

## ABSTRACT

Clinopyroxene-rich rocks, chiefly metabasite and olivine metaclinopyroxenite, are an important constituent of the Webster-Addie ultramafic complex, but are rare elsewhere in Blue Ridge metaultramafic bodies. They occur as layers and lenses in metadunite, ranging in thickness from a few millimeters to tens of meters. Compositional and structural (layering) characteristics are similar to, and suggest derivation from, the ultramafic cumulate portion of an ophiolite.

Metamorphism of the clinopyroxene-rich rocks has produced the assemblage clinopyroxene (Cpx) + orthopyroxene (Opx) + olivine + calcic amphibole + Al-rich spinel, characteristic of the amphibolite-granulite facies transition. Application of two-pyroxene geothermometry to exsolution lamellae formed in the pyroxenes yields peak metamorphic temperatures of 795-835°C. The absence of anthophyllite in associated metadunites indicates that pressure during metamorphism was at least 11 kb.

A major feature of the metamorphism at Webster-Addie is the growth of calcic amphibole at the expense of pyroxene. Initially, this produced an aluminous hornblende, edenite. Later, edenite was, in part, retrograde metamorphosed to tremolite, resulting in composite crystals with edenite cores mantled by tremolite. Depending on the extent to which pyroxene was replaced by calcic amphibole, rocks grade from pyroxene-rich with minor amphibole to nearly pure amphibole rocks. Calcic amphiboles similar to those found replacing pyroxene at Webster-Addie are a minor, but widespread, constituent in Blue Ridge metaultramafic bodies, and may reflect origin from a Cpx-bearing protolith.