GEOLOGICAL SURVEY OF CANADA
DEPARTMENT OF ENERGY, MINES AND RESOURCES

CLASS OF DEPOSIT	MAIN METALS, TYPICAL TENOR	EXAMPLES OF DEPOSITS	TYPICAL MINERALOGY	HOST ROCKS OF KNOWN DEPOSITS	IMPORTANT STRUCTURAL CONTROLS	ASSOCIATED ALTERATIONS	GENETICALLY and/or SPATIALLY RELATED INTRUSIONS	KNOWN or PROBABLE TIME OF FORMATION
H PORPHYRY COPPER DEPOSITS	Cu < 1%; minor Mo, Au	Catface Copper Big I Faith Copper Gem Lake Mt. Wash.-Murex Corrigan Creek	Chalcopyrite, pyrite, pyrrhotite, bornite; minor molybdenite	Tertiary intrusive complexes and their extremely varied host rocks	Fracture zones and breccia zones in and adjacent to intrusive complexes	Several widespread types including silicification, biotitization, kaolinization	Tertiary quartz diorite-dacite porphyry-breccia intrusive complexes. Some quartz monzonite at Catface.	Tertiary (Oligocene-Eocene) excepting possibly Corrigan Creek
G8 GOLD-BEARING QUARTZ VEINS, FISSURE ZONES	Au, Ag; minor Pb, Zn, Cu, As	Musketeer Fandora Vanc. Is. Gold etc.	Pyrite, sphalerite, galena, arsenopyrite, chalcopyrite, native Au	Extremely varied-Sicker Gp., Vancouver Gp., Nanaimo Gp., intrusive rocks	Fractures, faults, sheeted zones, fissure zones	Restricted silicification, sericitization, carbonatization, chloritization	Tertiary quartz diorite stocks, plugs, and related dacite porphyry dykes, sills, laccoliths	Tertiary (Oligocene-Eocene) and (?) rarely Jurassic on Vanc. Island. Unknown on Texada Island.
G7 COPPER-ARSENIC VEIN, BRECCIA ZONE	Cu; appreciable As; minor Au, Ag	Mt. Washington Copper Macmillan	Chalcopyrite, bornite, pyrite, realgar, arsenopyrite, native arsenic, tetrahedrite, plus some exotic minerals	Nanaimo Gp., Karmutsen Fm., dacite porphyry	Fault or sheeted zone (Mt. Washington); breccia zone (Macmillan)	Intense widespread silicification, some carbonatization	Tertiary dacite porphyry dykes, sills, laccoliths	Tertiary
G6 ARSENIC VEINS	As	Grizzly Wolfe	Native arsenic, realgar, arsenopyrite	Karmutsen Fm. basalts, Nanaimo Gp. argillite	Brecciated fault zones	Restricted carbonatization and silicification	Tertiary dacite porphyry sills, laccoliths	Tertiary
G4 ANTIMONY-QUARTZ VEIN	Sb; minor As	Silver Bell	Stibnite; minor arsenopyrite	Sicker Gp., granitic rocks	Fracture	Restricted silicification	None obvious	Unknown, possibly Tertiary
G3 COPPER-BEARING SHEAR ZONES	Cu; possibly minor Ag, Zn	Qualicum, Three Musketeers Dauntless	Chalcocite (Qualicum) Chalcopyrite, pyrite, pyrrhotite (others)	Karmutsen Fm., Bonanza Fm., granitic rocks	Narrow shear zones	Restricted silicification and/or carbonatization	None obvious	During Jurassic and Tertiary orogenies ?
G2 COPPER-BEARING QUARTZ VEINS, STOCKWORKS	Cu; possibly minor Mo, Ag, Au	Independent Mary	Chalcopyrite, pyrite, pyrrhotite; possibly minor molybdenite	Sicker Gp., Vancouver Gp., dioritic rocks	Large fractures; fracture zones near faults and contacts	Moderate to strong silicification	Granitic and porphyritic intrusions spatially related to some deposits	During Jurassic and Tertiary orogenies
