

LOW-GRADE METAMORPHISM AND METASOMATISM IN THE NICOLA GROUP, B.C.

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ABSTRACT

Volcanogenic rocks of south-central B.C. are altered to mineral assemblages which may be assigned to laumontite, prehnite-pumpellyite and lower greenschist facies.

Domains as large as 10⁶ft³ may be involved in metasomatic alteration but ones smaller than a hand specimen are the easiest to demonstrate. For instance, amygdules may have compositions which suggest that a different μ -CO₂ was present in the amygdule compared to the surrounding rock.

Thin sections of siliceous tuff in which pumpellyite occurs usually contain albite, epidote, ilite, hematite, sphene, calcite, quartz and chlorite. In a typical basic flow actinolite and clinozoisite would also be present.

In "lower-greenschist-facies" flows quartz, ac-

tinolite, epidote, chlorite, and albite coexist in two cases; in six instances one of the above assemblage is missing and in many others two of the above assemblages are missing. Following Reed & Morgan (1971) this shows that μ Na₂O and μ CaO varied in flows that are thought to have had more or less the same initial composition.

In view of the chemical exchange occurring within different volumes at low grades it is thought that higher-grade assemblages of meta-volcanic rocks prograded from the lowest metamorphic facies cannot be considered chemically equivalent to fresh volcanic rocks.

REED, J. C. & MORGAN, B. A. (1971): Chemical alteration and spilitization of the Catoctin greenstones, Shenandoah National Park, Virginia. *J. Geol.* 79, 526-548.