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Booklet
1967

GEOLOGICAL SURVEY
OF
CANADA
G.S.C. 146-S

1987 Book I

1

r. 9/87

Date	Spec. No.	Location	Pages	Rules Ed zenoliths
Mar. 9/87	KQ-87-1-4	Bingham, Utah	1-5	n
" 10/87	" " 5-10	Henderson, Colorado	6-7	
July 21/87	" " 11	Smithers, B. C.	8-10	
" 24/87	" " 12-21	⊙R 7-1-5 Brucejack Lake - South Side	11-17	ea
" 25/87	" " 22-30	⊙R 7-6-9 " Creek - Sulphurets Gl.	17-24	84006
" 26/87	31	⊙R 7-[illegible] West Zone Underground	25-26	nyon
" 27/87	" " 32-38	⊙R 7-10-11 Brucejack Creek & Area N.	26-32	
" 28/87	" " 39-47	⊙R 12-15 Hanging Glacier South Side	33-41	sure
" 29/87	" " 48-60	⊙R 7-16-20 Knipple - Sulphurets Icefield	41-50	

o
nile
neart
produce

for

%Cu

est
Strip

Bingham, Utah

1

Cloudy, fog, rain@night Mon. Mar. 9/87

- no camera & good rock surfaces rounded zeolithes

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- reopening after closure & reorganization.
- $400 mill. invest. - new mill, in-pit crusher - 5 mile conveyor belt system - meant to be lowest cost Cu produce in N. America

- new concentrator rated for 77,000 tpd
- mill head grades ~0.7% Cu & 0.01 oz Au/t - av. ~60% recovery on Au - have for many years - mainly assoc. @ bn but rest ~0.45% Cu cutoff ~1st Stripp

refractory in py (?)
- still a large leach operation ~ 40 st Cu/day but currently short of new Cu-rich dumps — also extract some U from leach fluids
- all underground workings closed but large tonnages of 2% in stocks — North orebody of Kennecott much better than Anaconda's former Carr Fork mine
- Au with Bn ∴ as drop Cu cutoff & incorporate more outer cp ore Au contents are low 0.008 opt?
- some Au-rich parts of pit & now analyze for Au Some Au in Bio-rich core of pit — Mo rich zones extend below Cu
- everything tilted ~ 17E on basin range faults — but original Cu deposit probably > than 10,000 feet high

- Cu deposit very gradual grade cutoff outward but Pb-Zn-Ag (Au) very sharp inward grade cutoff inner Cu-Pb zones in veins & outer Pb-Ag

2

- intend to steepen pit greatly with very steep walls (i.e. now 1:1 stripping ratio formerly 3:1)

About 3 hour pit visit vesicular mainly low in pit to see Quartz Latite porph (QLP)

5390' bench

KQ-87-1A - QMP ~ 1-2 m from contact "peg" qz-biot. veins pegmatitic to biot similar to Questa? may come out of QLP

- 1B - QMP - QLP contact - QLP - cuts well veined & mineralized Quartz Monz. Porph
- 1C - outer dark 'aplitic' 2-4 m? of dyke
- 1D - core (pale brownish) large K-spar phenos
- 1E - " " " @ zenith

5240 bench

KQ-87-2 - both sides 10 cm-wide chilled ves. QLP (2-3cm margin + 10cm core)

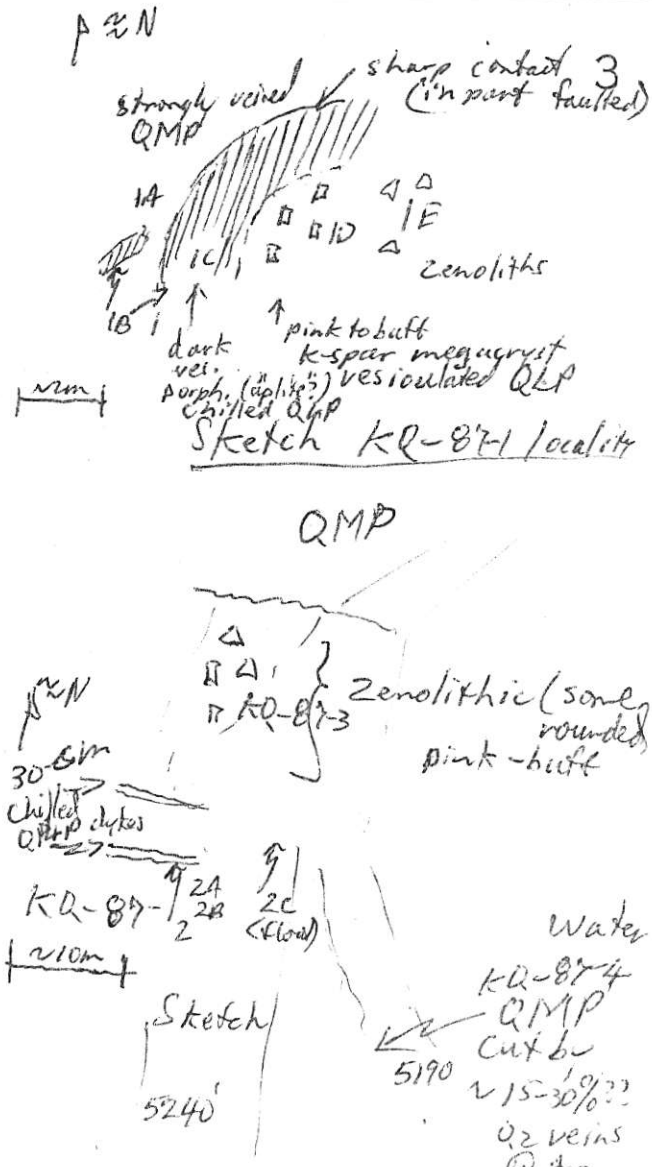
- 2A - contact against veined QMP
- 2B - against QLP k-spar & zenoliths
- 2C - float on bench QLP @ fresh k-spar megacrysts (rounded corners tembayed shape

~ 50-70m North same bench

KQ-87-3 - QLP ves. & many zenolithic
- several spec. over ~30m faulted to N against QMP

KQ-87-4, 5190 - lowest bench above water QMP cut by 93 veins @ 170
- ~ 50-70m E of 3

ves. QLP on 5390' bench could be same ~EW trending body on 5240' bench



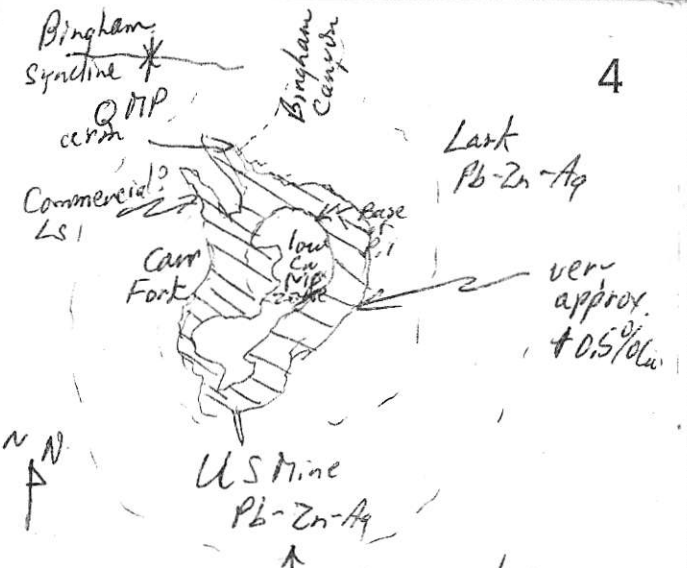
Sketch KQ-87-1 locality

Sketch KQ-87-2 to 4 locality

- many small-scale faults cut contacts, veins etc.

