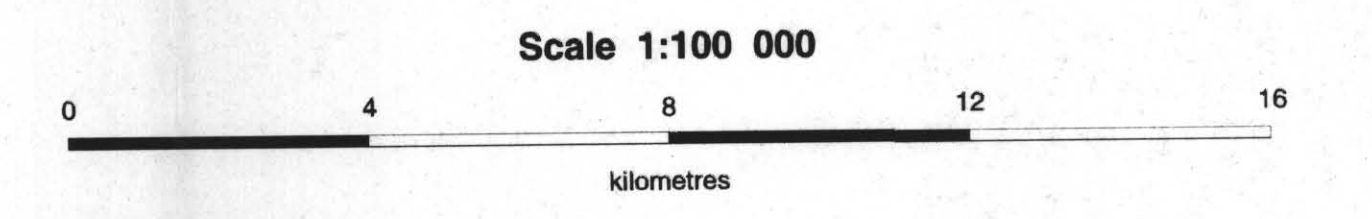
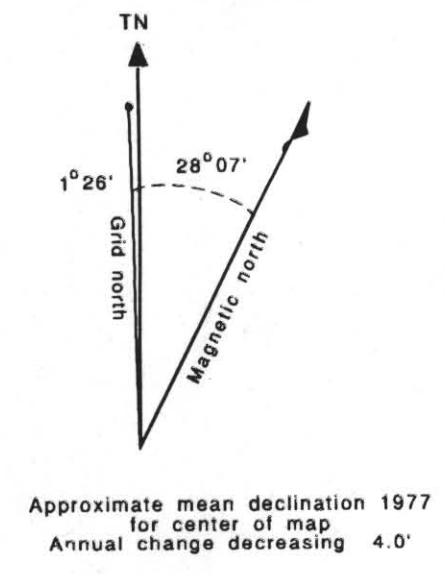


# OPEN FILE 1993-9 GEOLOGY OF THE STUART - PINCHI LAKES AREA, CENTRAL BRITISH COLUMBIA

NTS 93K (parts of 7, 8, 9, 10 and 11)  
By C.H. Ash, R.W.J. Macdonald and I.A. Paterson



## LEGEND

### INTRUSIVE ROCKS

- MIDDLE JURASSIC**
- 11 Hornblende biotite tonalite: medium to coarse grained equigranular, locally foliated near intrusive contacts, light-grey to buff-white weathering (U-Pb zircon age of 165 ± 2-1 Ma, Ash et al., in preparation). Also includes minor diorite.
  - 11a Altered tonalite stocks: medium grained, equigranular to locally porphyritic, with secondary sericite, pyrite and carbonate (Ar-Ar step heating of secondary sericite indicates a Late Jurassic, 157 Ma alteration age, Ash et al., in preparation).

### SEDIMENTARY ROCKS

**CRETACEOUS OR LOWER TERTIARY**  
USLUKA FORMATION (?)

- 10 Chert-pebble conglomerate: poorly sorted, subrounded green chert and minor limestone in a red sandstone matrix.
- 9 Interbedded siltstone-sandstone: alternating dark grey to black 0.5 to 2 cm siltstone layers and maroon fine to medium grained, 0.5 to 10 cm wacke layers.

- TAKLA GROUP**  
Greywacke, siltstone: dark grey to green, generally thick to massive bedded 1-3 m commonly graded arkosic greywacke with shale or laminated siltstone interbeds from 8 to 30 cm. Siltstone is dark grey weathering, thin bedded, 2 to 10 cm with occasional buff weathering fine-grained sandstone interbeds. Includes minor limestone 8a, mafic volcanic rocks and conglomerate.
- 8

**LATE PALEOZOIC - EARLY MESOZOIC (?)**  
CACHE CREEK COMPLEX

- 7 Limestone: massive, light to blue-grey, locally interbedded with limy mudstone.
- 6 Argillite: vary from massive to strongly fissile, dark grey to black containing varying abundances of elongate 5 to 15 cm siliceous lenses. Locally phyllitic, well cleaved with a characteristic silky sheen. Contains silvers and pods of most other units.
- 5 Ribboned chert: interbedded buff-white chert (1 to 4 cm) and dark-grey to black argillite (0.5 to 1 cm). 5a - Chert locally containing interbeds of tuff and siltstone.

