

ance is seen. Along some of the cracks an alteration to serpentine has taken place, while along others a little red oxide of iron is visible. Although the amount of this peroxide is small as shown both by the microscope and by analysis, it is nevertheless, evidently the cause of the general red colour which the mineral has assumed.

Another locality in which olivine has recently been found is a short distance to the south-east of Mount Albert, just south of the south second fork of the Ste. Anne River, Quebec. The explorations of Mr. Richardson during the past season have shown that it there forms important rock-masses close to the serpentines of Mount Albert, which have evidently been produced by the alteration of the olivine. A specimen of the rock collected by Mr. Richardson is fine-granular, slightly friable, and pale yellowish to greyish-green in colour. It shows a few minute black grains, probably of chromite, and rarely a little of a fibrous mineral which resembles enstatite. Altogether, the rock looks remarkably like one variety of that from North Carolina, which was many years ago described by Genth, and regarded by him as the source of the serpentine and tale of the same region.*

The origin of such olivine rocks as those of Carolina and Mount Albert is a difficult and disputed question, but one which still remains, whether we believe that the serpentines which accompany them were derived from them or not. In opposition to the view that they owe their origin to chemical precipitation, Clarence King suggests that they may represent accumulations of olivine sands like those now occurring on the shores of the Hawaiian Islands.† Whether such accumulations did take place in the earlier geological formations we do not know, but there is certainly nothing unreasonable or unlikely in the view that magnesian precepsitates may then, as in later times, have been formed and subsequently altered to olivine.

A thin section of the olivine rock or dunite from near Mount Albert, when examined with the microscope, presents the appearance shown in Fig. 1 *a*. It is seen to consist almost entirely of granular olivine, with occasional black grains of chromite iron. Owing to an alternation of layers with finer and coarser texture,

* *American Journal of Science*, Vol. XXXIII.; 1862, p. 199.

† United States Geological Exploration of the Fortieth Parallel. Vol. I., p. 117.