

CISTI TABLES

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TABLE 4. MODAL COMPOSITION OF THE ANVIL PLUTONIC SUITE

Analytical Techniques for Modal Analyses:

Twelve samples of the Anvil plutonic suite were studied by standard petrographic techniques including flat stage determination of plagioclase composition and point counting for modal abundances (1000-1088 points per thin section except for sample AR7 where 2067 points were counted).

SAMPLES	AR2	AR4	AR7	AR14	AR15	AR16	AR17	AR10A	8586B	9087B	9088	9501A
INTRUSIVE PHASE ^a	O?	O	O	O	O	J	Oap	M	M	Map	M	M
TEXTURE												
Grain Size	medium	coarse	coarse	medium	medium	coarse	fine	coarse	fine	medium	medium	medium
Foliation	no	no	no	no	no	no	no	no	no	no	no	no
Megacrystic	no	yes	yes	no	no	yes	no	yes	no	no	yes	yes
PRIMARY OR PHENOCRYST MINERALOGY												
Quartz	18.7	23.9	39.0	31.0	23.1	7.9	38.1	31.9	30.4	32.1	29.2	30.3
Alkali Felds.	21.8	23.9	10.0	26.8	18.8	2.7	27.0	23.1	26.9	32.4	26.4	28.8
Plagioclase	42.8	40.8	36.5	29.1	43.1	26.8	34.2	30.0	28.2	22.3	31.0	29.8
Clinopyroxene	1.0											
Hornblende	4.6			3.0	1.6	1.5						
Biotite	9.5	7.4	10.4	7.2	5.4	11.1	0.7	9.1	9.4	1.3	8.5	3.3
Muscovite								4.3	4.6	11.6	4.1	5.1
Opaques	1.2											
Apatite	0.3	Tr. ^a	0.1	Tr	Tr	0.1		0.3	0.2	Tr	0.3	0.4
Zircon	Tr	Tr	Tr		Tr	0.1		Tr	Tr	Tr	Tr	Tr
Allanite	Tr	0.3	0.1	Tr	Tr	0.2	Tr		0.1			
Tourmaline	0.1									Tr		Tr
PLAGIOCLASE COMPOSITION												
	An ₃₆₋₅₀	An ₃₆₋₅₀	An ₃₄₋₃₈	An ₄₂₋₅₃	n.d. ^a	An ₄₃₋₄₅	An ₂₆₋₃₅	An ₂₉₋₃₁	An ₂₅₋₂₇	An ₂₅₋₂₉	n.d.	n.d.

TABLE 4. MODAL COMPOSITION OF THE ANVIL PLUTONIC SUITE (cont'd)

SAMPLES	AR2	AR4	AR7	AR14	AR15	AR16	AR17	AR10A	8586B	9087B	9088	9501A
INTRUSIVE PHASE ^a 0?	0	0	0	0	0	J	Oap	M	M	Map	M	M
SECONDARY OR GROUNDMASS MINERALOGY												
Myrmekite	0.1	0.1	Tr					0.2	0.1	0.3	0.5	2.3
Sericite/Sauss.	1.6	3.1	1.1	3.4	0.3	0.1	Tr	Tr				
Epidote	0.6	0.1	0.2	0.6	0.1							
Chlorite	1.4	0.6	1.6	3.9	0.8			0.8				
Titanite	Tr	Tr	Tr	0.1								
Opaques				Tr				0.2	0.1		Tr	
Quartz						16.5						
Alkali Felds.						12.1						
Plagioclase						18.4						
Hornblende						0.1						
Biotite						1.2						
Apatite						0.1						
Zircon						Tr						
Allanite						Tr						

a. Abbreviations are: n.d. = no determinations possible; 0 = Orchay phase; Oap = aplite in Orchay phase; J = Marjorie phase; M = Mount Mye phase; Map = aplite in Mount Mye phase; Tr = trace amount.