G1 MOLYBDENUM-COPPER QUARTZ VEINS STOCKWORKS	Mo; minor Cu	Dry Gulch Tofino	Molybdenite, pyrite, chalcopyrite	Intrusions and adjacent rocks	Myriads of fractures	Silicification; some sericitization, K-feldspathization	Border zones or roof facies of potassic Tertiary and Mesozoic intrusions	Tertiary (Tofino). Jurassic or Cretaceous (Dry Gulch)
F4 ZINC SKARN OR REPLACEMENT IN LIMESTONE	Zn, low grade; some As.	P D	Sphalerite, arsenopyrite	Limestone of Sicker Gp.	Unknown	Unknown	Unknown	Unknown
F3 MOLYBDENUM-COPPER SKARN	Mo; minor Cu	Sunwest	Molybdenite, chalcopyrite, pyrite, pyrrhotite	Skarnified porphyritic basalt and limestone of Sicker Gp. (?)	Intrusive contacts, favourable horizons, fractured zones	Skarnification, silicification	Quartz diorite intrusion of unknown age	Mid- to early Late Jurassic or Tertiary
F2 COPPER SKARNS	Cu 1.5% - 2½%; apprec. to minor Au, Ag, Fe	Marble Bay Vananda Cornell Sunshine etc.	Chalcopyrite, bornite, pyrrhotite, magnetite, pyrite	Skarn zones in volcanic and sedimentary rocks near late Triassic limestone (mainly Quatsino Fm.), rarely Sicker Gp. limestone. Few deposits in the limestones	Intrusive and stratigraphic contacts; folds, fractures, breccia zones, favourable horizons	Skarnification (garnet, epidote, diopside, actinolite)	Epizonal-mesozonal gabbro to quartz monzonite intrusions, most commonly granodiorite or quartz diorite	Mid- to early Late Jurassic and, rarely, Tertiary
F1 IRON SKARNS	Fe 40% - 60%; apprec. to minor Cu	Paxton (Texada) Argonaut Brynnor etc.	Magnetite; minor specularite and sulphides	Upper Triassic limestone (mainly Quatsino Fm.) and/or adjacent skarnified volcanic and intrusive rocks	Intrusive contacts, folds, fractures, stratigraphic contacts, breccia zones	Skarnification (garnet, epidote, diopside)	As for Copper skarns	Mid- to early Late Jurassic and (?), rarely Tertiary
E NICKEL-COPPER-BEARING PERIDOTITE-GABBRO	Ni < 1%; minor Cu	Meares Is.	Pyrrhotite, chalcopyrite, siegenite, magnetite, pyrite	Serpentinized peridotite-gabbro sill (?) in a gneiss complex	Unknown	Serpentinization, amphibolization	Mesozoic (?) Peridotite	Mesozoic (?), possibly Triassic
C COPPER IN BASIC VOLCANICS	Cu < 1%	Coal Creek	Native Cu, bornite, chalcopyrite, pyrite, chalcocite	Amygdaloidal basalt and volcanic breccia of Karmutsen Fm.	Fractures, small shears	Chloritization	None	Triassic
B_2 MANGANIFEROUS CHERT	Mn 14 - 30%	Lacy Lake	Rhodonite; minor rhodochrosite, Mn oxides, Mn garnets	Cherty sediments of upper Sicker Gp.	-	-	-	Early Permian and/or Pennsylvanian
B_1 FERRUGINOUS CHERTS	Fe 15% - 20%	Two small unnamed deposits	Magnetite; minor hematite, specularite	Cherty sediments of upper Sicker Gp.	-	-	-	Early Permian and/or Pennsylvanian
A ZINC-COPPER-LEAD MASSIVE SULPHIDES	Zn 5% - 10%; Cu 1% - 2%; Pb 1%, Ag 3 oz/ton, Au 0.1 oz/ton, Ba	Lynx, Paramount, Price (Western Mines)	Sphalerite, chalcopyrite, pyrite, galena, tetrahedrite, barite; minor bornite	Quartz-sericite schists derived from cherty tuffs and breccias of Sicker Gp.	Major sheared zones, near-horizontal folds, faults. Cherty tuff horizons	Local silicification	None obvious	Early Permian and/or Pennsylvanian, or later

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Table 3. Classes of metallic mineral deposits of the Alberni map-area.

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