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**A-7**  
**Massive Sulfide and Precious  
Metal Deposits in Southeastern  
British Columbia**

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**Field Trip Guidebook**  
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long and several flat-lying slightly brecciated zones three to four and a half feet thick. Within the pencil shaped zones are discontinuous ore stringers with a lead-zinc ratio of 1:5; brecciated zones have a lead-zinc ratio of 1:2.5 (Fyles and Hewlett, 1959). Ore mineralogy comprises pyrite, sphalerite and galena with subordinate pyrrhotite locally. A narrow band of fine-grained silica borders the dolomitized limestone. Talc and tremolite occur locally near the silica-zone; talc also occurs within the ore zones.

The ore zones are located within dolomitized limestone of the Lower Cambrian Laib Formation, Reeves Member (correlative with limestone of the Badshot Formation). The Reeves limestone layers in the mine are on the west limb of a broad syncline which is isoclinally folded in its trough. The orebodies occur a hundred metres west of the Argillite thrust fault. The Hidden Creek Stock located just 2 km to the north has been recently dated as Early Cretaceous by Einarson (personal communication, 1990).

#### 97.9 Approximate trace of the Waneta fault on east side of Highway 6.

The Waneta fault separates Mesozoic rocks of the Quesnel Terrane from Lower Paleozoic rocks of the Kootenay terrane (Fyles and Hewlett, 1959). Recent work has indicated a new structure, the Tillicum Creek fault, which separates Lower Jurassic Rossland Group rocks and a probable upper Paleozoic marginal basin assemblage (Cs unit) from the poly-deformed lower Paleozoic miogeoclinal Kootenay arc rocks (Einarsen, 1991). Einarsen (*op. cit.*) suggests that it is actually the Tillicum fault, not the Waneta, that is the fundamental structure along which oceanic assemblages and miogeoclinal rocks are juxtaposed. West of the Salmo River, near Sheep Creek, the Waneta fault is marked by a zone a few hundred feet wide in which schistosity strikes northward and is vertical or dips steeply eastward. The Waneta fault is defined as an east-west trending, south dipping structure that post-dates the Tillicum Creek fault and collision of the Quesnel Terrane with continental North America.

#### 100.0 Cross Sheep Creek.

Drive north on Highway 6 to Nelson and then west to South Slokan at the junction of highways 6 and 3A. Reset odometre to 0.0 km.

### ROAD LOG: SOUTH SLOCAN TO NELSON VIA NEW DENVER, SANDON, KASLO (P. Wilton).

#### Kms

0.0 Junction of Highways 6 and 3A at South Slokan; proceed west and north on Highway 6 into the valley of the Slokan River.

Between the South Slokan junction and the Village of Winlaw (27.0 km), the broad Slokan Valley is bounded on both sides by gneisses of the Valhalla gneiss complex (Figure 20). The Valhalla complex consists of shallow-dipping sheets of plutonic and metasedimentary rocks extensively intruded by leucocratic granitic rocks (Parrish, 1984). The sheets of the complex dip outward from two domal culminations, the Valhalla dome west of Slokan Lake and the subordinate Passmore dome, and are, in places, separated by discrete shear zones. The age of shearing and that of the penetrative fabric in the gneisses postdates emplacement of the youngest granitoid rocks of the complex and is believed to be Early Eocene or later (Parrish *et al.*, 1985). The Valhalla gneiss complex is typical of the core complexes of the Cordillera and is interpreted as a Tertiary plutonic diapir.