- unexplored area under Midas thrust in limestones for Pb-Zn-Ag
- North oreshoot is ~ 1000 - 2000' below base of pit - i.e. main skarn Cu orebodies are very deep
- garnet skarns, QMP & MP (monzonite porphyry) are favoured Cu hosts quartzites are not ∴ ore zones "pinch-in" in areas of quartzite
- Cu (& Mo, Pb & Zn) is definitely zoned around the QMP incl. elongate shapes of grade zones

- some scattered vesicles > 1-3 cm dia. many are elongate - some might be teardrop-shaped

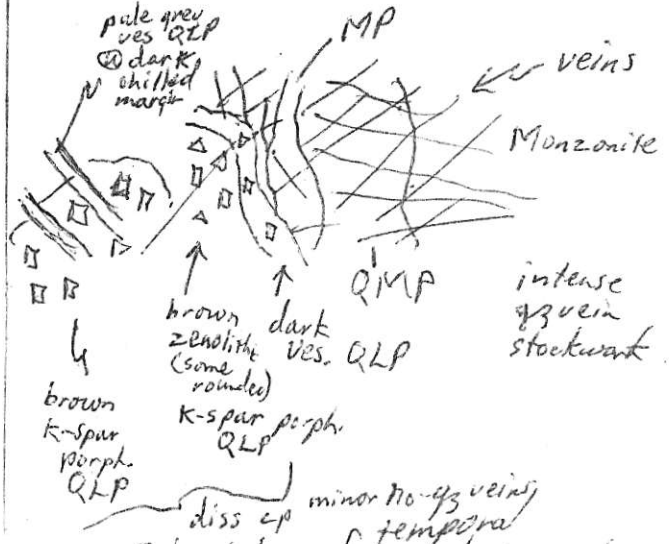


Approx. Position of Orebody 1987

- +0.5% Cu zones breakup & become narrower at depth but they have not drilled through the orebody
- current base of pit ~5140' - ~0.1 - 0.2% Cu? but ~0.12% MoS_2?? @ some Au i.e it is not barren - no large body of QMP has been found including to date

- Jaren does not know of any completely barren QMP at depth
- QLP might be part of a modified radial dyke swarm??? - above a parent but unrecognized source magma
- * some Cu in vesiculated QLP is definite from Cu in wall rocks
- in area KQ-87-243 - several ages of intrusion QMP, MP (i.e. no qtz phenos) & at least 2 ages of QLP (small chilled ves. dykes cut earlier ves. pale QLP
- this is a different QLP body than the one documented by John Wilson his was on 5690 & 5740 benches & was considerable east of the "central" QLP body sampled here

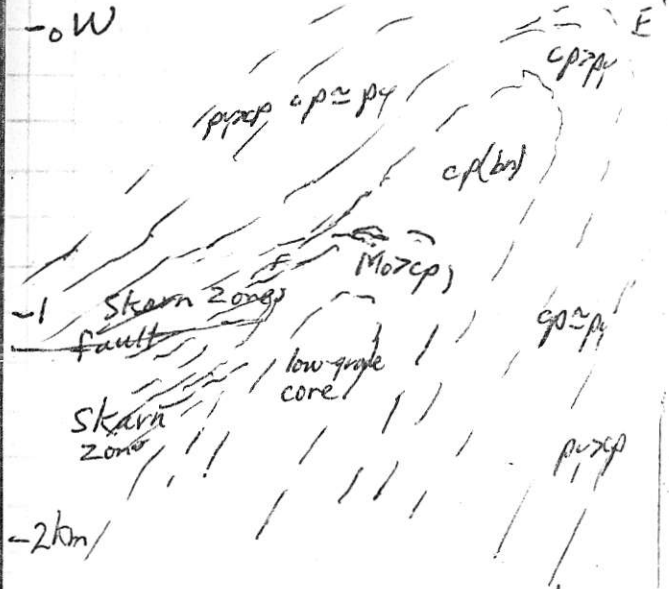
- the "central" QLP has many K-feldspar phenocrysts 5cm in length or longer which are probably larger than the ones that he documented - K-spar is well zoned & numerous mafic incl. along zones - random distribution?
- this areas should be mapped and documented carefully



Sketch of relationships observed in pit

ves. QLP is probable late syn-mineral cutting earlier mineralized rocks

- Some 10 to 30cm rounded veined xenoliths in buff ves. QLP suggestive of pebble dyke or diatreme origin
- coarse (5-10mm) peg. qz-biot veins near ves. QLP could have been derived from the QLP



Sketch of titled mineral zones at Bingham - through central part of pit

Henderson Mine, Colorado

Sunt cloud March 10/87

- Bruce Walker & Ennis (Climax grade) Geraghty (mich. Tech.) mine geologists
- visited the mine with Dave Sinclair
- present production 26,000 tpd 0.45% MoS_2
  5 mining days (+2 days milling)
  600 people
- previously 2200 people
- 60% cost saving
  capacity 40,000 tpd
- can produce MoS_2 cheaper @ Henderson than @ Climax & upgrading Henderson conc. to lubricant grade (i.e. decrease py content

- area ~ 1 x 3 miles around Red Mtn. Ag-bearing veins

(Jim Shannon doing a thesis on them)
NE trending vein systems
- to SW of Urad across valley - 2 ddhs in Woods Mtn. (?) fluorite deposit
- to E of Red Mtn. good Mo anomaly on Stanley Mtn. (found only in 1982-83 & under previous conditions would have been explored for Mo

- Henderson deposit tilted 25° to the SE

- went underground @ Bruce to 8100 & 8050 levels (see separate map) to examine "crenulate layers" & "brain rock" & to search for dendrites
- all walls heavily coated @ oxides, shotcrete & mud ∴ features are not readily visible
- KQ-87-5 - 8100 level ≈7200N & 5500E
a few small pieces of Urad porphyry supposedly @ plagioclase dendrites (only place in mine) ≈20-30cm from contact with Silver Plume Granite

8050 Level
- to examine gq-feld crenulate layers in Primos stock & brain rock in Seriate "

KQ-87-6 - f.g. aplite, low pheno. Primos border phase
- gq porph. aplite possibly some UST's & interesting textures

KQ-87-7 - crenulate gq-feld layers - inner part of Primos bord. phase

7A – qz-rich USS?? or vein mat.
7B – ~ 1m E into intrusion
qz-feld. layers
7C – ~30cm-50cm? further E

KQ-87-8 – Primos crowded porphyry phase

KQ-87-9 – "brain rock" edge of Seriate stock cutting Urad Porphyry
9A – " "
9B – same ~ 1½-2m E

KQ-87-10 dd core collected by Bruce Walker showing vein dykes from Henderson stock cutting Urad porph.
– Mo on margins USC qz & aplite (±Mo) cores
10A – ddh H600 5-7'
10 – " H600 – 550.5'

Smithers Area, B.C. 8
Low cloud & fog July 21/87
early AM
– with Dave Defebure to recognizance of general geology of area & traverse across Mo deposit in Glacier Gulch

– Dirk Septer of the local museum went with us to W. of Coal Creek to look at old steam drill that was finally destroyed in fire of 1929 – W. of swamps @ lake
– dark photos – good cable winches, pumps & drill steel
Dirk – P.O. Box 373
Telkwa, B.C. V0J 2X0
846-9325

- recent work evident at Duthie Mamie & Victory
- most of overturned fold & thrust covered in fog — seds. fairly uniform finely bedded & underlain by brick red "tuffs"

- also well exposed on ridge to W. (striking ~ E W & dipping steeply N.?)

