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The Structural Geology of the Worcester Mountains: a Transect Across Hunger Mountain.

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Abstract:

This field-based project examines the structural geology of Hunger Mountain in order to map its three dimensional structure and to understand the sequence of formation of features such as folds and foliations. Hunger mountain, Located on the border of Washington and Lamoille County Vermont, is comprised of Schists and mafic Orthogneisses and is bounded on each side by two large thrust faults. Field data were collected along a transect from the Washington side of Mount Hunger. All measurements and samples were geo-referenced to generate an accurate lithological map and cross section of the mountain range. Thin sections were also made from select locations across the field area in order to examine the microstructure of the rocks as well as to understand the behavior of different minerals with respect to the overall structure.

The data show four phases of deformation preserved in the mafic orthogneiss suggesting a pretectonic emplacement. This includes the formation of a primary foliation, large folds and crenulations. Multiple dikes show subsurface emplacement in a sedimentary host. Four phases of deformation are also preserved to a lesser extent in the schists due to the deformation and recrystallization of muscovite and quartz. Thin section analysis of quartz microstructure as well as the presence of garnet and kyanite points to deformation at the amphibolite facies. This metamorphism and multiple phases of deformation formed the structures seen there today.