

to serpentine to the same hydrothermal or other action which has produced from siliceous sediments, the great mass of cherty quartzite."

CENOZOIC SERPENTINES.

These, also, like the last referred to, occur in British Columbia.

Dr. Harrington reported as follows on them:—

"Olivine has been detected in several of the eruptive rocks of British Columbia. One of these, of Tertiary age, from Kamloops, affords most beautiful examples of the alteration of olivine to serpentine. It is massive, rather fine-grained, and of a very dark olive-green colour. The examination of a slide with the microscope shows that originally the rock must have consisted of crystals and grains of olivine, augite (mostly in crystals), and a small proportion of plagioclase feldspar and magnetite. But while the augite mostly remains fresh, a large part of the olivine, which appears to be the most abundant constituent of the rock, has been altered to serpentine. Most of the olivine crystals and grains retain a nucleus of the unaltered mineral, showing the characteristic rifts, and the outlines of many crystals which are partly or entirely converted into serpentine are still perfectly sharp."

No economic minerals have yet been found in these serpentines, as well as in the carboniferous ones, but future researches and study may lead to some valuable finds in them.

We have now come to the last group or the one in which have been classed the serpentines of doubtful age, and which are found to the north of Lake St. John, Province of Quebec, and in the Yukon district.

Of these north of Lake St. John, Mr. Richardson reported as follows:

"About 200 yards west of the portage road, a cone-shaped hill, which rises over the waters of the narrows about 160 feet, is entirely composed of serpentine. This rock is traced on one side to the portage, and on the other it is supposed to form part of Juggler's Mountain, which is about 400 feet high, and is about two miles distant. On the highest part of the cone referred to, there is a blackish limestone, about one foot thick, interstratified with serpentine."

Dr. Hunt, while examining these rocks, had a portion of the limestone sliced for examination under the microscope, which revealed a structure resembling that of some coral. The serpentines, which are