#### 16.2 STOP 2-3: Passmore Dome; Blu Starr Claim

The rocks exposed in a highway cut and along the railway below the highway are representative of metasedimentary gneisses and leucocratic granitoid intrusions at a relatively deep level of the Passmore domal culmination. Here the metasedimentary gneisses are mainly syenitic or monzonitic in bulk composition and contain abundant crystals of corundum. In some coarser zones, the corundum crystals are up to 1 to 2 cm. Two local prospectors have staked the area as the Blu Starr property. They extract the corundum crys-

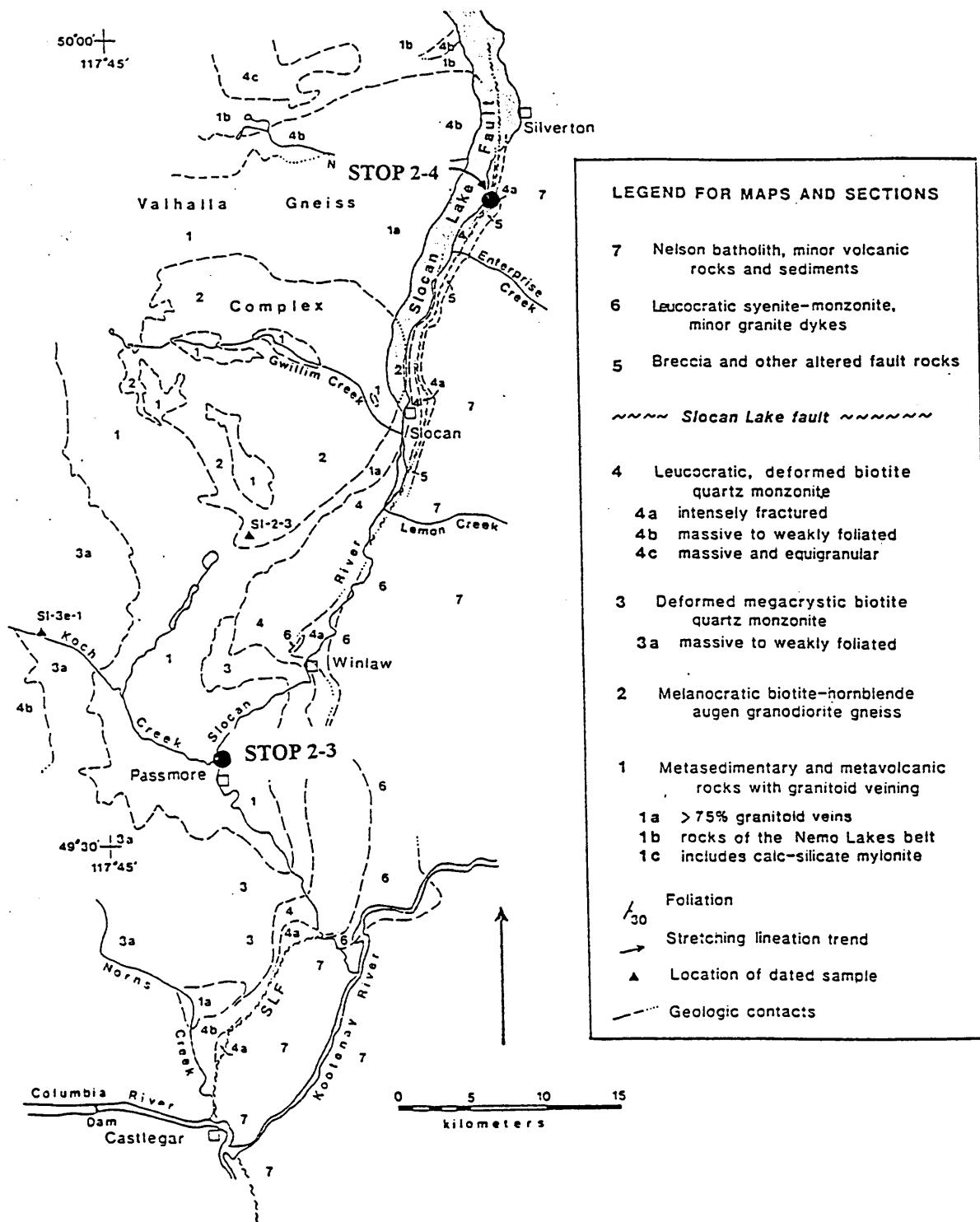


Figure 20. Geology of the east side of the Valhalla Complex, Slocan area (from Parrish, 1984, fig. 44.1)

tals, shape and polish them and market the resulting cabochons as untreated, natural "star sapphires", mostly of a translucent grey-blue colour.

