(16/2)

c) 1982 3D.

S_2 = 013/36 E

F_2 = ?

D_2 S 54m.

7) 1983 3D.

S_2 = 155/39 NE.

- ~80% calc. sil.
- ~20% bio phy.
- minor $CO_3^=$ bands.?

8) 1984 10B.

~10% Kspar phenos - gen < 2"

- ~10% mafics - mainly bio in books to 5mm and diss

~10% qtz.

9) 1985 10B.

- ~10% Kspar megas.
- ~15% mafics. mainly bio. (books to 3mm.)

~10% qtz.

- coarse grained g.m.

JUNE 16/77

AIR PHOTO NW 71874-11-76 (2) OF (3)

1989 Δ 4 ERRATICS. INTRUSIVE

1990 Δ5 TRANSITION ZONE

DOMINANTLY 3G — CALC SILICATE CAM. INFREQUENT. IC NOT WELL DEVELOPED AS AT Δ1.

3A8 SOME MUSC. ON S_2 BUT F.G. WEAK GNEISSOSITY — GRAPHITE?

SAMPLE 5

S_2 GENTLY WARPED ~~&~~ UPRIGHT OPEN FOLDS. ⊥ THROUGH HORIBONTAL (NO MEASUREMENT — SKUZEY)

1991 Δ 6 26/014

3G & ABUNDANT CALC SILICATE

3G4 — RARE UNIT 1.

— 1ST KNOLL BELOW Δ5

— SCOURED DID SLOPE

1992 Δ7 INTRUSIVE

F.G-M.G. GROUNDMASS — QTZ FELD — 25% F.G. PHENOS HB & BI? THROUGOUT — PEPPER TEXTURE

10% M.G — C.G. K'SPAR? PHENO.

NOT FOLIATED.

87/145

005/87 JOINTS

10B

JUNE 16/77
AIR PHOTO NW 71874-11-76. (3) of (3)
△8 INTRUSIVE. COARSE
(1993) GRAINED THAN △7

30% BIOTITE & ALT'D HB.
NOT FOLIATED.

CUT BY. F.G. MESOCRATIC &
DIKE.

SAMPLE 8

10B

DIKE & JOINT
TREND

C-6 13 July 77

Two Pete Recce

2513) Calc bio-musc-pp schist w/ v. minor calc-silicate lenses? 3G??

S_2 32 ↑ SE

$L_2 = F_2$ 53 12 NE

2514) F. xline, non-calc, siliceous bio-musc schists of 3G??

S_2 60 ↑ SE

Some Al_2SiO_5

2515) Non-mag. hb. bio granodiorite Sample only

2516) Non-mag hb. diorite → granodiorite Sample only

2517) QF BM schist/phyllite of uncertain affinity - IC or 3G

S_2 130 10 NE

(171)

June 17/77 DJH.
clear & warm. (photo - NW71874-10-127)

1) 1994 10B.
medium grained variety. similar to exposure in Anvil Creek canyon.
- slightly porphyritic - Kspars less than 1/2" long.
- 15-20% qtz.
- 10% mafics (biotite) - some books to 2mm.
- less than 5% phenos.

2) 1995 10B.
coarse grained typical 10B.
- ~20% Kspar megacrysts to 1" long - r
- ~ 10% bio
- ~ 10% qtz
- unaltered.
- no joint sets

3) 1996 10B
- as #2.
- < 10% Kspar megas.
- megas are locally aligned but attitude is variable throughout outcrop.

4) 1997 10B
as #2, 3.

5) 1998 — 10B
as # 2, 3, & 4.

6) 1999 — 10B
< 10% K spar megas
~ 10% mafics - 3% hb.
7% bio

- coarse grained
~ 10% - 15% qtz.

* all these 10B outcrops are
massive - no S surfaces
- no joints.

JUNE 17/77
JPF

LOWER ANVIL CK.

AIR PHOTO NW 71874-11-76.

2009 Δ10 368 RUBBLE

Δ10 → Δ11 " 368

2009 Δ11 028/14 368

10-20% CALC SILICATE BANDS TO LAMINATIONS

WEAK DEVEL. FOLIAC ON S2.

-FINER CALC SILICATE LAMS TEND TO BE BIOTITE RICH.

-LOCALLY GET GNEISSOSE QTZ-FELD & BIOTITE ZONES - LAMINATIONS. CFS AT Δ5.

2002 Δ12. 10B RUBBLE c/c?

