Poor as these western coal-bearing rocks are, they labour under the additional disadvantage of being in great part covered by a newer formation, the Cretaceous; and where the Carboniferous formation again comes to the surface along the Rocky Mountain region of uplift, to the west of the great plains, it has not been found to contain so much as a single seam of coal, but is represented by massive limestones, shewing deposit in deep ocean water, and so far removed from land that it is rare to find in them even a fragment of any of the plants which were growing so luxuriantly in the swamps and deltas of the eastern half of the continent at the same time. Just where the coal of the recognized formation fails, the luxuriant growth of timber of the east also comes to an end, and the country assumes that prairie character which persists with scarcely a break to the foot of the Rocky Mountains. The bare rolling grassy hills and plains, though in many places eminently suited for agriculture, seldom yield wood for fuel or construction. Trees as a rule are only found fringing the deep river valleys, and in steep-edged gullies, where they are protected from the sweep of the prairie fires, and find a permanent supply of moisture.

In the western portion of the Dominion, in Manitoba and the Red River country, the Carboniferous formation is not found at all, but the Cretaceous rocks already alluded to, overlap the limestones of the older Silurian period. The true coal formation can only be supposed to exist there below a great thickness of Cretaceous rocks, and even if accessible the probability of coal of any value being found in it is, from analogy with the regions already mentioned, exceedingly small.

Neither do the Cretaceous rocks of the eastern portion of the plains yield, so far as known, any fuel of economic value in their great stretch from the borders of Mexico to the northern part of the British North-West. They consist almost entirely of clay rocks and sandstones, with one interesting zone of limestone and marl, which forms part of Hayden's group 3, or *Niobrara Division*, and which appears to be recognizable in Manitoba at Pembina mountain.