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GEOLOGICAL SURVEY OF CANADA



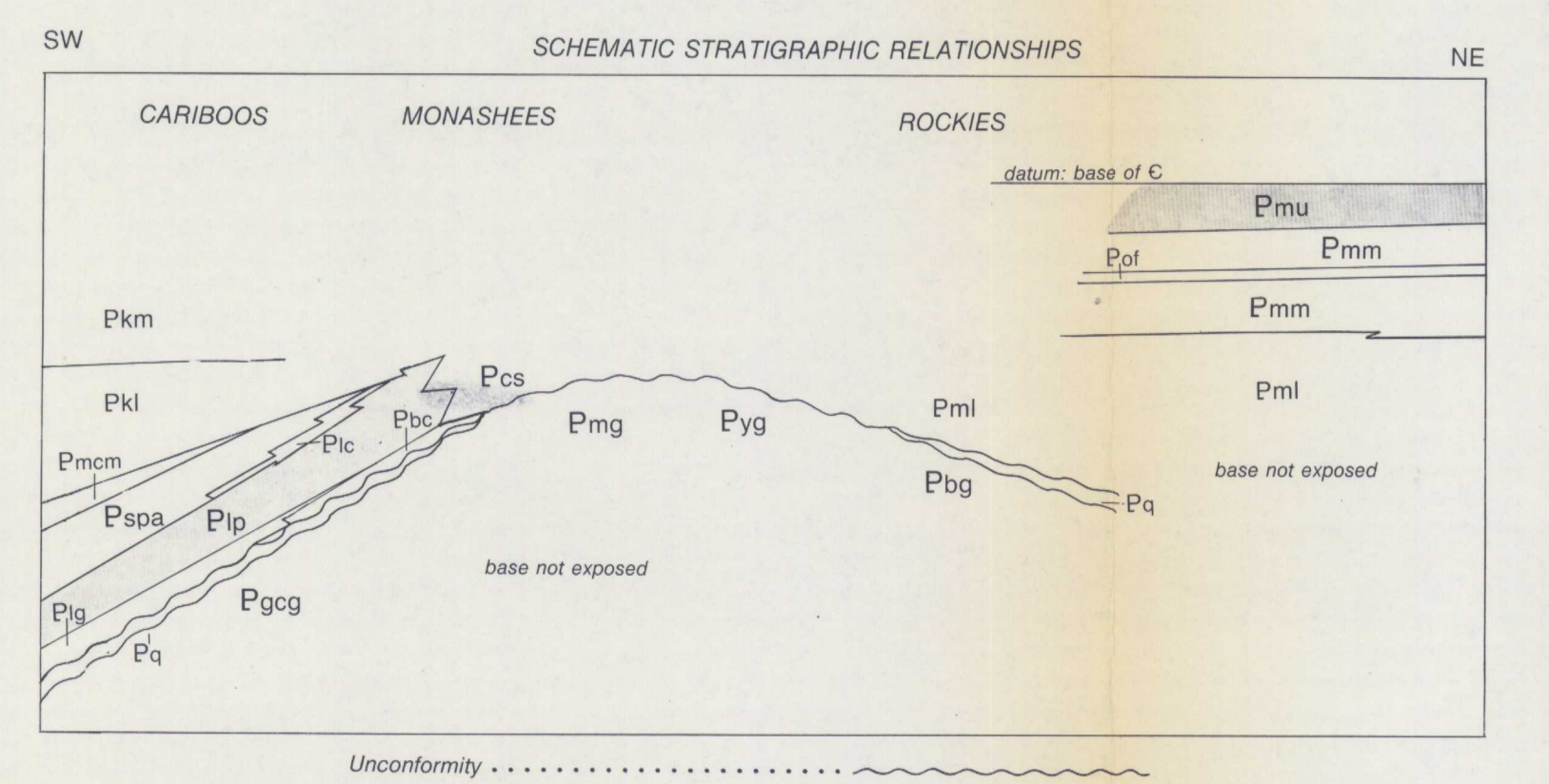
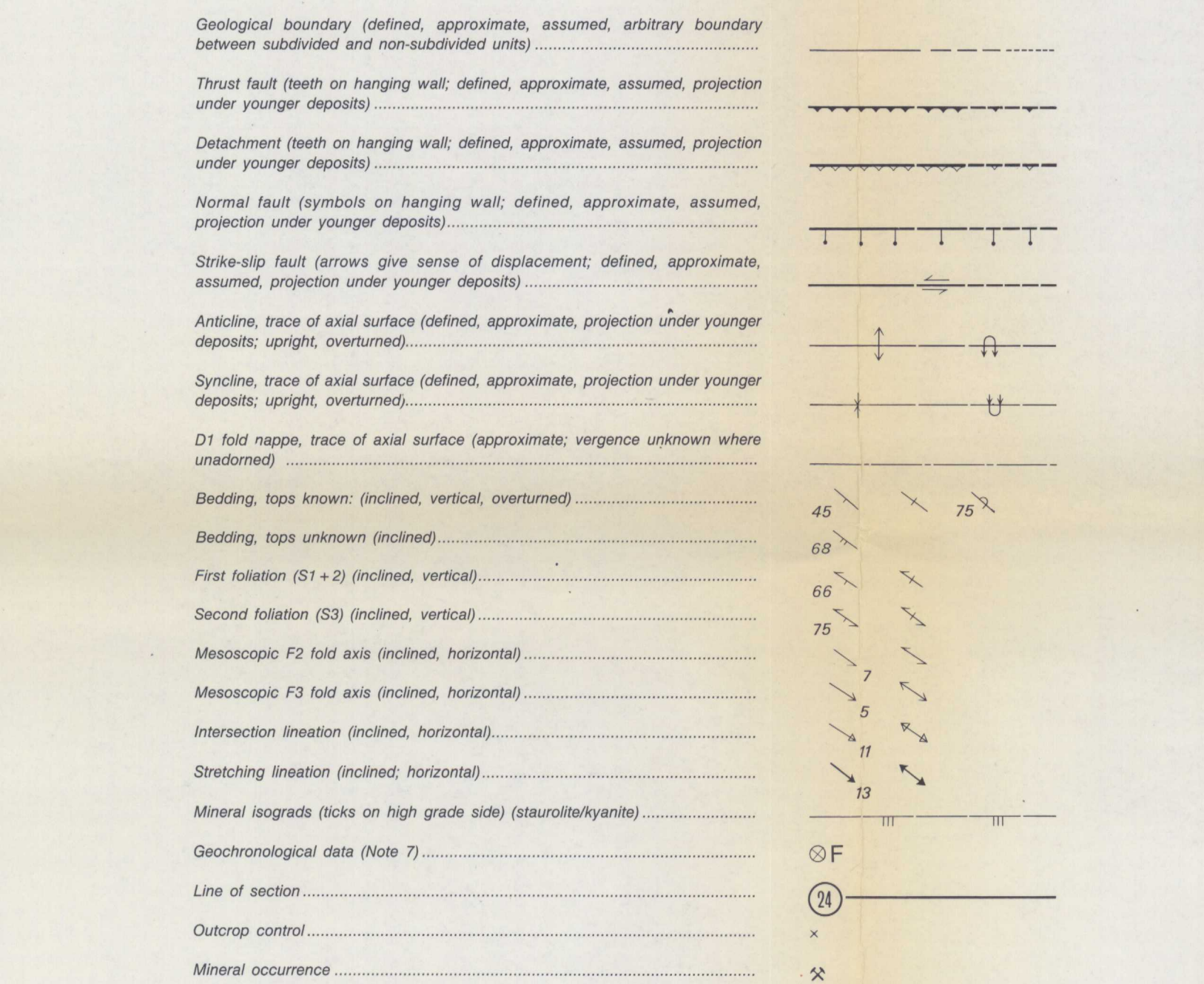
COMMISSION GEOLOGIQUE DU CANADA