(3 July (97))

2445

bio >> hbl-granodiorite - med grained equigranular - non-magnetic - nearly sweake wrt plag.

2446

hard siliceous mid green/purple brown banded calc silicate rx - like "Earn"

320/25 NE PS_2 (?)

minor po(?) but rx not magnetic

2447

grn gold bio musc schist

210/9 SE S_2

IC?

2448 diHo for 2445

2449 very slightly magnetic sub small pink porph bio gt musc ~ k-sp phenos

320 LX Pacific Rainproof

(2450) Hybrid of 2449 & 2445; chloritized mafics; seems to be Sm. amts of magnetite w/ chl. mafics

Two Peto 14 July

2558) QF BM Ca. schist; v. QF, part of psammitic pkg.
S2 12Ce 27 NE

2559) Equigran., finely xlline, non porph. bio-glz diorite w/ minor schlieto; mod. well foliated
main fol^n. 178 76E
Thin actually best devel. yet
fol^n. 27 155E
Thin fol^n = wk. form orientation of minerals

2560) 10B: excell. bio granodior. of AB w/ kspar megacrysts
No apparent fol^n or form orient. of ign. minerals
main yf 23 60SE

RESEARCH SAMPLE LOG

PROJECT: Rb/Sr Anvil Batholith

STATION: AR 2

DDH: _____

Anvil Batholith / Anvil Ck (N) Phase

Biotite-hornblende ~~granite~~ granodiorite ~~monzonite~~

DEPTH: _____

LATITUDE: 62° 28.1' N LONGITUDE 131° 51.2' W

HAND SAMPLE: Medium-fine grained, unfoliated, equigranular intrusive.

Subhedral to euhedral plagioclase. K-feldspar as small irregular grains in matrix.

Plagioclase / K-feldspar ≈ 3/1

THIN SECTION: ✓ Reject block stained for K-feldspar

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS: ✓ XRF whole rock + minerals for total Rb and Sr

PROBE:

XRD:

ISOTOPE: ✓ Sr^{87}/Sr^{86} for whole rock and mineral separates.

FOSSIL:

STAINED: ✓ Slab stained for K-feldspar

OTHER:

COMMENTS:

Mineral isochron 60.8 ± 1.4 @ 0.7090 ± 0.0001

whole rock Rb 183.57 ppm Rb/Sr = 0.464 $^{87}Sr/^{86}Sr$ = 0.71016

Sr 396.66 ppm

RESEARCH SAMPLE LOG

PROJECT: Rb/Sr Anvil Batholith — Anvil Batholith / N. Anvil Creek Phase

STATION: AR 4 — Biotite quartz monzonite

DDH: — DEPTH:

LATITUDE: 62° 33.5'N LONGITUDE: 133° 45.8'W

HAND SAMPLE: Coarse-grained, unfoliated, biotite quartz monzonite. K-feldspar forms large subhedral phenocrysts which typically contain numerous small plagioclase grains. Minor K-feldspar occurs as small anhedral grains in the matrix. Subhedral to anhedral plagioclase grains.

Plagioclase / K-feldspar ≈ 1/1

THIN SECTION: ✓ Stained reject block for K-feldspar

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS: XRF — total Rb and Sr — whole rock

PROBE:

XRD:

ISOTOPE: ✓ whole rock $^{87}Sr/^{86}Sr$

FOSSIL:

STAINED: ✓ slab stained for K-feldspar

OTHER:

COMMENTS:

Whole rock Rb = 179.01 ppm. Rb/Sr = 0.862

Sr = 207.60 ppm

Whole rock $^{87}Sr/^{86}Sr$ = 0.7195

RESEARCH SAMPLE LOG

PROJECT: Rb/Sr Anvil Batholith — Anvil Batholith / N. Anvil Creek Phase

STATION: AR 7 — Biotite quartz monzonite

DDH: _____ DEPTH: _____

LATITUDE: 62° 35.0'N LONGITUDE: 134° 34.4'W

HAND SAMPLE: Coarse-grained, unfoliated, porphyritic biotite quartz monzonite. Biotite is locally altered to chlorite. K-feldspar generally forms interstitial anhedral grains.

