particles and exposing the madreporic conglomerate, shelly limestone, or bituminous sandstone forming the base of this vast deposit, and detaching and isolating a multitude of globular masses of solid or hollow sandstone contained in the quartzose sand, which now obstruct the bed of the river and are the cause of its foaming rapids. These concretions are found at every elevation of the cliffs, from the size of a coat button to that of a Dutch fishing vessel; they are of all degrees of measurement and bulk, and of elegant or grotesque shapes, from buttons and turnips to the planet Saturn with its rings.

I have never seen in any geological text-book an explanation of the formation of these lenticular concretions, geodes, or pisolites, which I cannot believe to be merely concretions of sandstone rolled and rounded by the action of water. I am inclined to the opinion that they are masses thrown up in a globular form by some subterranean igneous force, and falling into water holding much mud in solution, in which they have passed from a pasty condition to a solid consistency, crystallising as it were in it by the action of cold. I adopt this view, because these pisolites (whether geodes or not) are only met with in this district near rapids and waterfalls, in localities exhibiting numerous traces of subterranean fires, formerly much more active and powerful than now; and because I have found some of these concretions composed of iron pyrites, crystallising from the centre outwards, and also others of bog iron. Whatever may be the method of formation of such singular freaks of nature, the Athabasca in eroding a tortuous and deep channel through the sandstone of Bark Mountain, finds its bed obstructed by these gigantic concretions, which are the sole cause of its rapids and render its navigation so perilous as to be well-nigh impossible. Besides this danger, great numbers of them are exposed on the sandy surface at all heights of the cliffs, forming immense caps constantly threatening the heads of the unsuspecting travellers beneath.

Remarkable vegetable fossils are often found in the sandstone of this part of the Athabasca, imbedded in the rock but capable of detachment with the hammer. I have noticed whole trunks of *Cupressoxylon* (probably a *Sequoia*), characteristic of the tertiaries, and have sent specimens of it to Montreal and Paris.

Near the Clear-water, pudding-stone begins to appear in horizontal layers from the level of the water, probably also reaching below it. This conglomerate is here overlaid by oblique stratifications of bituminous schist, which transude asphalt from top to bottom. The savannas and swamps covering the surface of these rocks conceal rich mines of bitumen under their thin coat of turf; and from Point Colbert to the Pierre-à-Calumets river they have given rise to the Chipewyan name of "Ellel' Dèssé," or "River of the moving grounds."

The proximity of pisolites and considerable deposits of quartzose sand leads me to the belief that the bituminous matter exuding from