

diorites, quartrites and alternating green and reddish, hard silicious and clay slates, surmounted by a great mass of thick-bedded green and red sandstone, the latter passing into a moderately coarse conglomerate, with many pebbles of red jasper at the top. These are the "Lower slates" and "Signal Hill sandstones" of Jukes. They occupy by far the greater portion of the whole peninsula of Avalon, being again and again repeated by a succession of wave-like undulations, within our great Anticlinal, the axis of which runs from Cape Pine towards the centre of Conception Bay, and one great synclinal in Trinity Bay. Further to the northward this system is displayed very largely over the peninsula between Trinity and Bonavista Bays, and over the islands of the latter, till within a short distance of the North-western shores. In many cases these rocks are crystalline and metamorphic, especially toward the base of the system, when the slates sometimes assume a gneissoid character, and the conglomerates occasionally pass into porphyry. The slates of the middle part of the series, usually have at least one set of parallel cleavages, and sometimes two or three, intersecting the bedding obliquely or at right angles, and the material in some instances is useful as a roofing slate. Veins of white quartz are everywhere abundant wherever this system is distributed, the larger and more important of which run parallel with the stratification, but many also intersect the beds, and are reticulated in all directions. These quartz veins, in very many instances, are impregnated with the ores of copper, frequently of the grey or variegated sulphurets, lead, or iron, and sometimes all three together. With the exception of the lead ores, none of these have hitherto given much promise of economic importance, although it is by no means improbable that localities of mineral value may be discovered on further research. An analysis of a specimen of iron ore, from one of the islands of Bonavista Bay, gave traces of gold and silver.

The lithological resemblances which these rocks bear, at many parts of their distribution, to those of Huronian age on the great lakes of Canada, is very striking. The remarkable band of limestone, which forms so persistent a feature of the Huronian system of Canada, however, has not been observed in the supposed equivalents of Newfoundland; and, indeed, the seemingly total, or nearly total absence of lime in the latter, except an occasional intersecting calcareous veins, may be taken as a characteristic of the series; but on the other hand, specimens of the slate conglomerates, the slates and the jaspery conglomerates, might be placed side by side with those of Lake Huron, when it would be difficult to detect the differences. But the supposed horizon of this ancient system is not urged upon lithological evidences alone. The intermediate position they hold between the Laurentian gneiss, and the palæozoic rocks which rest on them unconformably, clearly shows the vast interval of time that must have elapsed after the completion of the middle series before the higher began to be deposited. There are evidences to show that the whole system, containing at least a thickness of 10,000 feet, has been cut through by denudation, to the Laurentian floor upon which it has been built; and that