### CRUSTAL ROCKS

- 4 Basalt: massive to cleaved, fine grained, aphanitic, locally contains 2 to 10 per cent microphenocrysts of augite ± plagioclase. Includes diabase and gabbro. 4a - basalts of mid-ocean-ridge geochemical affinity. 4b - basalts of ocean-island geochemical affinity.
- 3 Gabbro: medium to coarse grained equigranular, locally varietextured, brown to dull-grey weathering, locally foliated. Includes diabase and basalt.
- 2 Ultramafic cumulates: dunite and wehrlite; variably serpentinized, tan-brown to light grey to gray-green weathering medium-grained. 2a - Magnetite ± mariposite veined by dolomite and quartz; carbonatized wehrlite and dunite.

### MANTLE ROCKS

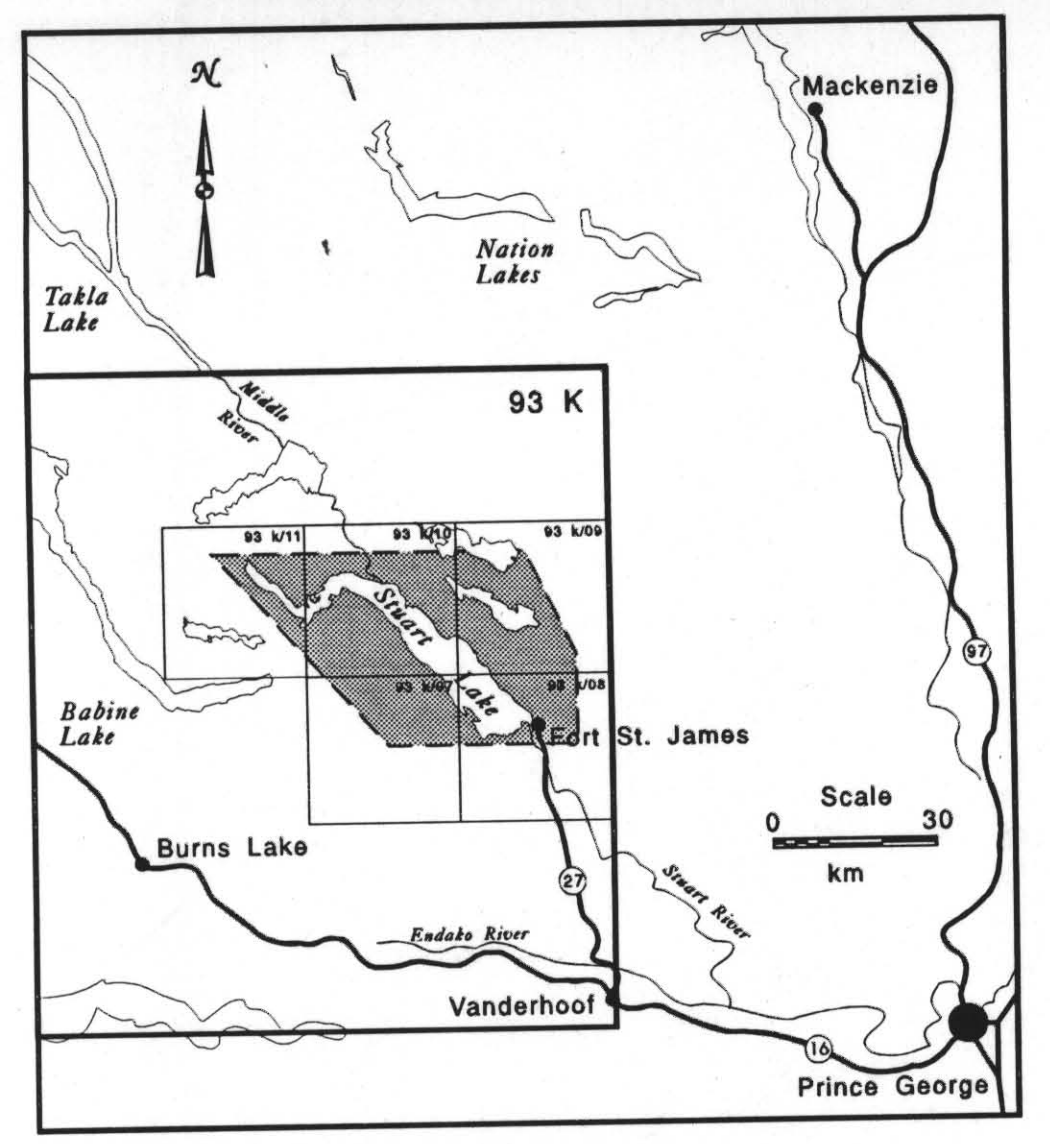
- 1 Harzburgite: variably serpentinized, dark brown to dark to light grey weathering medium to coarse grained, contains trace to 2 per cent chromite. Variably developed tectonic foliation fabric. Contains subordinate dunite as pods and dikes. 1a - Magnetite ± mariposite veined by dolomite and quartz; carbonatized harzburgite.