- could see S.S. & dark shales in Coal Cr. & isolated poor o/c's down Zymoetz R.

- Lou Property large trenches
- road to Sandstone L. & another one to E end of Hankin L.

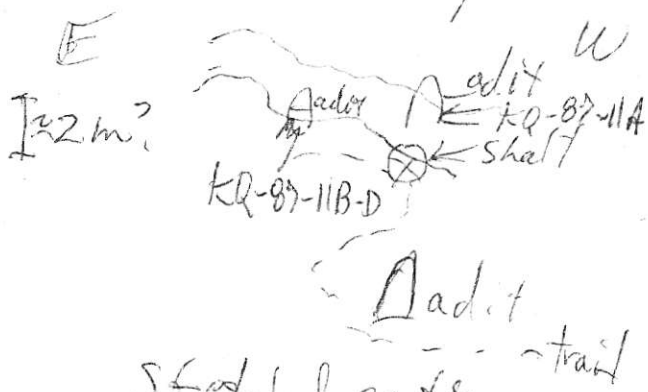
- large trenches & some shallow shafts on Schuten Plateau
- probably several vein systems (2-4?)
- saw thrust with overlying sills well exposed, on N. side of Toboggan Glacier

- landed on N. side of Glacier in Glacier Gulch above rock ledge above hole #28
- less than 2-5% qz veinlets @ Mo over entire deposit — obvious cp on N. side of glacier near top — ~ 2-3m NE striking buff feld. porph dyke intensely alt. @ sec. biot. & diss. py & cp
- probably same porph. observed previously in crevasse

- also 10-20cm grey feld. porphy ~EW dyke ~ 30m? S

- photos joint sets & qz veins in meta. basalt dykes
- some very mafic mottled vol. units @ epid. clots
- & thin flow-layered pale grey aphanitic units
- *ice appears to have not changed position since 1960s drill period
- drill sites & legal survey sites still at ice margin (1-2m)!!!

- examined Au-Bi-telluride occurrence ~50-70m above main trail
- lower adit & upper short adits & open cuts
- undulating (shallow E & W dips) layered qz-carb. veins @ bleached sericitic-carb.? alt. halos
- diss sp??? (leucoxene??) & platy Bi-tellurides & in dump possibly some Mo
- probably in highly alt. seds.?? but never checked closely



Sketched section

Specimens-
KQ-87-11A - vein or (pale alt. rk.?) @ possible diss. sp? - "upper zone"

KQ-87-11B - obvious tellurides in veins o/c & dump (& geochem. samples)

KQ-87-11C – typical layered vein structure dump

KQ-87-11D – questionable Mo-bearing sample from dump (i.e., possibly someone could have carried from glacier area but rk. & alt. (small musc. xtls) look like they may have come from this vein system

KQ-87-11B geochem. sample @ obvious tellurides should have come from this area.

– saw bounding normal fault & coal-bearing seds.

South Side Brucejack Lake 11

Sunny

Fri. July 24/87

– elevation Brucejack camp 1379m – magnetic declination ~29°

– Brucejack L. still covered in ice

– rust sl. foliated rust o/c from camp to ⊙R7-1 (~½ mi E of camp)

– sl. serc. & chl. fol. rel. mas. feld. porph. @ ~1-3%? py

– KQ-87-12 – ~30 mW of str. is typical of freshest porph. fol. ~NS

⊙R7-1 – 1445m

– on sl. knob S of Brucej. L.

– 279° bearing to portal

066° [illegible]

015° [illegible]

- mas. nature of rk makes difficult to distinguish or ...

~100m SE [100°/62°S] fair on crude compositional layering - bedded tuffs?
- probably cross faults

~150m SE [163°/77°NW] fair on definite bedding in tuff or lap. tuff or (epiclastic vol. rks) + alt. py (1-3%) + sl. fol.
- limy spongy weath. frags
- possibly some sed. material intermixed but too alt. & def. to be sure
- photo shows frags & layers
- some frags. to 10 cm dia.
  - somewhat rounded but labile
- small steep ~NS right faults (~30cm offsets) cut bedded
- bedded tuffs are followed by rel. mas. serc. alt. (carb - py) f.g. fe porph. (1 loc. 3mm angite phenc?) for ~300m to ⊙R7-2

- probably volc. because in one o/c seem to grade into bedded tuff & lap. tuff but possibly some is intrusive
- variable alt. ⊙ some very siliceous ~~py~~ o/c's
- minor veining (e.g. 413B ~NS steep ~2 to 20 cm) - qz - cal - py)
- ~30-50m passed bedded o/c KO-86-413A - typical of mas. sl. fol. fr g. feld. porph. o/c - 1-2% py
~30m? farther 2-20cm wide layered steep NS qz - cal. py vein 413B
~50m farther & uphill to S N end of very siliceous dense ~~rusty~~ py highly alt. o/c (~5% finely diss. py 413C
- ~100m farther typical mas. sl. fol. serc. py highly alt. f.g. feld porph

① R7-2-m?

- N o/c in snow at str. ~200m S of lake
- KQ-87-413E same as 113D
- in this o/c more py in veins & along fractures

- ~50m E - 6m o/c in snow - similar buff rusty weath. sl. py alt. volc. KQ-87-413F shows frag
- geochem. sample partly oxidized

- ~70m E uphill below snow cornice same rusty o/c grungy mas, buff py alt. rel. mas. vol.? KQ-87-413G

~70m farther
119°/75°N fair on foliation in draw probably ∥ a fault

- rusty fol. o/c to N of draw & dark grey mas, o/c to S

- 1454m ~~1470m~~ KQ-87-13H - top of rusty knob - deeply weath py (2-3%) sil. (some gy veins) serc. schist - geochem. samples oxidized

- photo rusty o/c @ snowfield to SW & Twin Johns Peaks

~ ~50m S fol. buff and? vol.
095°/70°N fair on foliation

~50m farther S
100°/70°N good on foliated buff serc. and.? vol

- 1510m KQ-87-14A - local rusty py zone #157 Esso? sample site

py irregularly distributed
& foliation continues
uphill to S.
~70m farther small
bench 1550m below
steep snow slope
- some dark angular
vol. br. frags
in otherwise chl.
(serc-py) schist
@ relic stretched plag.
& mafic phenos
14B - typical of py-sericial
meta. vol. schist

KQ-87-15 - same local,
irregular in thick dark
columnar jointed alkali
basalt? dyke that
cuts py & fol.
020°/50°NW poor on dyke

- above here alt starts
to die out
KQ-87-16A ~70-80m

fol. serc. buff alt and
- qz-ankerite alpine gash veins
~80-90m? farthers above
steep snow patch - dark
maroon-grey massive
plag. phyric andesite
16B - typical

then turned east up
o/c to pt. of o/c in snow
here ⊙R7-3 - 1662m not top
- small plag. phyric (~15-20%
phenos) mas. dark maroon-grey
and - many "alpine" gash veins
- scattered br. zones
- plag. phenos are prominent
on pale glaciated surfaces
± if altered this rock
work look intrusive
- possible bedding dips
~70°S

- high pt on ridge 1710m
- ~100-120m E of ⊙R7-3

029°/32SE poor on
bedded lap. tuff [illegible]

& tuff br
overlain br irregular
pink vol. br. (photo)
- very heterogeneous
o/c & no continuous
bedding
KQ-87-17 - is typical
of red hem. vol.
showing frag.
- possibly some bombs in br.

