PETROLOGY OF CAMPTONITE FROM CAMPTON, NEW HAMPSHIRE

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The type locality for camptonite as described by Hawes and Rosenbusch in the late 1800's provides samples that have minor variations from camptonites elsewhere in the world. The type dike rock is dark gray, with a holocrystalline allotriomorphic texture, and phenocrysts of kaersutite and rare augite in a matrix of kaersutite, andesine, augite, and magnetite. Accessories include calcite, apatite, serpentine minerals, chlorite, and zeolites. Chemically, camptonite can be called a volatile-rich basanite or alkali-olivine basalt, and petrographic differences with volcanic equivalents are ascribed to the hypabyssal environment of camptonite crystallization. Other camptonite dikes in the vicinity show varying mineralogies, possibly because of flow segregation from a common parent magma. The type dike has a K-Ar whole-rock age of 194 +/- 8 Ma, similar to the nearby Red Hill plutonic complex. The Red Hill pluton and other alkaline complexes in intraplate igneous environments could be descended from camptonitic magma.