TABLE 5. COMPOSITION OF THE ANVIL RANGE PLUTONIC SUITE AND SOUTH FORK VOLCANICS

SAMPLES	Table 5a. Major Elements (in weight per cent)											
	AR2	AR4	AR7	AR14	AR15	AR16	AR17	AR10A	8586B	9087B	9088	9501A
INTRUSIVE PHASE ^a 0?	0	0	0	0	0	J	Oap	M	M	Map	M	M
OXIDE												
SiO ₂	65.5	70.9	72.1	69.2	68.2	69.3	75.7	70.6	71.0	74.5	70.7	73.3
Al ₂ O ₃	15.1	13.8	13.3	14.7	15.1	14.2	12.8	14.8	14.6	13.6	14.9	14.6
TiO ₂	0.69	0.34	0.35	0.40	0.46	0.38	0.06	0.41	0.36	0.07	0.35	0.16
Fe ₂ O ₃	4.4	0.5	0.1	0.1	0.1	0.2	0.8	0.0	0.1	0.0	2.3	0.1
FeO	0.0	2.5	2.8	3.1	3.5	3.3	0.0	2.9	1.9	0.7	0.0	0.9
MnO	0.07	0.08	0.08	0.07	0.07	0.05	0.03	0.04	0.03	0.05	0.04	0.02
MgO	2.17	0.66	0.81	1.08	1.04	0.86	0.09	0.90	0.84	0.13	0.64	0.35
CaO	3.60	2.34	2.46	3.58	3.45	3.01	0.89	1.69	1.32	0.86	1.71	1.19
Na ₂ O	2.9	2.1	2.2	1.8	2.5	2.2	2.9	2.1	2.2	2.5	2.8	2.2
K ₂ O	4.13	4.18	4.00	3.82	3.77	3.79	4.99	4.79	4.80	5.01	4.62	5.22
P ₂ O ₅	0.21	0.08	0.10	0.10	0.12	0.08	0.02	0.17	0.13	0.16	0.11	0.13
H ₂ O	0.4	0.8	0.5	0.8	1.2	1.2	0.2	0.8	0.8	0.5	0.6	0.6
CO ₂	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.0
Cl	0.04	0.00	0.01	0.00	0.01	0.01	0.03	0.00	0.00	0.00	0.00	0.00
F	0.08	0.06	0.06	0.05	0.05	0.05	0.00	0.09	0.09	0.03	0.07	0.05
S	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
TOTAL	99.39	98.55	98.98	98.90	99.66	98.73	98.61	99.40	98.38	98.31	98.94	98.82

TABLE 5. COMPOSITION OF THE ANVIL RANGE PLUTONIC SUITE AND SOUTH FORK VOLCANICS (cont'd)

Table 5a. Major Elements (in weight per cent; cont'd)

UNIT ^a	A (hb basaltic andesite tuff)	A (rhyodacite crystal tuff)	D (rhyodacite crystal tuff)	Eh (+hb +bi andesite tuff)	Eb (+hb +bi andesite tuff)	III (bi-hb-opx andesite tuff)	6 (bi qz monzonite)
SAMPLES	13B-1	15B-318	20A-350	33A	33B	39B-6350	43D
OXIDE							
SiO ₂	59.4	62.4	70.0	67.8	69.7	64.5	67.4
Al ₂ O ₃	15.4	16.1	14.1	14.8	14.6	15.0	15.2
TiO ₂	0.72	0.70	0.27	0.51	0.49	0.67	0.58
Fe ₂ O ₃	6.6	1.4	0.0	0.0	0.0	0.3	0.5
FeO	0.0	4.1	3.0	4.6	3.9	5.2	2.9
MnO	0.12	0.10	0.06	0.07	0.08	0.10	0.07
MgO	2.74	2.00	0.54	1.14	1.15	1.83	1.53
CaO	4.95	5.18	3.06	3.67	3.52	4.93	2.84
Na ₂ O	2.7	3.2	3.0	2.3	2.6	2.3	2.3
K ₂ O	1.63	2.59	3.19	3.22	3.41	3.04	4.46
P ₂ O ₅	0.14	0.14	0.08	0.13	0.12	0.13	0.18
H ₂ O	2.8	2.0	1.8	1.4	0.8	1.3	1.3
CO ₂	2.7	0.1	0.8	0.3	0.1	0.8	0.1
Cl	0.07	0.02	0.00	0.00	0.03	0.02	0.01
F	0.03	0.06	0.04	0.06	0.06	0.06	0.07
S	0.00	0.00	0.00	0.03	0.01	0.01	0.01
TOTAL	100.00	100.09	99.94	100.03	100.57	100.19	99.45

TABLE 5. CHEMICAL COMPOSITION OF THE ANVIL PLUTONIC SUITE AND SOUTH FORK VOLCANICS (cont'd)

Table 5b. Trace Element Content (in parts per million)