Blueschists: glaucophane-lawsonite-bearing rocks, includes graphitic cherts and schists, with lesser metagreywackes, metabasalts and limestones. K-Ar dates on muscovites indicate a Late Triassic (212 to 218 Ma) age of metamorphism (Paterson and Harakal, 1974)

## SYMBOLS

- Geological contact (defined, approximate, inferred).....
- Fault; (defined, approximate, inferred, dip and dip direction).....
- Bedding.....
- Stiposity and cleavage.....
- Igneous flow fabric.....
- Lineation.....
- Dike or vein.....
- (qv-quartz vein, mf-mafic dike, fel-felsic dike).....
- Bedrock outcrop.....
- Area of semicontinuous outcrop.....
- Mineral Occurrence.....
- Mine (past producer).....
- Prospect.....
- Showing.....
- Sample Locations.....
- Rock.....
- Stream sediment.....

### Location of Map Area

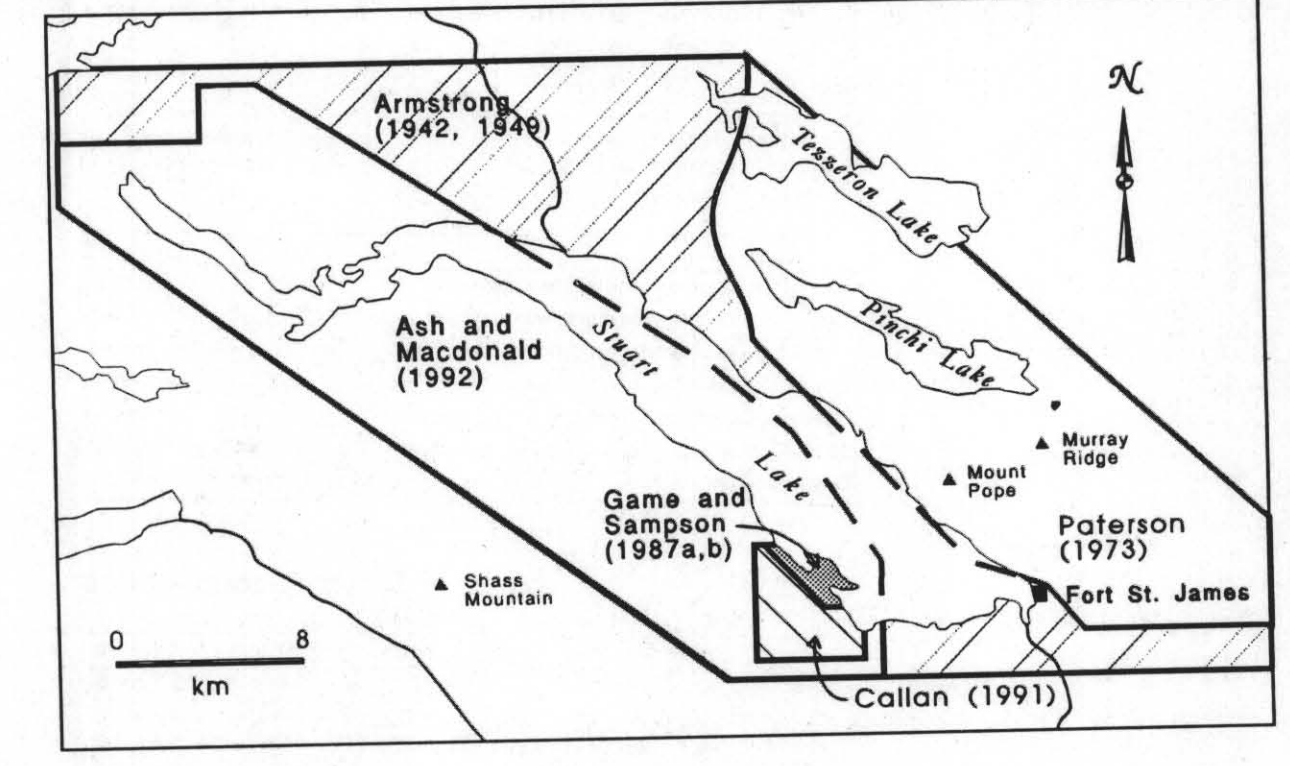


### Mineral Occurrences

MINFILE No.	Name	Commodities
093K 022	Pinchi Lake	Limestone
093K 036	Snowbird	Gold, Stibnite
093K 046	Sunshine	Mercury
093K 047	Cin	Mercury
093K 048	Calax	Mercury
093K 049	Pinchi Lake	Mercury
093K 050	Toad	Mercury
093K 057	Thur	Limestone
093K 065	Pinchi Lake	Magnetite
