

exhibitions of London and Paris in 1851 and 1855, and the mineral had already been found by explorers at several other points in the same region previous to 1863. In the *Geology of Canada*, published in that year, the writer resumed the results of his further studies of these deposits, and described the apatite as occurring in the Laurentian rocks, both distributed in crystals through carbonate of lime, and in "irregular beds running with the stratification and composed of nearly pure crystalline phosphate of lime." This was further said to occur in North Burgess, in several parallel "beds interstratified with the gneiss."\*

In a subsequent report of the geological survey, in 1866, I again noticed the occurrence of the apatite in beds in the pyroxenic rocks often found associated with the gneiss. It was said, "the presence of apatite seemed characteristic of the interstratified pyroxenic rocks of this section, in which it was very frequently found in small grains and masses, alike in the granular and the micaceous schistose varieties." In these rocks, the apatite was said to mark the stratification, and to form, in one example, a bed, in some parts two feet thick, which was traced 250 feet along the strike of the pyroxenic rock. I at the same time described the occurrence of apatite, often with calcite, in "true vein-stones, cutting the bedded rocks of the country;" alike gneiss, pyroxenite, and crystalline limestone. These latter deposits were farther spoken of as well-defined veins, traversing vertically, and nearly at right angles, the various rocks; as often banded in structure, and including besides apatite both calcite and mica, occasionally with pyroxene, and more rarely with hornblende, wollastonite, zircon, quartz, and orthoclase. These veins were said to be very irregular, often changing rapidly in their course from a width of several feet to narrow fissures. It was added, "it is evident that this district can be made to supply considerable quantities of apatite;" and while the uncertainties arising from the irregularities of the veins were mentioned, it was said that "some of the deposits might probably be mined with profit."†

Before following farther this history, it may be stated that there are two districts in Canada which have, within the past few

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\* Loc. cit., pp. 592, 761.

† Loc. cit., pp. 204, 224, 229.