- ~70m S 060°/60°SW
fair on bedded tuffs
photo bedded tuffs &
volc. br. @ hem beds
- some xtls?
- " small EW dextr faults
- still very heterogeneous
o/c
- more photos
- ~50m S 080°/30°S
on same beds
- some good block
ash-flow deposits
(w) irregular large bombs

but not the channelling
of typical nuée ardent
deposits
- some similarities to
hematitic heterolithic
breccias NE of Mitchell
Gl. nr. ⊙R6-4?
- f.g. hematititic interbeds
tend to be more
highly cleaved & sheared

- ~100m? farther SW near
edge of snowfield
sl. rusty weath. (only
magnetite?) med green-grey andesite
br. (w) some very angular
frags KQ-87-18
- photo 1655m
could overlye hem. red
br.
~300m? farther most heterogeneous grey and br.
~~030~~°
~ 180m ENE of Sta.
KQ-87-19A
typical dark maroon
grey plag and br.

~~KR-8~~

048°/10°SE poor on hematitic x-bedded tuffs & breccia
- channelled beds @ br. in small 1-2m channels

~30m farther ~~W~~ 030°/20°SE good on maroon well bedded hematitic xtl tuffs & vol. br.

~30m before str. KQ-87-19B - typical dark maroon-grey plag. phyric and. br.

(5) R7-4 - 1697m
- pt. on branching (W & SSE) ridge
- same heterogeneous and. br.

~100m last o/c before large snowfield
- photos dark hem. red
- grey and. br. (heterolith)
- numerous layered clasts (tuffs??)
some prominent hem clasts

- ~150-200m NW of sta last larger o/c before crossing large snowfield towards camp
dark maroon-grey plag. phyric and. KQ-87-19C
- nr west end of steep ice-snow slope

(5) R7-5 - 1542m
- survey marke BJ-1 - W end large dark chl. py o/c below ice

py is conc. along fracture
dark chl. and? & and br.
KQ-87-20A?

~200-300' farther NNE
E end, 1st flat o/c below
snowfield ~½ down
1468m
- pale highly alt.
py (4-6%) qz-serc
schist - few veins
KQ-87-21

KQ-87-21A same
py serc. schist ~100mN E end
o/c - narrowest
area in draw
~100mS 13C?
- some and-br. @ dark clasts
- closed traverse at
13C locality
- qz veins only as
approach W zone

- camp elev. 1384m
2½hr later was 1397m
14 " " " 1400m

Summary
- most of traverse was
in porph. andesite - some
massive, some breccia and
some py-serc. - chl. & intensely
altered - however, in
most areas little veining
- where pyrite dies out
it shows a strong preference
for fractures & veinlets
- much of the andesite
could be easily mistaken
for intrusive rocks where
altered & foliated
- especially at lower
elevations (near Brucejack L.)
the py & serc. (fol.) alteration
definitely cross the
prominent ~N'S depression
up the glacier to the S
of Brucejack L.
- no obvious evidence of
precious metals or "exotics"
(polymineralic) anywhere on
traverse,
- bedded and tuffs the are very erratic
[illegible]

Brucejack Creek

Sunny Sat. July 25/87

- camp elev. 1379m

- West Zone over ~70-80m? is characterized by numerous qz (carb.) veinlets @ many orientations
- crossed over to N side - scattered crumbly, foliated & rusty, general poor o/c's downstr.
- just W of West Zone possibly 3-4m of highly sheared brown & black gritty cgl. but, if so, probably just an exotic sed slice in fault zone
- most rusty fol. sil. weath. cleaved scattered py alt. o/c to Brucejack lineament

- for ~20 to 50m or more - more blocky alt. py (~1%) plag-hb porph W of lineament
  KQ-87-22 - typical ~10m from lin. 1 EW [illegible] qz-carb vein
- scattered poor crumbly fol. o/c downstr. - didn't check many but probably vol. protolith - scattered py o/c - bolder better o/c S of creek

- downstr. poor dark plag. phyric o/c's probably vol. minor py
- ~100m from 22
  KQ-87-22A
  more highly alt. py serc. rk. "dip strike" dir.
  foliation dip 130°/85° (i.e. strike 040°)
  - then chl. fol. plag.-hb. porph.
  - ~50m farther W
  fol. pale green chl. plag-hb. porph.

dip of fol. 306°/70°

- same chl. sl. py alt
  plag-hb to sharp
  bend in stream skatted. qz veinlets
- in fault contact
  (w) contorted bl. arg.
  siltst.
strike 182°/75°W fair
  on bedding in
  contorted seds
  ~5-20cm thick beds
  30-50cm shallowly
  w dipping young
  basalt dyke cuts
  seds.

(R-9-6 - 1350m
- at bend, fault
  & falls
- bl. arg. pencil-cleaved
- up to 50cm? graded?
  dark S.S. units
- some ripples, x-beds,
  flutes?? soft sed.
  deformation

~70-80m W to sharp 19
bend KQ-87-23 -
typical of bedded dark
siltstone
- 2-4%? v.f.g. diss. "sed." py
- cut by ~1.5m wide steep
  ~EW contorted
  pale "cream"-green alt
  felsite dyke KQ-87-23A
- subvol. intr.?
- 20m W dip 116°/75° (ie, not strike)
- ~100W same "distal?"
  dark contorted
  turbidites 10-30cm beds
  top of canyon
  060°/~60°NW fair on contorted bedding
- some grading is visible
- many faults young flat
  & old steep EW dykes
- ~100m W N wall
  of canyon dip 020°/72°
- ~20m W 075°/40m
  axis ? small [illegible]

~10mW 163°/30°NE
fair on bedding
in 20-80cm f.g. dark
S.S. beds - tends
to define a north
plunging larger
scale faulted syncline in
upper part of
canyon
- crossed to S side on
snow & climbed out
of canyon
- seds. v. poor o/c
outside of canyon

- ~150m downst EW str.
photo faulted
chevron & tight
concentric folds
005°/60°E fair
on long limb of
one fold
- possibly conjugate
steep reverse NS fault
- bush is thick! & no
fly dope

- climbed down back 20
into canyon
KQ-87-24A
~10-20cm black
(grey weath.) lithographic
limestone
dip 280°/83° good
on bedding but
contorted
- ~15m NNW (i.e. strat. ~2-3 m)
24B - pale & dark
grey well bedded
siltst. & fine gr. S.S.
- 1250m at str.
- photo to NNE of high
angle reverse? (drag?)
fault

photo shallow W dip
reverse fault
028°/25°NW fair
bedding ~028° vert. steep
10-30 cm thick f.g. S.S.
some rippled bedding

~ 70-80 farther climbed out of canyon to S — photo to N of fol. sl. rusty buff "massive" alt vol. to w. in fault contact @ dark turbidites to E

- lin ~045°
~1240m at bend S. side start of waterfall

- KQ-87-25A
fol. chl. alt. pl.-hb. porph?