NOTES

- Geology of the Selwyn Range by M.R. McDonough (1984) based on ground and air observations (1983-1984). Geology of the Malton Range by R.S. Campbell (1988), M.L. Morrison (1982, southern), and M.R. McDonough (northern; unpub. map), 1990 (based on studies of air photographs and ground and air observations). Geology of the Cariboo Mountains by Currie (1988), Walker (1989), Pelt (1984), and Murphy (1990).
- Bedding parallel to subparallel S1 foliation of the Rocky Mountains is equivalent to S1 + 2 of the Monashee and Cariboo mountains. S2 crenulation cleavage of the Rockies is equivalent to S3 crenulation cleavage of the Monashee and Cariboo mountains (see Smoly et al., 1980; Morrison, 1982; McDonough and Smoly, 1988; McDonough, 1989).
- The gneisses of the Malton complex are typically separated from their cover by thermally annealed pre-metamorphic shear zones that indicate the Windermere cover rocks are detached. Inward facing stratigraphy within exposures of cover rocks suggest that the cover is deformed into large folds; these are interpreted as D1 structures of unknown vergence.
- Orogen-parallel (OP) stretching lineations are ubiquitous in the gneisses of the Bear Foot thrust sheet, and also occur as isolated pebbles in middle Miette Group conglomerates located in the footwall of the Bear Foot thrust, in a narrow zone of high strain and ductile shear, the Valemount strain zone. The Bear Foot thrust and the Valemount strain zone are part of a ductile oblique-slip thrust system that carried basement gneisses of the Malton complex into the Rocky Mountains belt (see McDonough and Smoly, 1988; McDonough and Smoly, 1989). OP stretching lineations are common in the gneisses of the Malton complex (McDonough, unpub. data, 1990), and also occur in conglomerates in the Cariboo Mountains. Asymmetric OP fabric data in the Valemount region consistently show a dextral sense of shear.
- The Bear Foot thrust is a pre to syn-metamorphic ductile D2 structure with syn-kinematic garnets in its mylonite zone that are partially enveloped by and partially truncate the mylonite foliation. The garnet and staurolite-kyanite mineral isograds cross the Bear Foot thrust without apparent offset, indicating minimal post-metamorphic motion on the fault (McDonough and Smoly, 1988; McDonough, 1989). The timing of metamorphism and syn-metamorphic deformation in the Valemount area is constrained by U-Pb monazite and zircon data of Currie (1988), and Smoly et al. (1989), and also occur in conglomerates in the Cariboo Mountains. Asymmetric OP fabric data in the Valemount region consistently show a dextral sense of shear.
- Normal faults in the Southern Rocky Mountain trench are chlorite-grade brittle crush zones with mineral grains on newly displaced surfaces. These faults are well-slate-down displacement estimated at about 1-2 km (Smoly et al., 1980).

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ROCKY MOUNTAINS

QUATERNARY

Qa TILL alluvium

PROTEROZOIC

UPPER PROTEROZOIC

WINDERMERE SUPERGROUP

MIETTE GROUP (Pmi - Pm10)

UPPER MIETTE GROUP

Pm1 Dark brown to black pelite, calcareous pelite

Pm2 Massive conglomerate sandstone (grit); sandstone; minor grey green to grey pelite; interbedded grey-green and lesser black pelite map units shaded lighter

Pm3 Middle Miette Group (cross-sections only)

Pm4 Massive conglomerate sandstone (grit); sandstone; minor grey green to grey pelite; interbedded grey-green and lesser black pelite map units shaded lighter

Pm5 Old Fort Point Formation: bright green to olive green pelite with interbedded siltstone and sandstone, overlain by reddish brown dolomite and calcareous siltstone interbedded with white limestone; overlain by dark grey to black carbonaceous pelite

Pm6 Massive conglomerate sandstone (grit); sandstone; minor grey green to grey pelite; interbedded grey-green and lesser black pelite map units shaded lighter

Pm7 Lower Miette Group

Pm8 Dark grey to black pelite; minor black limestone; sandstone and granite conglomerate; tectonic slices of pelite bounded by mylonite within gneisses

Pm9 Upper Proterozoic?

Pm10 Quartzite unit: fine grained foliated muscovite quartzite, quartz pebble conglomerate, orthoquartzite, minor calcite

LOWER PROTEROZOIC

MALTON COMPLEX

YELLOWJACKET GNEISS UNIT 2: crenulated biotite-rich granodioritic augen gneiss (1870 Ma); minor amphibolite

YELLOWJACKET GNEISS UNIT 1: foliated biotite-rich granodioritic augen gneiss; minor amphibolite (1870 Ma); tectonic slices of lower Miette cover

BULLDOGS GNEISS: layered sequence of quartzose paragneiss and amphibolite; mafic gneiss, intruded by 1870 Ma granitic augen gneiss; minor younger amphibolite, tectonically interleaved with slices of lower Miette cover

MONASHEE MOUNTAINS

QUATERNARY

Qa TILL alluvium

PROTEROZOIC

UPPER PROTEROZOIC

WINDERMERE SUPERGROUP

Pcs Lower sequence to Malton gneiss: muscovite-rich pelite, semipelite, minor grit; local quartzite and/or conglomerate at base (similar to lower pelite unit of Mica Creek Succession and lower Miette Group)

Pcm Basal conglomerate unit: pebble to boulder conglomerate with brownish biotite-rich calcareous matrix; variably matrix to clasts supported. Clasts are of underlying quartzite, amphibolite, and gneiss. Abundant boulders of quartzite, gneiss, and amphibolite. Pcm unconformably overlies quartzite or gneiss and forms the base to the Windermere Supergroup.