093K 066	Dickinson Mountain	Mercury
093K 070	Mount Pinchi	Mercury
093K 074	Tezzeron Lake	Lead-Zinc
093K 079	Dad	Mercury
093K 092	Fort St. James South	Limestone

Locations taken from MINFILE 093K

### Key to Geological Mapping



### Rock Sample Elemental Analyses

Sample	Au	Ag	As	Zn	Cu*	W	Mo	Co	Cr	Ba	Rb	Sr	Sc	Ti	U	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu	
R1	999	40	180	157	3783	250	2	16	15	500	27	29	11	-0.5	1.2	3.1	7.2	16	10	2.1	0.7	+0.5	1.5	0.3
R11	591	42	160	152	4056	250	<1	16	19	540	22	29	11	-0.5	1.1	3.9	7.3	17	11	2.1	0.7	+0.5	1.7	0.3
R2	<2	<5	<0.5	<50	11	740	2	77	6	110	<15	<0.1	1.4	0.8	0.8	<0.5	1.9	4	<5	<0.5	<0.2	<0.5	0.8	0.09
R3	<2	<5	<0.6	<50	1	930	3	110	<5	<50	<15	<0.1	<0.1	0.9	<0.2	<0.5	<0.5	<3	<5	<0.1	<0.2	<0.5	<0.2	<0.05
R4	9	<5	2.1	74	96	240	3	35	13	360	<15	0.4	1.3	0.8	0.8	<0.5	5.7	17	12	3.1	1	0.8	3.5	0.57
R5	15	<5	7.1	190	131	370	13	54	100	6100	98	1.6	1.5	2	12	5.1	40	69	25	5.6	1.6	1	3.3	0.6
R6	<2	<5	<0.5	<50	60	800	<1	100	5	<50	<15	0.1	2.2	1.1	<0.2	0.7	0.6	<3	<5	<0.2	<0.2	<0.5	0.5	0.05
R7	1520	61	220	369	4207	170	<1	47	100	740	<15	34	41	<0.5	1.3	<0.5	17	35	28	6.2	1.9	1.6	6.7	1.11