- ~20m W similar @ ~1% of pg 25B

- ~150-200m down steep slope to sta. same general material — can see faults in canyon

CR7-7-1188m
- top of steep moraine to S of creek (waterfalls)
- near little lake

KQ-87-25C
pale green sl. alt. & sl. fol. f.g. to aphanitic plag (~2-3%) porph. — intrusion?

- photo Kerr Group rusty zone & Forbes bands & Sulphurets ridge dyke cutting faulted greywackes along Sulphurets Glacier (SE side)

- same rk ~100m south up moraine
- then sl. alt & fol. pale buff-grey and. br. @ dark & light frags to at least 30cm
- ~200m S of CR7-7 above metal
KQ-87-26A 1258m
typical of and. br.
- shallow NE dipping "alpine" veins (w buff carb. alt halos
- angular frags. heterolithic

~10m S 007°/80°E fair
on interbedded tuffs

- pyritic sericitic zones along fractures
- ~30m farther 26B pyritic vol. br.

~50m farther & 50m before top of icefall 1252m
~15m above ice
016°/74°E fair
on interbedded green-grey tuffs & breccias
- f.g. to tuffs to 80cm blocks in br.
~NE trending "alpine" qz-carb-chl. veins appear to have nothing in them
but ~EW/75°N
qz-py veins @ shear sericitic halos contain specks of cp & sp 26C
(litho geochem. sample is vein (+minor wallrk. alt.)
- some 3-4m thick br. units could be debris flows

~50m S uphill photo fault (~080°/vert.) offsetting (N side up) bedded tuff & breccia
large py cubes in tuffs & br.
175°/80°E on bedding
- most bedding dips steeply east
- this is a particularly well bedded unit
- tuff (wacke) beds (5-10cm) are graded @ white chert ?(?) py interturbidite beds
- going up gradually in elev.
- ~70m farther photo of fine br. - some 1m clasts in area
- units are faulted
-

OR7-8-1270m
- top of large bench & top of icefall
- moraine along ice
- photo vol. br. [illegible]

22

KQ-87-27 - sericit carb alt
pale-green-grey
volc. br

climbed steep moraine
to E 1324m top
fol. and. br.
fol. 357°/86° dip

~50m E mixed volc
(later graphitic "and" or unit?) br. & black slaty arg.
i.e. probably fault contact
- then contorted cleaved
dark seds uphill E.

~150m E 065°/65° fair dip
1368m but contorted
- generally poor o/c & cl. arg
- S.S. are more resistant
KQ-87-28 20-50cm sand bodies
- dark f.g. S.S.

- ~100m E anticline &
highly contorted areas
~ -50-60m E 148°/25° NW
1389m on large (1-2m)

S.S. beds

~30m E KQ-87-28A
typical black fissile
siltst. 168°/88NE fair contorted bedding
- to N. of high ridge

- ~NS lineament to CR7-6
(bend in creek) seds
to W ~ contact seds & vol.
@ little W faulted
block of vol.

- ~70-80m E of lin. 167°/86° NE fair
on buff bedded tuffs
& br
- similar to bedded
and. tuffs & br. near
Sulphurets Gl. ???
- a few ~EW qz veins

- ~100m farther E just
before sl. knob 1439m
fol. serc alt. chl.
pale grey and. br. @
scattered sand & dark frag. KQ-87-29
338°/84° dip of fol. fair

~50m SE 342°/60° good
dip on foliation
in sheared and? feld.
xtls stretched vert. down
foli plane feld porph small dark frag.

~100m farther to sta

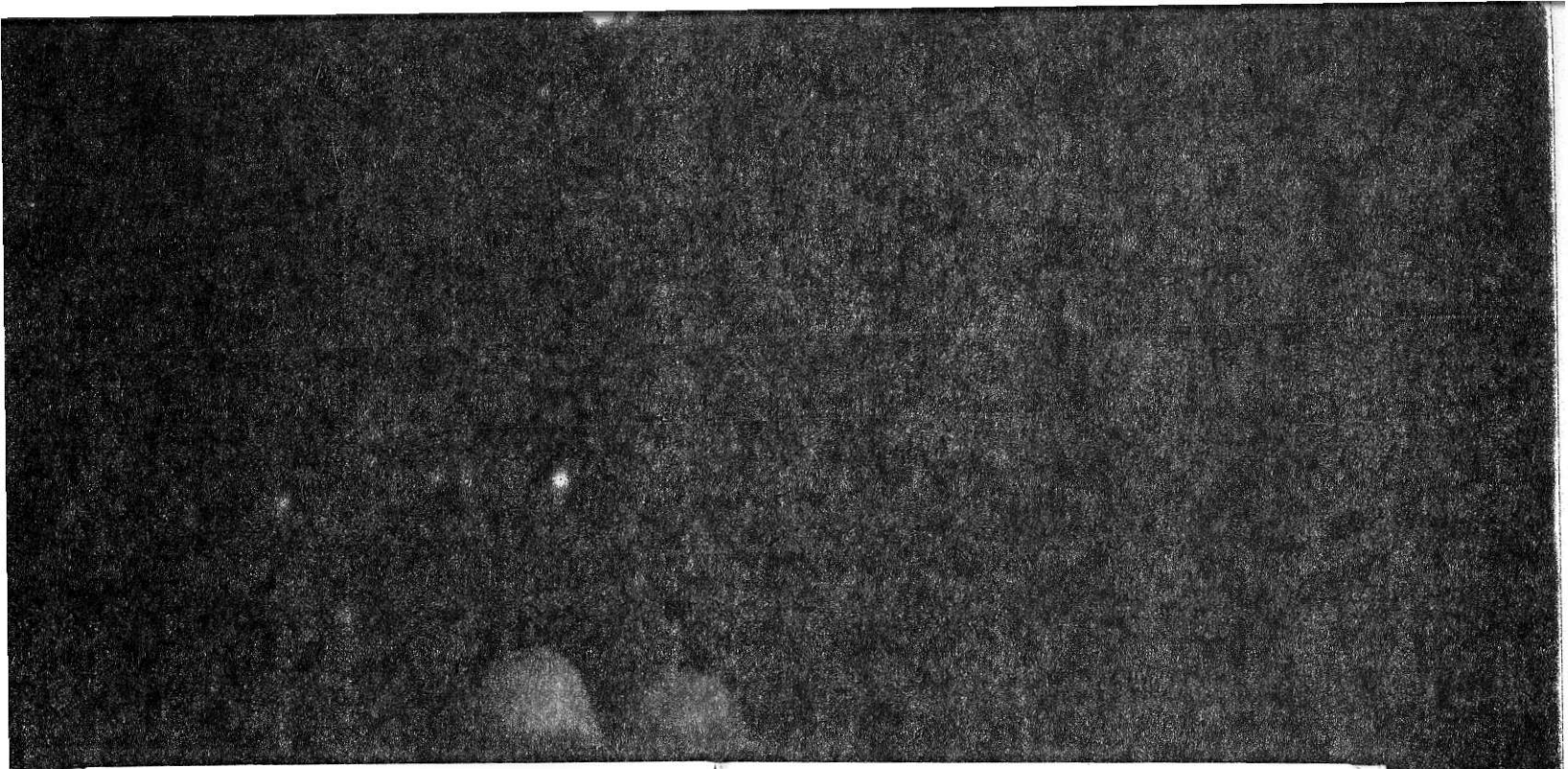
① R7-9 - 1459m
- top knob "triangle"
in snow
- grades to coarse gr
& more uniform feld porph
to E ~20m E Sta.
KQ-87-29A - typical
white weath. fol. fed.
grey feld. porph. - weath
small dark frag. in o/c
to E more uniform
sl. augen @ large
lensoid zoned feld. phen
ductile deformation
near Brucejack lin.?
- difficult to sample but rk
is probably like 29A