Plagioclase / K-feldspar ≈ 2/1

THIN SECTION: ✓ reject block stained for K-feldspar

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS: ✓ XRF — whole rock for Rb and Sr

PROBE:

XRD:

ISOTOPE: ✓ $^{87}Sr/^{86}Sr$ for whole rock

FOSSIL:

STAINED: ✓ slab stained for K-feldspar

OTHER:

COMMENTS:

Rb = 191.67 ppm

Sr = 194.73 ppm

Rb/Sr = 0.984

$^{87}Sr/^{86}Sr$ = 0.7181

$^{87}Rb/^{86}Sr$ = 2.850

RESEARCH SAMPLE LOG

PROJECT: Rb/Sr ANVIL BATHOLITH — ANVIL BATHOLITH / N. ANVIL CREEK PHASE

STATION: AR 8 — Biotite quartz monzonite

DDH: _____ DEPTH: _____

LATITUDE: 62° 32.6' N LONGITUDE: 133° 23.8' W

HAND SAMPLE: Coarse-grained, unfoliated, porphyritic, biotite quartz monzonite. Biotite locally altered to chlorite. K-feldspar forms large subhedral phenocrysts with numerous plagioclase + mica inclusions. It also occurs as anhedral irregular grains. Plagioclase forms small irregular grains. Plagioclase/K-feldspar ≈ 1/1

THIN SECTION: ✓ reject block stained for K-feldspar

POLISHED SECTION:

POLISHED THIN SECTION:

ANALYSIS: ✓ XRF — whole rock for Rb and Sr

PROBE:

XRD:

ISOTOPE:

FOSSIL:

STAINED: ✓ slab stained for K-feldspar.

OTHER:

COMMENTS:

Rb = 197.86 ppm

Sr = 231.76 ppm

Rb/Sr = 0.854

THIN SECTION LOG

good sample for Rb/Sr

PROJECT: _____

STATION: AR-2 DESCRIBED BY: LCP

DDH: _____ DEPTH: _____ DATE: Nov 5/1981

UNIT: Anvil Range Pluton

ROCK NAME: Biotite-hornblende granodiorite

HAND SAMPLE: Medium-fine grained, unfoliated granodiorite. K-feldspar as small irregular grains in matrix. Subhedral plagioclase.

PURPOSE: Rb/Sr

Biotite pleochroism
pale tan – walnut brown

Hornblende pleochroism
pale brownish green
pale yellowish green

Plag.
Carlsbad-Albite
An_{45} 17-18 + 8-4 biaxial -
An_{37} 8-10
An_{33} 5-7
An_{40} 10-16
An_{42} 15-15

	EST.	POINT CT.
Quartz	15	
K-Feldspar	15	
Plagioclase	45	
Biotite	15	
Hornblende	10	
Opaques	Tr	
Zircon	Tr	
Apatite	Tr	
Pyroxene	Tr	

COMMENTS:

Euhedral to subhedral plagioclase phenocrysts. Slightly irregular margins. Strongly twinned. Concentric zoning – commonly slightly oscillatory. No alteration. Minor ~~vermicular~~ myrmekitic intergrowth w/ quartz

Interstitial fine-grained quartz and orthoclase. No twinning w/ orthoclase. Orthoclase has dusting – probably sericite. Locally K-spar rims the plag.

Mafics as subhedral to anhedral clumps. Biotite and hornblende intergrown. Opaques and zircon associated w/ mafics. No alteration noted.

No foliation

Locally amphibole rims clear, irregular pyroxene core.

THIN SECTION LOG

Slightly altered plag - sericite biotite - chlorite

PROJECT: _____

STATION: AR-4 DESCRIBED BY: LCP

DDH: _____ DEPTH: _____ DATE: Nov 5/81

UNIT: _____

ROCK NAME: Biotite quartz monzonite

HAND SAMPLE: Coarse grained, unfoliated biotite qtz monzonite. Large K-feldspar phenocrysts which typically contain subhedral plag. inclusions

PURPOSE: Rb/Sr

Mode from hand sample

Biotite pleochroism
deep brown - walnut brown
tan
Chlorite has pale blue anomalous interference colors

Plag. ta, ∝ ∠ 010
13-29
13-8
24-23 AN45
18-19 AN38 relief ∠ quartz
15-23 AN36

	EST.	POINT CT.
QUARTZ	35	
K-FELDSPAR	25	
PLAGIOCLASE	25	
BIOTITE	10	
SERICITE	2	
CHLORITE	3	
ZIRCON	Tr	

COMMENTS:

Large subhedral K-spar phenocrysts with inclusions of quartz - biotite - plagioclase. Plag inclusions euhedral - often w/ narrow rim of new growth (slightly irregular). Perthitic exsolution for K-spar — no twinning. Dusting but no major alteration. Plag inclusions are not oriented.

