

explanation that must be adopted. No better or more continuous section of these Archæan rocks—Laurentian and Huronian—could be seen anywhere than that recently exposed by the cuttings on the Canada Pacific Railway from Pembroke northwest to the Spanish River north of Lake Huron. These exposures are most interesting. The Laurentian rocks, which occupy the whole of the country from Pembroke to the east bank of the Wahnahpitae River, are for the most part highly characteristic red, grey and dark banded gneisses felspathic and hornblendic, and frequently garnetiferous and micaceous. There are also some large bands of grey and white crystalline limestone, but none of these are exposed along the line of the railway west of Mattawa, where it leaves the valley of the Ottawa River.

After passing the Wahnahpitae River bridge the Huronian rocks commence with a series of flinty felsites or felsitic quartzites, succeeded by dark grey quartzose conglomeratic beds; also massive crystalline diorites, red, fine-grained syenites and a great variety of highly altered volcanic agglomerates, felspathic and dioritic. At the Vermilion River bridge, 285 miles west of Ottawa, there are good exposures of a series of dark grey, almost black, felspathic quartz grit or sandstone, with thin bands of dark argillite. These are regularly bedded and not more altered than the Lower Cambrian rocks of the Atlantic coast of Nova Scotia, which they very closely resemble, as they also do the coarse grit and sandstone which underlie the Lévis formation of the Quebec group, or the so-called Sillery sandstone. It may be that they represent the uppermost part of the Huronian system, though here we again find an almost constant easterly dip, and the present attitude of the strata, on the above supposition, must be the result of an over-turned folding, as already referred to. The present sketch does not admit of much detail, even if the facts were available, but the following succession may be given as the general result of recent observations along the line of the Pacific Railway from Ottawa westward :—

LAURENTIAN.

1. Red, grey, and white orthoclasegneiss in great variety, distinctly banded, the bands often curiously twisted and contorted.
2. Black hornblende and mica gneiss often garnetiferous and cut by veins of red and white oligoclase.
3. Pyroxenic gneiss, banded, like cozoön.
4. Large bands of crystalline limestone.

Such rocks occur in constant alternations for 260 miles, or from Ottawa to the Wahnahpitae River bridge. They may be regarded as the typical rocks constituting the great Laurentian system. They are