

Up to the present time, however, no satisfactory means of separating granites in northern Ontario and Quebec has yet been found, except where there are intermediate sedimentary horizons which may be used for the purpose. Where we find a granite clearly lying beneath a sedimentary formation, such as a conglomerate, and yielding fragments to it, and a second granite cutting the same formation, we may safely classify the two as of separate ages; otherwise separation is unsafe.

There are no grounds for a separation of the granites of Matachewan area. All that is known of any of them is that they intrude the older volcanic complex and are overlaid by the Cobalt series. They are all, therefore, assumed to be of the one age until proof shall be adduced for their separation.

Nearly all of the granites of the district are rather syenitic types, containing small amounts rarely more than 2 to 3 per cent of free quartz. The quartz content is variable, however, within the same mass, so that in places a specimen will be quite quartzose, in other places there will be none visible to the eye. The ferromagnesian mineral present is commonly hornblende, except in the case of the gold-bearing intrusives in Powell township, in which it is mica. The ferromagnesian content is invariably small. Feldspar forms 90 to 95 per cent of almost any specimen of granite. There is very commonly a tendency to the formation of porphyritic phases, with bright reddish feldspars up to one-half inch diameter embedded in a paler coloured, finer-grained groundmass. Burrows has pointed out that the granite mass on the east side of Cairo and Alma townships is very high in potash, as are also the small masses in Powell township around the gold deposits. It is suspected from the similarities in general appearance and microscopic structure, that other bodies are of much the same type, particularly those in the southern part of Yarrow township, in western Powell, crossing into Bannoekburn, and in the middle of Hineks. As the potash content would indicate, the granites are true granites, the feldspars being orthoclase and albite with the orthoclase in excess, and not granodiorites with much lime-soda feldspar.

STRUCTURAL RELATIONS.

Internal.

In general the granites are perfectly massive. One good-sized dyke of white granite, found in the southwest corner of Montrose township, was badly sheared and quite schistose. This dyke will be referred to later. The remainder of the granites, however, even when in the form of small dykes, show no shearing whatever. Gneissic textures are occasionally present, particularly toward the edges of the masses. These are primary flow textures, formed by the movement of the granite magma while becoming viscous. The viscosity is producible in two ways; by ordinary cooling, in which case the gneissic bands do not differ in composition from the rest of the magma, and the gneissic texture consists only in a parallel arrangement of the micas or hornblendes of the granite; and by digestion of stoped-off lumps of older rocks, such as the older volcanics, in which case the gneissic texture is rendered more prominent by the presence of the products of digestion, which vary from lenses of basic rock softened and stretched, to patches of highly micaceous and hornblendic rock which