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Unconformities within the Hazelton Group, Unuk River area, British Columbia

South John Peaks area:

The east-trending ridge dividing the John Peaks area from the Sulphurets Creek drainage contains excellent exposures of an angular unconformity within the upper part of the Hazelton Group (Fig. x). Rocks below (east of) the unconformity comprise a west-facing sequence of siltstones, volcanic sandstones, conglomerates, and breccias, crystal tuffs, and ash tuffs greater than 2 km in thickness. The volcanic components of this lower sequence includes both clinopyroxene-bearing intermediate to mafic rocks, and felsic tuffs. This sequence is tentatively correlated with the Stuhini group on the basis of lithology, although geochronometric work in progress (R.G. Anderson, personal communication, 1991) may provide more definitive constraints.

A heterolithic rounded cobble conglomerate overlies the lower sequence along an angular unconformity. This conglomerate varies in thickness from 30 m to over 100 m and crosscuts stratification in the underlying units by 10^{o} to 20^{o}. In most exposures over 50% of clasts have granitic compositions, with the remainder a mix of mudstone and volcanic lithologies. Discontinuous coarse-grained sandstone layers up to 0.5 m thick within the conglomerate form roughly 10-20% of the outcrop volume. The conglomerate interval is succeeded by platy, light green felsic tuffs which locally contain interbeds of dark grey phyllite. Approximately 50 m up section from the first occurrence of the tuffaceous rocks, maroon felsic tuffs are common within the other lithologies. The total thickness of these tuffaceous and phyllitic lithologies is around 200 to 300 metres.

Above the tuffaceous unit, interlayered argillite, siltstone, and thinly-bedded carbonate mudstone form a sedimentary interval 50 m to 100 m thick. Carbonaceous lithologies within this layer yield coarse ribbed bivalves, which include the ____ genus _____. An upper felsic volcanic sequence forms the uppermost exposures above the unconformity. This volcanic sequence is lithologically distinct from the lower tuffaceous interval, in that it contains dominantly fragmental lapilli tuffs and volcanic breccias.

The entire sequence described above strikes north to northwest, dips subvertically, and faces westward. Rocks both above and below the unconformity contain strong flattening fabrics which dip steeply to the east and northeast, and are parallel to axial surfaces of regional folds in the area. No evidence exists for an extra phase of deformation in rocks below the unconformity, except for the angular truncation at the unconformity.

Possible correlative units north of John Peaks area

North of John Peaks, along structural trend with the units described above, a similar stratigraphic sequence containing an angular unconformity is exposed. Rocks below the unconformity

here consist of interlayered epiclastic sandstones and conglomerates, intermediate to felsic volcanic breccias, and thinly-bedded felsic tuffs. Clinopyroxene-bearing volcanic rocks, such as those exposed below the unconformity south of John Peaks, have not yet been recorded. The unconformity itself is represented by a minor truncation ($<20^{0}$) of underlying units overlapped by a less than 50 m thick rounded cobble conglomerate lithologically similar to that described south of John Peaks. Succeeding this conglomerate is a variable thickness (0-200 m) of maroon and green tuffs, thin (<2m) fossiliferous calcereous mudstones, and finally, flow-banded felsic volcanic breccias and massive flows. The fossiliferous beds in one location yield samples of the Pliensbachian ammonite *Asterocerous* (P.L. Smith, personal communication, 1991).

Discussion

Geological relationships in the John Peaks area indicate that a regionally significant angular unconformity exists near the top of the Hazelton Group. Lithologies of rocks below this unconformity suggest they belong to the Triassic Stuhini Group, although corellation with the lower part (Unuk River Formation) of the Hazelton Group cannot be ruled out. The rounded granitic cobble conglomerate marking the unconformity may prove to be a regionally mappable unit, and future map studies will address documenting its regional extent. Rocks above the basal unconformity corellate with the upper part of the Hazelton Group, and the most felsic flows and pyroclastic rocks are likely equivalent to the regionally extensive Mount Dilworth Formation. However, some of the lowest epiclastic and sedimentary rocks may correlate with the upper part of the Betty Creek Formation as it has historically been mapped in surrounding areas. This correlation is supported by the Lower Jurassic faunal collections from localities both south and north of John Peaks.