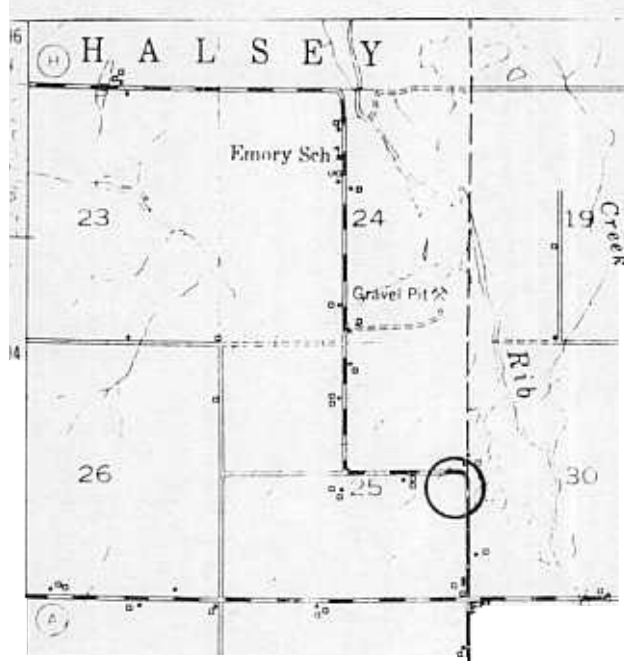


TITLE: Ultramafics at Contact of Gneiss Terrane

LOCATION: NW 1/4, SW 1/4, Sec. 30, T29N., R5E., Hamburg 15' Quadrangle



AUTHOR: Paul E. Myers, UW-Eau Claire

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SUMMARY OF FEATURES:

A small, ENE-trending, lenticular body of massive metaperidotite(?) separates hornblende-biotite-tonalite-gneiss to the north from phyllites of sedimentary parentage to the south. The ultramafic rock was apparently carried up along a major fault which raised more highly metamorphosed tonalite gneisses on the north.

DISCUSSION:

Muscovite phyllite with foliation and subparallel relict bedding $N74^{\circ}E$, $75^{\circ}N$ and subordinate cleavage $N35^{\circ}E$, $74^{\circ}NW$ is probably derived from an arkosic sandstone. Relict quartz and feldspar clasts and bedding are best seen on horizontal surfaces toward their fault contact with the ultramafic rock. The phyllites contain streaked lensoids of K-feldspar and diamond-shaped hematite replacements. A conspicuous lineation formed by the intersection of foliation and cleavage plunges $N36^{\circ}W$ at $68-74^{\circ}$.

Biotite-hornblende tonalite pencil gneisses along Rib River north of here have lineations plunging $N50-65^{\circ}W$ at $55-65^{\circ}$. Foliation, where present, dips steeply NNW.

The coarse-grained ultramafic rock is composed of relict pyroxene which appears to have been altered to chlorite. The restricted occurrence of ultramafic bodies between high grade gneisses and low grade metasedimentary-metavolcanic terranes suggests that they lie along major high-angle faults and were emplaced during or after faulting. Their lack of foliation suggests the latter although rock masses can be carried up along faults without much internal deformation.

Although the ultramafic body is about 300 meters wide here, it was not observed in outcrop along Rib River just east of here. Shape and extent of the body are unknown. A prominent magnetic anomaly south of the gneiss-phyllite contact is elongated parallel to the contact. Hematite in the phyllite may have been altered to magnetite during intrusion of the ultramafic so that the magnetic anomaly actually marks a contact metamorphic aureole.

As usual, the rock relationships here elicit more questions than answers.