UPPER PROTEROZOIC?

Pq Quartzite unit: fine grained foliated to mylonitic muscovite quartzite, minor quartz pebble conglomerate, orthoquartzite; local foliation

LOWER PROTEROZOIC

MALTON COMPLEX

Pmg2 MALTON GNEISS UNIT 2: foliated granitic augen orthogneiss

Pmg1 MALTON GNEISS UNIT 1: layered quartzose paragneiss, mafic amphibolite gneiss, and amphibolite; locally intruded by granitic gneiss of Pmg3; U-Pb, local massive hornblende

CARIBOO MOUNTAINS

QUATERNARY

Qa TILL alluvium

PROTEROZOIC

UPPER PROTEROZOIC

WINDERMERE SUPERGROUP

KAZA GROUP (Pki - Pk10)

MIDDLE KAZA GROUP (Pki1 - Pki10)

Massive conglomerate sandstone, sandstone, psammite; minor grey-green to grey phyllite and schist; correlative with Middle Miette Group

LOWER KAZA GROUP (Pki1 - Pki3)

Carbonate unit: impure marble, quartzite, graphitic pelite; minor semipelite and grit

Pki2 Black graphitic phyllite, siltite

Pki1 Semipelite, biotite schist, minor grit and calcareous amphibolite

Pkm MICA CREEK SUCCESSION (Pig - Pkm1)

Malton Marble Unit: white to grey marble; minor pelite, calcareous, locally subdivided into lower and upper marble units with an intervening pelite unit (Pkm1-Pkm3)

Pspa3 Semipelite-Amphibolite Unit 2: rusty psammite, pelitic schist, grit, and minor amphibolite

Pspa2 Semipelite-Amphibolite Unit 2: matrix-supported pebble to boulder conglomerate with clasts of quartzite, marble, calcareous, and graphitic rocks; minor calcareous psammite, marble, and micaceous quartzite

Pspa1 Semipelite-Amphibolite Unit 1: quartz-biotite-quartzolite psammite, pelitic schist, amphibolite schist, garnet amphibolite, minor psammite

Ppc Lower carbonate unit: calcareous psammite, calcareous pelite; minor psammite and amphibolite

Pp Lower pelite unit: pelitic schist, semipelite; minor local amphibolite and marble

Pg Lower grit unit: rusty weathering staurolite-kyanite schist, conglomerate, minor psammite, grit and amphibolite

LOWER PROTEROZOIC

MALTON COMPLEX

GOLD CREEK GNEISS: granitic to quartz diorite foliated augen orthogneiss; minor schists and dykes of amphibolite gneiss, amphibolite, and garnet amphibolite

MIDDLE MIETTE GROUP: undivided

MALTON GNEISS: Undivided

MALTON GNEISS: Undivided

LOWER KAZA GROUP: Undivided

Semipelite-Amphibolite Unit: undivided

MICA CREEK SUCCESSION: Undivided



CANOE MOUNTAIN BRITISH COLUMBIA

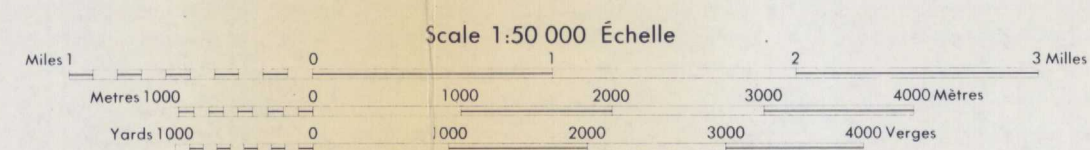


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Recommended citation
McDonough, M.R., Morrison, M.L., Currie, L.D., Walker, R.T., Pelt, J., and Murphy, D.C.
1991. Canoe Mountain, British Columbia (83011).
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Compiled by M.R. McDonough, geological cartography by J. Felker.
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production editing by A.V. Okulitch, Institute of Sedimentary and Petroleum Geology.

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