Plag. abundantly twinned. Concentric normal zoning. Cores extensively sericitized - locally entire grains has muscovite. Generally euhedral to subhedral.

Coarse-grained, anhedral, matrix quartz grains. Undulatory extinction

Biotite locally partly to completely altered to chlorite. Alteration locally along cleavage plane (001). Biotite subhedral. Interstitial

No foliation.

THIN SECTION LOG

Plag → sericite
Biotite → chlorite

PROJECT: _____

STATION: AR-7 DESCRIBED BY: ICP

DDH: _____ DEPTH: _____ DATE: Nov 5/81

UNIT: _____

ROCK NAME: Biotite gtz monzonite

HAND SAMPLE: Coarse grained, porphyritic biotite gtz monzonite large K-feldspar phenocrysts to. K-feldspar generally interstitial, anhedral. Unfoliated

PURPOSE: made from hand sample

Biotite pleochroism
tan
dep walnut brown

Chlorite - pale blue interference colors

Plag ⊥ a, α ∠ 010
20-22 AN40
15-17 AN32
26-20 AN42
4-13
23-17 AN39

	EST.	POINT CT.
QUARTZ	35	
K-FELDSPAR	25	
PLAGIOCLASE	30	
BIOTITE	10	
SERICITE	Tr	
CHLORITE	Tr	
ZIRCON	Tr	

COMMENTS: Large anhedral orthoclase grains with inclusions of plagioclase, biotite, quartz

Perthitic texture. No twinning.

Plag. ds euhedral to subhedral grains Commonly twinned - oscillatory zoning. Locally has a hazy sericitic dusting Irregular narrow growth margins — commonly with myrmekitic texture.

Irregular to euhedral biotite. Locally partly to completely altered to chlorite. Alteration along 010 cluge plane

THIN SECTION LOG

Biotite → chlorite
plag → sericite / saussurite

PROJECT: _____

STATION: AR-8 DESCRIBED BY: LCP

DDH: _____ DEPTH: _____ DATE: Nov 5/81

UNIT: _____

ROCK NAME: Biotite quartz monzonite

HAND SAMPLE: Unfoliated, coarse-grained, biotite qtz monzonite K-feldspar occurs as large phenocrysts with biotite and plagioclase inclusions.

PURPOSE: Rb/Sr from hand sample

Biotite pleochroism
tan
deep umber brown

Plag ⊥ a $\alpha \wedge$ o/o
13-19 AN35
20-12
7-3
19-16 AN36
14-18 AN33
15-13 AN32

	EST.	POINT CT.
QUARTZ	30	
K-FELDSPAR (ORTHOCLASE)	33	
PLAGIOCLASE	25	
BIOTITE	10	
MUSCOVITE	Tr	
ZIRCON	Tr	
CHLORITE	2	
EPIDOTE/CLINOZOISITE	Tr	
HORNBLENDE	Tr	

COMMENTS:

Subhedral to euhedral plag. Conarchic oscillatory zoning. Small irregular growth rim around margins. Cores locally extensively sericitized - locally have epidote in cores. Locally minor myrmekite on margins

Large anhedral K-spar grains No twinning Perthitic texture Abundant inclusions of plag, quartz, biotite.

Biotite locally altered to chlorite Subhedral to interstitial. Zircon in biotite.

One euhedral brown hornblende grain

Large interstitial quartz Minor undulatory extinction.

ANVIL CREEK PHASE (north body) N.T.S. 105-K-05, 11 and 12

Station	Foliated	Porphyritic	Grain Size	Mafics
1985	-	Y	coarse	bio
1992	N	Y	fine	bio, hbl
1993	N	-	medium	bio, hbl
1997	-	Y	coarse	bio
1998	-	Y	coarse	bio
1999	-	Y	coarse	bio, hbl
2002	-	-	-	-
2445	-	N	medium	bio, hbl
2448	-	N	medium	bio, hbl
2449	-	Y	-	bio
2450	-	-	-	-
2515	-	-	-	bio, hbl
2516	-	-	-	hbl
2559	Y	N	fine	bio
2560	N	Y	-	bio
AR02	N	N	medium	bio, hbl
AR03	-	-	-	-
AR04	N	Y	coarse	bio
AR07	N	Y	coarse	bio
AR08	N	Y	coarse	bio, hbl