#### 27.0 Village of Winlaw

From Winlaw to the north end of Slocan Lake (Figure 20), Highway 6 more or less follows the trace of the Slocan Lake fault, a brittle detachment fault which dips eastward at about 30-40° (Parrish, 1984). It separates ductilely deformed and retrograded gneisses of the Valhalla complex in its footwall from a hanging wall consisting of brecciated, fractured and hydrothermally altered rocks of the Jurassic Nelson batholith. Uplift and unroofing of the core complex and eastward detachment of the upper plate along the Slocan Lake fault are believed to have occurred in the Eocene with little or no movement since.

#### 46.5 Slocan City turn-off; south end of Slocan Lake (Figure 21).

53.0 Cape Horn area overlooking Slocan Lake. The continuous exposure along this stretch of the highway exposes leucocratic biotite quartz monzonite gneisses of the Valhalla complex in the immediate footwall of the Slocan Lake fault. The foliation dips 30° E and a pervasive east-plunging lineation is well-exposed (Parrish *et al.*, 1985).

### 67.1 STOP 2-4: Tourist Viewpoint; Slocan Lake fault and Willa Deposit.

The trace of the Slocan Lake fault lies under the highway at this point. Brecciated granodiorite of the Nelson batholith outcrops on the east side of the highway and biotite-muscovite-quartz monzonite gneiss is exposed at the picnic site (Parrish *et al.*, 1985). A breccia containing granitic and volcanic clasts cut by mineralized quartz veins can be seen directly across from the picnic area on the east side of the highway.

Walk approximately 100 metres down the highway south from the viewpoint to the guardrail on the first sharp curve. Waste dumps from exploration adits on the Willa property can be seen by looking south-easterly into the steep valley of Aylwin Creek. Gold-copper mineralization on the Willa property is associated with a plug or "diatreme" of heterolithic breccia and associated quartz latite porphyry intruding a pendant of Rosslund Group volcanics. Total reserves are reported to be 55 000 tonnes grading 7.5 g/tonne Au, 9.25 g/tonne Ag and 1.04% Cu (Northair Mines Ltd., 1987 Annual Report).

From the viewpoint to the town of Silverton, highway outcrops expose a continuous succession of brecciated, hydrothermally altered and pyritized rocks of the Nelson batholith in the immediated hanging wall of the Slocan Lake fault.

72.1 Turn right onto Red Mountain Road and proceed about 0.9 km to a tight bend in the road next to a gravel pit.

### 72.9 STOP 2-5: March-Goldeye Showing

The March-Goldeye showing occurs on the uphill shoulder of the road just past the tight corner and consists of brecciated and silicified granitic rocks mineralized with pyrite and Pb and Zn sulphides. Several analyses of the silicified breccias have failed to produce significant precious metal values. Nevertheless, this occurrence is typical of a large number of epithermal quartz veins which occur in the hanging wall of the Slocan Lake fault.