~NS/60°W flattening fabric

- ~60-70m ENE across
~~Brucejack~~? Lin.
Sta 30S 20E
- crude frag. texture
in f.g. feld. porph.
- i.e. could be extrusive

- ~150-200m? E ~½ way
to Brucejack Lin.
KQ-87-30 1455m
uniform fairly blocky
massive o/c of
grey green plag-hb
porph.
- could be intrusive
- a few EW qz veins

- similar f.g. porph. to lin.
- some veins & rusty
zones near lin.
- buff alt. similar rk
E of lin.
similar f.g. porph. & end.
traverse ~100m E



where sampled last year
- quartz veining & Fe stains definitely incr. towards W. Zone
- camp elev. 1382m
4 hr. later 1390m

Summary

1) Brucejack lin. is a prominent feature with most alteration to E but some alt. to W & until 2nd lin. @ seds.

2) On both routes black seds. (turbidites) are highly faulted, folded & contorted but except for sed. py & local py along fractures (Fe stains) they are relatively unaltered
- only a few dykes cut them as well - 1 young - 1 old?
- difficult to explain structurally but look like Bowser

3) Grey & green andesites @ many br. units nr Sulphurets G1 are well bedded - colour permitted [illegible]

West Zone Underground 25

Rain & Fog Sun. July 26/87

- drafting & plotting a.m. & went underground with Tom Drown, Leo & Dave

- no veins near portal
- uniform py-serc. schist
- mineralized zone consists of numerous cross-cutting, anastomosing, horsetailing, gash, buckled (ptygmatic), boundinaged and brecciated barren & mineralized qz veins of all sizes to a maximum of 1.5-2m wide (many photos)
- slickenside faults cut veins at all angles (max. measured displacement up to 30+m)
- mineralized veins

ruby silvers, tetra, sp, gn, py, ep? etc - pinch & swell horsetail & are en echelon etc. - i.e. are very difficult to follow
- one potential ore blocks is ~90 thous. tonnes ~0.34 oz Au/t & 27 oz Ag/t but needs further definition
- mineralized veins appear to be of all ages relative to barren veins ∴ no predictable trends
- local buckle folds and boudins indicate some ductile deformation of veins
- layered or crack-seal veins are not obvious
- possible mineral faults obvious cut the veins
- flat gash veins tend to be barren

- *the irregular nature of the veins are more similar to shield ductile shear zone veins than shallow "epi-" & "meso-thermal" Cordilleran hydrothermal veins

- the high grade veins are going to be very difficult to follow
- some broader areas of ~0.2 oz Au/t & ~10 oz Ag/t without the obvious tetrahedrite & pyrargrite ∴ some suggestion of different ore types

KQ-87-31 - high grade (~5-10 oz Au/t & 800 oz Ag/t over ~2' - rich vein underground) ruby silver ore from dumps
- some veins fill faults that cut earlier veins indicating faulting synchronous @ vein formation

Main W North of Brucejack Creek to Kruchkewsky Camp

Cloudy, Rain Mon. July 27/87

- camp 1379m
- went down S side of creek to @R7-6 & crossed to N

- intense qz veining West Zone ~20-30m wide then NNW trending draw @ possible fault (dark sed? talus)
- aligned @ possible dark sheared 4-5m cgl. o/c to N
- then pale green-grey sheared plag phyric and? to N (~¼% py?)
- KQ-87-32 typical ~20-30m W of West Zone in area @ few qz veins - more qz veins & stringers to W some rusty

- for ~30-50m W to draw ~ finer grained less fol. green-grey plag. phyric and @ local areas of br.
- Similar grn. f.g. rk W of Brucejack lin. pl. phyric & then f.g. med. green-grey pl-hb porph. KQ-87-33 is typical opposite 87-22 ~30-40m
- fairly blocky ∴ might be intrusive
- some NS 5-20cm qz carb veins
- ~70m downstr. W ~2m wide breciated (fault) & layered qz-carb vein ~008/75°W fair minor diss py & possible tr?? grey min? KQ-87-33A

-opposite W end of pond
~15m W KQ-87-33B
typical grn-grey
somewhat alt.
(massive blocky o/c)
pl-hb porph.
could be intrusive
-but still cut
by scattered qz-carb
veins
-more alt N across
creek
-more foliated
downstream & possibly
crumbly sheared bl.
seds between more
resistant intr. o/c

~200m downstr. to ⊙R7-6
1346m
-similar but more
sheared f. to m. g.
chl green pl-hb porph
but ⓦ some buff
alt (carb-serc.) section
& a few ~NS 75°W

qz-carb veins
-probably intrusive
but a few areas
might have been bedded??

for ~200+m N relative
massive buff med. grained
S.S. ⓦ minor cgl. & granule
beds

~70m before Sta. 010°/31°W fair
on bedding
large scale X-beds
indicating flow
to W
KQ-87-34A
typical of mas.
S.S.

KQ-87-34B nr Sta
sl. coarse gr. ⓦ
scattered pebble
(vol. - qz vein etc)

⊙ R7-10 - ~1350m NE
- end of drawer
& NE corner [illegible]

- lime conc. weathers out
- could be mass flow arenites
- some X-bedded units 3-m high face W
- congl. matrix supported
*- note that these S.S. are not black & dark grey like turbidites in Brucejack Cr.
- seds are essentially unaltered

- large sand bodies cross NE gully
- contorted
- 2-4m graded units? - silt st. between

~150fm NW
120°/30° SW poor on bedding

in thick turbidite units
possibly the thick sand bodies underlie the black distal turbidites
- 150°/vert dip* on good possible axial clv.

- seds become more cleaved to W & have localized alt. & veins near green pl porph

- ~100m before OR7-11
qz ~ carb. vein on talus @ 1cm gn clot
- ~60-70m E of sta.
KQ-87-35
- cliff former - massive blocky pale to med green sl. alt (~1% pd plag (~20-30%) porph.
- could be same unit

near ⊙R7-7 in Bruce Jack
str. canyon - but
here is more blocky
unfoliated & coarser gr.
- photo of typical pl. porph

⊙R7-11 - 1343m
- base of rock face
~ 25-30m above base
of talus
- same mas-green
plag. porph. - some
similarities to
Premier Porphyry

- for ~100m w pl. porph
- covered then ~
200-300m NW
buff weath. alt
pale and. (some frags)
- most o/c crumbl.

but in stream
KQ-87-36
1357m

- pale buff
carb alt. rk.
(W) ~2-4% v. f.g
diss. py 36A

- ~5 cm ~EW 75N
buff weath
qz-carb vein
(W) gn & sp
KQ-87-36B

- below large
steep snow
slope

- many qz-carb.
stringers or ~20m
in canyon

to N grn chl
py alt rk.
much lichen on rk
- ~100-200m N
mas. blocky sl. py
dark green hb. porph

- similar dark grey blocky chl (ep strings) rock up bold o/c to N 1430m

KQ-87-37
typical but some definite vol. br. ∴ could be a mafic vol. unit

- entirely in fog + rain ∴ can't locate

for ~ 150m to F + SF uphill along snow obvious vol br - becomes

fol. buff + alt uphill

~ 100 - 150m uphill on snow ~ 1480m into a few dark seds + buff S.S.?