SAMPLES	AR2	AR4	AR7	AR14	AR15	AR16	AR17	AR10A	8586B	9087B	9088	9501A
INTRUSIVE PHASE ^a	0?	0	0	0	0	J	Oap	M	M	Map	M	M
Rb	200	200	220	150	160	150	330	270	270	300	240	280
Sr	350	170	170	220	220	200	49	190	140	67	190	100
Ba	920	720	520	950	1100	1100	56	730	560	180	540	270
Zr	230	140	140	150	180	180	30	160	170	70	200	90
Be	2.4	3.4	2.1	b.d. ^a	b.d.	b.d.	4.4	2.6	5.8	23	4.9	5.5
B	23	23	16	b.d.	22	16	27	25	41	210	b.d.	32
Co	16	8.2	b.d.	7.2	8.1	7.5	7.3	9.1	10	b.d.	b.d.	b.d.
Cr	57	9.3	6.4	15	21	14	5.4	17	17	5.5	14	5.2
Ni	26	b.d.	b.d.	b.d.	b.d.	b.d.	b.d.	b.d.	b.d.	b.d.	b.d.	b.d.
V	69	32	19	47	46	44	18	44	45	22	40	21
Cu	21	7.9	5.8	7.6	12	11	9.7	12	10	6.5	8.2	6.6
Zn	60	80	90	90	90	80	10	70	90	40	60	80
La	67	47	b.d.	150	52	47	b.d.	42	45	b.d.	58	37
Yb	b.d.	3.0	3.5	b.d.	2.3	2.7	7.3	2.3	2.6	4.6	2.5	4.1
Y	26	32	26	30	36	37	43	21	24	26	22	23
Rb/Sr ^b	0.465	0.863	0.984	0.581	0.633	0.613	5.62	1.19	1.53	4.31	0.982	2.21
K/Ba	37	48	64	33	29	29	740	55	73	240	72	160
K/Rb ^b	186	196	176	238	220	219	113	176	162	149	182	173
Ba/Rb ^b	5.0	4.1	2.8	7.1	7.7	7.6	0.15	3.2	2.2	0.63	2.5	1.1

a. Abbreviations are: b.d. = below detection limits of analytical method; 0 = Orchay phase; Oap = aplite in Orchay phase; J = Marjorie phase; M = Mount Mye phase; Map = aplite in Mount Mye phase; Tr = trace amount.
 b. Rb, Sr values from Table 3.

TABLE 5. CHEMICAL COMPOSITION OF THE ANVIL PLUTONIC SUITE AND SOUTH FORK VOLCANICS (cont'd)

Table 5b. Trace Element Content (in parts per million; cont'd)

UNIT ^a	A (hb basaltic andesite tuff)	A (rhyodacite crystal tuff)	D (rhyodacite crystal tuff)	Eh (+hb +bi andesite tuff)	Eb (+hb +bi andesite tuff)	III (bi-hb-opx andesite tuff)	6 (bi qz monzonite)
SAMPLES	13B-1	15B-318	20A-350	33A	33B	39B-6350	43D
Rb	60	90	150	130	130	120	210
Sr	360	250	210	220	210	210	220
Ba	1200	620	1500	1300	1100	1000	720
Zr	130	120	150	180	180	150	190
Be	b.d. ^a	b.d.	3.7	2.7	b.d.	2.9	4.1
B	16	21	36	25	22	20	23
Co	14	9.6	12	11	7.3	16	11
Cr	48	27	19	26	19	34	22
Ni	31	18	14	16	21	20	10
V	110	83	49	69	51	110	74
Cu	33	29	14	23	14	19	19
La	72	74	100	95	82	93	84
Yb	b.d.	b.d.	4.2	b.d.	2.2	b.d.	b.d.
Y	29	32	37	33	34	39	30
Rb/Sr ^b	0.131	0.302	0.604	0.477	0.502	0.461	0.767
K/Ba	11	35	18	21	26	25	51
K/Rb ^b	263	233	183	219	226	223	187
Ba/Rb ^b	23	6.7	10	11	8.8	8.9	3.6

a. Abbreviations are: b.d. = below detection limits of analytical method; Tr = trace amount. South Fork volcanic units as described by Wood (1981) and Wood and Armstrong (1982).

b. Rb, Sr values from Table 3.