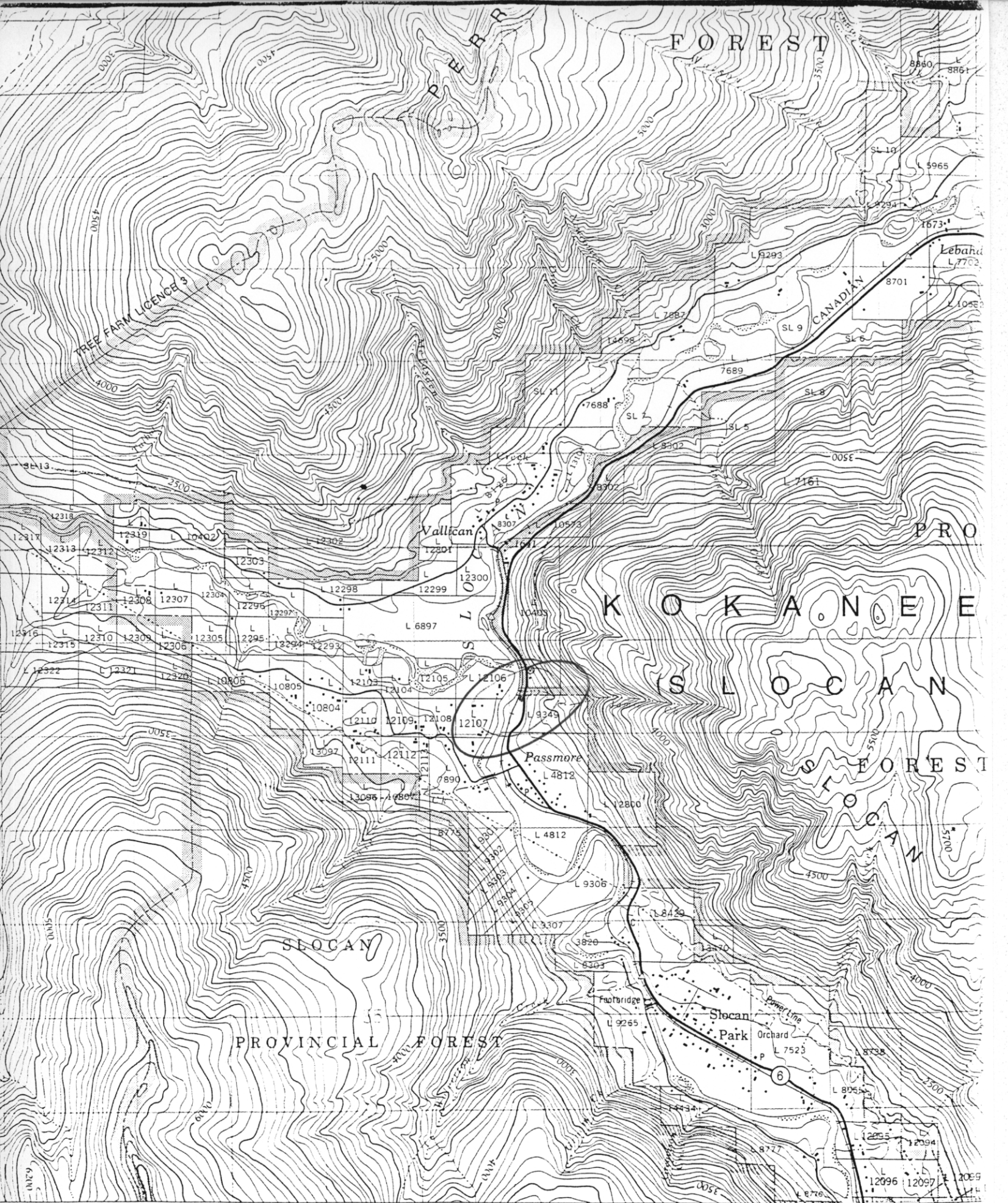
Return to Highway 6 (73.8 km) and proceed north.

#### 74.9 Town of Silverton.

80.0 Town of New Denver; turn right in centre of town onto Highway 31A and proceed east toward Kaslo.

From Silverton to New Denver and from New Denver to Sandon, outcrops consist of carbonaceous argillites, argillaceous quartzites and minor limestones of the Triassic Slocan Group. These sedimentary rocks have been intensely folded and faulted and intruded by biotite-rich diorites (Probably related to the Nelson batholith) and biotite-feldspar porphyrites with minor lamprophyres.

88.4 Turn right onto the access road which parallels Carpenter Creek and proceed for 6.25 km to the



48 49 50 51 52 53 54 55 56 57 58

OWNER

Rod Luchansky.

226-7886

Trail  
near road cut

Blu Starr  
corundum.

trail

110.2 km. from  
South Slovan  
Junction.

Private driveway

old highway

Firehall

Hydro  
Substation

Rd. to Drinnen Pass,  
Valhalla Park.

July 6