- 130° up snow
- bedding in seds is not obvious 110° | 30°S v. poor
- just before "plateau"
- too foggy + wet so broke off traverse + went to NE to Kruchkowski camp - only short distance to NE maroon polyhthic vol. br. @ stretched frags. then grey + buff vol. br. and alt. zone (rusty py - sericitic schists cut by qz veinlets - didn't check closely but several [illegible] [illegible] [illegible] camp 1350m

to E of Brucejack lineament some blocky fine-gr plag-hb porph. but some to S distinct frags & then fol. & alt. vol.

- ~300m N of West Zone ~on Strike & 50-70m E of Brucejack Lin. ~2-3m wide py qz stringer Zone in py sericitic schist (untrenched! but generally similar to West Zone possibly on NE draw faulted to S to become part of Gossan Hill Zone

≤ towards West Zone wedge (~150-50m wide?) of sheared dark seds KQ-87-38 - typical of ~40-80cm thick dark f.g. SS @ diss. "sed"? py - ~150m N. of West Zone at Brucejack Cr. - some intensely buff alt. py plag-hb porph for ~30m N of West Zone

- West Zone could be stepped E to N across creek

Summary

1) W side of West Zone could be faulted because topographic depression & quartz disappear abruptly.

2) f.g. pl.-hb porph. between Brucejack lin. & lin. to west could be intrusive because blocky o/c & very inform - towards ⊙R7-6 more foliated & alt. ∴ possibly vol. sands & matrix-supported cgs

3) large buff sandstone beds (2-5m???) N. of ⊙R7-6 are not dark, not particularly alt. & not well bedded - locally large scale x-beds are present. These could be severely top-truncated mass arenites similar to the sandy arkose at Buchans (Nfld)

- they have some large-scale interbedded turbidite units (1 to 3m beds) but the argillite-rich dark distal turbidites characteristic of the Brucejack Creek area
- possibly in a broad steep synclinal structure facing S this S.S. unit underlies the dark turbidites

4) andesite breccia occur both the NE & W of the sedimentary unit & tend to contain more alteration & vein zones than the seds.

5) The green plagioclase porph. cliff-forming unit, although coarser-grained could be the same unit as that low in Brucejack Creek

6) Several qz stringer zones in pyritic sericite schist probably branch off the Brucejack

7) A wedge of sheared dark rel. unalt. seds. is fault in N. of West Zone & West & gossan [illegible] are faulted [illegible]

South Side Hanging Glacier

Sunny, then cloudy, Tues July 28/87
then rain & fog
- Camp 1379m (pressure dropping)

- flew @ John King Vancouver Is. Helicopters

⊙ R7-12-2059
- knob on ridge between ice & small
- sl. fol. rel. unalt. pl. phyric
- dark grey & maroon (w some jasper hemoeins) andesite lapilli tuff (& br) scattered angular matrix supported
- photo across Hanging Glacier

- 195°/70° good dip on weak foliation

- Some units @ dark stretched lap. eg. KQ-87-39
- 30m E of star lophilla

128/78°SW fair on contact between thick (>80m) underlying grn-grey & overlying maroon-grey units

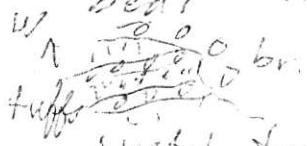
- photo of coarser than av. vol. br. @ typical dark frag.
- without excellent o/c & negl. alt. could be difficult to identify this rock
- 2002m ← poss. read wrong needle
- ~150-200m W down ridge (along strike?) ~60-70m before fault lin.
- same pale weath. pl. phyric and. lap. tuff & tuff br. @ dark frag.
  - considerable meta. epidote KO-87-39A
- highly irregular nature of dark frags. (max 10-15cm) suggest that they were bombs (photo)
- dark metallic hematite (non-mag) specks in some units

1953m
- draw is almost surely a significant fault - different rocks & att. on other side
- well bedded maroon & green & grey & H tuffs & lap. tuff ("epiclastic")

012°/74°W fair to good on deformed bedding near fault

054°/85°NW fair on one spaced clv (is refracted towards bedding in f.g. red fault)

- grading suggests W up but truncated beds by br. units & some reverse & double graded beds - some brick red weathered tuffs



sketch truncation

- numerous faults in o/c some NNE dental

- some overturned SW dipping graded maroon-grey tuffs (photos)
  177°/70°W good on overturned graded beds
- br beds (debris flows?) 50 cm to 3-4 m
- KQ-87-40 typical of maroon-grey well bedded tuffs - shows strat. top arrow but overturned to W

to SSW down large steep bold o/c mainly mas. grey & maroon-grey plag. porph. - probably flow because in excellent o/c can see scattered dark frags & numerous hem. matrix br. zones cut unit
- 1877m above steep snow slope S end large o/c
  KQ-87-41 typical

- down steep snow & talus to W. same maroon-grey pl phyric and.
- 1798m last o/c before major Brucej. topo. lin. ~150+m W
- KQ-87-41A
  sl. maroon-grey pl. and
- 200°/86° dip on fol.
- all rusty o/c W of lin
  rusty float @ mo veinlet
- ~100+m S to Sta

⊙R7-13 - 1790 m
- ~50 m W of lin
- pale py alt. sil?? serc?? and. br? & and?
  KQ-87-42A
- ~80 m W
- 150°/75°SE fair on bedded silicified pods
  rusty pt grn-grey seds. or tuffs
  KQ-87-42B

- difficult to determine if alt rk is sed or vol.

~50m W ~same elev
(ie. sl. knob)
- intensely alt. pale grey
serc - py (~3-4%) rk
cut by scattered qz
- mo veinlets 42C
- negl. mo grade
~50m W 143°/82° SW
fair on rustic alt.
bedded seds (or tuffs?)
~60-70m NW bedding is
uniform
- Tedray claim post
Tag 2460
Post S East Aug 8/7[illegible]
E. Osterisse
- o/c tends to be crumbly
& leached ~1 to 5% qz vein qz
- ~50m NW? just above
snow patch 1763m
KQ-87-42D
same intensely alt
serc - py (3-4%) pale grey
rock cut by ~15-20%
qz veinlets (too
leached at surface to sample
- possibly tr diss mo

- probably only tr. to minor
mo in veinlets but difficult
to tell

- ~100m down snow unif
dense serc - py alt. rk
(pos. f.g. pl. - hb porph but
??) & some pos. bedded
rks - but fewer
qz stringers - less than
1%? - o/c is v.
crumbly i. diff. to tell
- some more bedded p.
alt. seds &
then for +30m
med. - green - grey
rel. barren pl. (hb)
porph. (w) scattered large
K-spar phens (1%?)
KQ-87-43 - 1720 m
largely post alt & py
knob
less alt than wall
above slope snow
slope
- crumbly fractured o/c

243°/42° poor dip
-90° on bedding in alt
153° seds? W. of intr.

~100m NW to very
1632m rusty o/c in show
highly sil. alt.
rel. mas. f.g.
pale grey py (~2-4%)
(finely diss.) rk
KQ-87-44A - typical

- ~1-3% qz stringers
in o/c

⊙R7-14
~60-70m 1609m
- similar vt rusty
pyritic o/c 44B
except sl. more chl.
(ice, greener) - old
claim post
~25-30m above ice

~100m farther o/c beside
ice 1560m

dark chl. alt
py (3-5%) hb - pl porph?
KQ-87-44C
cut by qz - ankerite
gash vein (ac)
buff alt. late
- raining

- ~150m W o/c along ice
1550m ~½ way to icefall
- same mas. sil.
py (4-5%) green
chl. alt. rk (vol.?)
KQ-87-44D typical
- some are @ bir. therefore vol.
- a few gash qz-ank
veins cut rk
- some qz-cut vein float @
gn top
~150m top of icefall
- cliff & sta.