TABLE 5. COMPOSITION OF THE ANVIL RANGE PLUTONIC SUITE AND
SOUTH FORK VOLCANICS (cont'd)

Table 5c. Analytical Techniques and Precision for Chemical
Analyses

The following major and minor elements were determined at the Geological Survey of Canada laboratories by XRF method on fused discs (with $\text{Li}_2\text{B}_4\text{O}_7$ + LiF fluxes) of samples from the Anvil plutonic suite, South Fork volcanics and Selwyn plutonic suite (maximum absolute total error in weight per cent is given in parentheses): SiO_2 (0.40); TiO_2 (0.02); Al_2O_3 (0.40); total iron as Fe_2O_3 ; MnO (0.01); MgO (0.10); CaO (0.10); Na_2O (0.50); K_2O (0.05); and P_2O_5 (0.02). FeO (± 0.03 wt. %) was determined by standard wet chemical methods and Fe_2O_3 (± 0.10 wt. %) was calculated by difference. Infrared techniques are used in the determination of sulphur (± 0.02 wt. %) and total water (± 0.05 wt. %). CO_2 (± 0.02 wt. %) was determined through acid evolution and titration methods. Carbonate fusion and selective ion electrode techniques were used for fluorine and chlorine.

Trace elements Rb (± 20 ppm), Ni (± 30 ppm), Zn (± 20 ppm), and Zr (± 20 ppm) were determined by XRF methods similar to those used for major elements. Detection limits for these trace elements is 20 ppm except for a 30 ppm detection limit for Ni. Emission spectroscopic methods used have the following ppm detection limits in parentheses: Ag (3), As (1500), B (15), Ba (2), Be (2), Ce (250), Co (7), Cr (5), Cu (3), La (30), Mo (30),

**TABLE 5. COMPOSITION OF THE ANVIL RANGE PLUTONIC SUITE AND
SOUTH FORK VOLCANICS (cont'd)**

**Table 5c. Analytical Techniques and Precision for Chemical
Analyses (cont'd)**

Ni (10), Pb (300), Sn (50), Sr (5), V (10), Y (20), and Yb (2).
The analyses have an expected precision of ± 15 per cent or
better (W.H. Champ, written comm., Mar. 31, 1983). Rb and Sr
determined in the G.S.C. laboratories differed by 1-18% from the
more precise values determined in the U.B.C. laboratories;
values from the latter laboratory were used in calculation of
trace element ratios.

TABLE 6. CIPW NORMATIVE MINERALS FOR THE ANVIL PLUTONIC SUITE AND SOUTH FORK VOLCANICS (in weight per cent)

SAMPLES	AR2	AR4	AR7	AR14	AR15	AR16	AR17	AR10A	8586B	9087B	9088	9501A
INTRUSIVE PHASE ^a	O	O	O	O	O	J	Oap	M	M	Map	M	M
qz	22.86	36.11	36.30	33.49	28.51	32.92	38.41	33.96	35.78	39.58	33.03	37.90
or	24.71	25.33	24.04	23.05	22.66	23.00	30.00	28.75	29.15	30.34	27.81	31.42
ab	24.84	18.22	18.93	15.55	21.52	19.12	24.97	18.05	19.13	21.68	24.13	18.96
an	16.18	11.36	11.74	17.46	16.61	14.79	4.36	7.39	5.85	3.30	7.91	5.15
c		1.80	1.14	1.36	0.94	1.23	1.08	3.55	3.80	2.96	2.49	3.54
di												
hy	5.47	5.52	6.74	7.93	8.45	7.70	0.23	7.05	5.07	1.63	1.62	2.26
ol												
mt		0.74	0.15	0.15	0.15	0.30			0.15			0.15
hm	4.45						0.81				2.34	
il	0.15	0.66	0.68	0.78	0.89	0.74	0.07	0.79	0.70	0.14	0.09	0.31
ap	0.50	0.19	0.24	0.24	0.28	0.19	0.05	0.40	0.31	0.38	0.26	0.31
ru	0.47						0.03				0.31	
sp	0.36											
py		0.06	0.06					0.06	0.06			
D.I. ^b	72.40	79.66	79.27	72.08	72.69	75.04	93.38	80.76	84.05	91.60	84.98	88.29

a. Abbreviations are: O = Orchay phase; Oap = aplite in Orchay phase; J = Marjorie phase; M = Mount Mye phase; Map = aplite in Mount Mye phase.

b. D.I. = differentiation index (weight per cent normative quartz + albite + alkali feldspar; Morton and Tuttle, 1960).