

cribed members of the series occur ranging in composition from pyroxene granite to peridotite; but in the Grenville district only pyroxene syenite, pyroxene diorite, pyroxene gabbro, and pyroxenite were observed. These have been intruded in the Grenville series partly as thin bands injected between the beds or along the planes of foliation and partly as large lenticular bosses. Since their intrusion they have been subjected to intense deformation and are generally more or less foliated, the gneissoid structure being especially well developed in the thin *lit par lit* injections.

#### *Metamorphic Pyroxenite.*

The rocks of this class generally occur as irregular discontinuous masses or bands, elongated in the direction of the strike of the garnet gneiss, quartzite, limestone, pyroxenic gneisses, and other rocks with which they are associated. The pyroxenite in its most typical occurrences is mainly composed of a pale green to white massive or granular pyroxene having approximately the composition of diopside, throughout which red or blue microcline commonly occurs as scattered crystals or in pegmatitic masses. With the pyroxene are associated a great variety of other minerals of which the following are the most common: scapolite, calcite, phlogopite, apatite, tourmaline, green amphibole, pyrite, chalcopyrite, titanite, fluorite, quartz, and prehnite. These minerals may occur as individual crystals scattered through the pyroxenite, as encrustations on the walls of geodal cavities, as inclusions in calcite, or as irregular veins. From the study of the character and relationships of the pyroxenite in the Grenville and other districts it has been concluded that this rock is a secondary type, formed from the crystalline limestone of the Grenville series by the action of pegmatitic solutions derived from the intrusives of the Buckingham series.

#### *Granite-Syenite Gneiss.*

The granite and syenite gneisses composing the third member of the basal complex are the most widespread of all the rocks found in the district, occurring as enormous batholiths and small masses and bands which have intruded their way through the rocks of the Grenville and Buckingham series. Lithologically, the granite and syenite gneisses are pink to grey rocks consisting of granular feldspar or granular feldspar and quartz with biotite or hornblende or biotite and hornblende together as the ferromagnesian constituent. In places the rocks of this group are fine-grained and aplitic in appearance, and in other localities they are exceedingly coarse and porphyritic throughout wide areas.

The relationships of the masses of granite gneiss and syenite gneiss to the older rocks into which they were intruded seem to indicate that