Element sulfurized by asterisk was obtained using flame atomic absorption spectrometry (FAAS) at the B.C. Ministry of Energy, Mines and Petroleum Resources, Victoria. All other elements were obtained by instrumental neutron activation analysis (INAA) at Activation Labs, Ancaster, Ontario. In addition to the elements listed Hg (<1), V (<5), Sn (<100), Sr (<500), Br (<10), Se (<3), W (<1) and Mo (<1) were also analyzed, but were below detection limits as indicated in brackets for each element. Au expressed in ppt, all other elements in ppm.

### Sample Description

R1 Subvertical, 0.5 m wide rusty-brown, gossanous zone along the core of a fault cutting diorite (epidolite analysis also shown).  
R2 1 to 1.5 m wide buff white quartz vein cutting argillite. Vein is oriented 030°, subvertical with no visible metallic mineralization.  
R3 10 to 20 cm wide quartz vein cutting carbonized ultramafic rock. Sample obtained from large (2-3 m) angular boulder below steep cliff face.  
R4 Gossanous basalt with 5 to 10 per cent disseminated sulphide. Sample obtained from 1 to 1.5 m angular boulder within a scree slope at the base of a cliff face.  
R5 Gossanous hornfelsed argillite with 3 to 5 per cent disseminated pyrite. Sampled from zone of sulfidated and pyritized argillite marginal to the Shass Mtn Pluton.  
R6 30 to 40 cm wide buff white quartz vein cutting basalt in vertical cliff face on lake shore. Vein orientation 170°/40° E. No visible mineralization.  
R7 Gossanous zone of basalt 2 to 5 cm wide, marginal to above quartz vein (RMA92-11-78).

### Stream Sediment Sample Elemental Analyses

Sample	Au	Ag	As	Pb*	Zn*	Cu*	Pb*	Cr*	Sr	Rb	Sc	Ti	U	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu						
S1	4	4.2	0.3	45	7	190	15	1.2	550	194	270	1.3	<15	3.6	1.5	<0.5	3.1	1.9	600	14	27	11	3.5	0.9	<0.5	2.4	0.41
S2	<2	5.8	0.2	33	11	66	17	0.4	621	246	470	0.8	36	4.1	14	0.7	3.1	2.3	750	21	39	19	4.5	1.3	0.8	2.4	0.37
S3	139	7.2	0.2	28	11	70	19	0.3	500	244	510	0.9	25	3.3	15	0.8	3.6	1.4	750	19	40	17	4.1	1.2	<0.5	2.2	0.33
S4	4	5.5	0.2	23	6	61	16	0.3	380	191	510	0.8	36	<0.5	18	0.7	3.2	1.4	710	17	33	12	3.7	1.1	<0.5	2.2	0.36
S5	<2	10	0.2	37	5	106	28	0.3	0.86	99	150	0.4	<15	1.5	1.9	1.6	2.5	2	740	17	38	18	4.4	1.3	<0.5	2.4	0.4
S6	3	22	0.2	47	7	106	15	0.4	730	119	380	1.1	48	6.2	15	<0.5	3.5	2.4	740	23	39	24	6.4	1.6	0.9	3.7	0.55

Elements sulfurized by asterisk were obtained using flame atomic absorption spectrometry (FAAS) at the B.C. Ministry of Energy, Mines and Petroleum Resources, Victoria. All other elements were obtained using instrumental neutron activation analysis (INAA) at Activation Labs, Ancaster, Ontario. In addition to the elements listed Hg (<1), Br (<10), Sr (<500), Br (<10), Se (<3), W (<1) and Mo (<1) were also analyzed, but were below detection limits as indicated in brackets for each element. Au expressed in ppt, all other elements in ppm.

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