⊙R7-15 - 1449m
- beside ice
top of cliff

- same intensely
  ~~St.~~ sil. & alt/ vol.
  KQ-87 rk? (~5% diss py)
  pale here where
  45A most intensely alt
  but chloritic green
  along traverse
  route
- a few qz-ank
  veins v. buff
  alt. halos cut rks

- went ~100m S
  to get around cliff
- same pale sil.
  mas. py alt rk
  @ ~3-5%
  qz pc?? leached
  out vein!
- 1412m ~10m NE
  of end of moraine
  KQ-87-45B

- cliff because of
  v. sil. rks.

- then traversed
  N to base of
  cliff at ice
  same white pale sil. py alt. rk.

1363m
356°/25° excellent
dip (strike & amount)
of 30-40cm layered,
(sheared) qz-cal vein
- in prominent "crack"
  across cliff ∴ could
  be a fault
- qz (ank) vein appears
  to be largely
  barren although
  sh qz-cal vein
  blocks (30cm wide)
  @ qnt sp coming
  from cliff
- many qz-carb stringers in
  FW of vein

KQ-87-46
3-4m wide bq
qz-carb vein
bnr 050°/70 NW 2m.

precarious below
ice so grabbed
a few representative
& "high grade"
0.01 Au
& 0.104 Ag
samples
Newhawk Assay #RK-87-1
- slightly "high graded" - low Ag?
gn sp cp py
poss. minor? + ruby silver
± tetrah.
1310m
~100m W downs
along ice
KQ-87-47A
pale py br or cgl
sil
some high
sil & py sed

- still many
fairly flat
gash qz-cal
(bar?) veins

125°/70°NE
fairly good on bedd

highly sil
& py cgl & S.S?

~20m W
150°/72°NE
good on "tight"
ductile fault
(w broken vein frags

~30m W
130°/60°NE
poor on
well bedded
pale gringey py
and br. & tuffs

toe of ice 1255m
47B from
pale grey
py S.S.
assoc cgl
& followed by and br.

str. flows down
vein
dip 225°/65°
sparse
set of 3-4 m
93-cdr py tr cp
47C

1225 KQ-87-47D
~100 m farther S
downstr. at
bend
120°73°NE
fair on grn
grn bedded br
py
cgl. S.S. tuff
~1cm large py clots @ dark green
meta. halo
~80 m downstr
145°/65°NE
good on well
bedded well to
dark grn tuffs

~100 farther
KQ-87-47E
065° strike
vein @
py +
minor cp
1195 m then ? or mo?
~30 m SW of str
in grn vol
opposite base
large o/c N
of str

~100 m farther
~25-30 m
before end
of o/c
KQ-87-47F 47E 47F
same py
mag grn vol.
o/c. possible tr. 170 in area
— some 50-100 cm br. 93 cal veins in area

⊙R7-15
base of o/c 1033m
- small trees on moraine to S.
- camp elev. 1355

Summary

1) Because of rain & long traverse 2nd ½ of day was rushed without proper examination of rocks, diss. sulphides & veins
2) High knob - S. side of Hanging Glacier probably has significant faults on both sides - possibly both branches of Bracejack Fault but intensive alteration only W. of W. branch
3) Massive and. br. @ dark frags & maroon & grey pl. phyric and. probably extend to peak & dip S-SW. This area of bold cliff o/c's doesn't appear to be badly faulted
4) Siliceous, py, grn well bedded rocks to S. of & below toe of glacier probably include immature S.S. & cgl. interbedded with

very angular (some foliated) & thick andesite (& basalt?) breccia units that are probably products of volcanic eruptions
- also some of the immature cgl-br. units could have been deposited by debris flows
- although not examined closely channelling & cross-beds are probably abundant in some of these units
- these could ~~b~~ in part be "epiclastic" rocks
- dominant medium to dark green colour suggests that these were fairly mafic units before sil. & py.

5) KQ-87-46 vein system should be assayed for Au & Ag possibly intense & wide enough to be of significance but still "gashy" (especially downhill) & contains large horsts of wallrock. Possibly cut off above by fault.
6) 47E&F locality qz veins @ some cp & possibly a few MO slips??

Icefield Head of Knipple & Sulphurets Glaciers

Sunny, then cloud; then rain again! Wed July 29/87

- camp 1379m
- several outcrops ~100m S of ⊙R7-4
- attracted to o/c's because rusty weathering but rusty black, limy, argillaceous highly contorted seds. (photo interbedded limy & arg. seds) photo tight fold steep plung

no KQ-87-48

- 1692m
- volcanics same as to N&E irregularly interlayered dark maroon-grey pl. phyric and. br. KQ-87-49A & green-grey (sl. py) lapilli tuff 49A ⊕ matrix supported clasts — some v. irregular clasts in maroon br. (photo) & clast in [illegible]

057°/16° fair to good dip on bedding in fig.

~30m from contact

016°/77° good dip on foliation vol. ~50m W of contact

049°/82° SE good on one segment of bounding fault stretching lin & mullins plung ~60° SW on fault surface

- many qz veins near fault
- vol. highly variable unit: from med.-grn-grey, dark maroon grey to dark maroon-red (minor)
- some elongate ragged clast units in probably products of both hot & cold emplacement
- some x-cutting hem. matrix br.
- black seds are highly deformed near fault 49A 15 many dismembered contact bed

294°/66° fair dip on one seq. of beds
but highly contorted & folded
300°/78° good plunge on axial lineation

- 10-15cm thick graded wacke indicate that beds are overturned
- generally bl. finely bedded arg. & lithogr. ls indicating deep marine conditions

- 044°/65° good dip dir. on bedding & plunge of lineation
W. end of contorted bl. sed. o/c
- ~10m W 270°/82° good dip on contorted beds & ~ lin. plunge

KQ-87-50A is typical of the contorted bl. arg. ls one spec. shown upside down graded and bed

to SE possibly underlying? contorted 1st arg. & thin bl. greywacke
- poss. ~NNE / ≈30°W dip but ?? (contact covered)
- 1st 2-5m? thick mas. medium grey debris flow units (50B) with muddy matrix and angular frags. to a few cm & up to 50cm wood (trunk) frag. along bedded & then massive v. rusty weath. pale grey S.S. 50C - with prominent 1 to 10cm long limy concretions - very similar to massive S.S. N of ⊙R7-6 N of Bracej. Cr.

- these seds could be same as those N of Bracejack Cr.
- looked for fossils but none obvious, perhaps to contorted

- went W across ice field

⊙ R7-16 - 1654 m
- isolated ~30 x 20 m rusty qz veined o/c in snowfield
- ~10-20% qz veinlets scattered throughout o/c
- photos of cliff to W & SW
- sample site 3239 & 2 claim posts Dane Bridge Eagle 8/82 Red River Post 10 No. 84661
- many veins trending ~106°/82°S
- veins are difficult to sample
- host rocks - intensely alt. rel. mas. qz - ser - p. rk. - since relative massive might be after vol. - poss. a few frags - visible

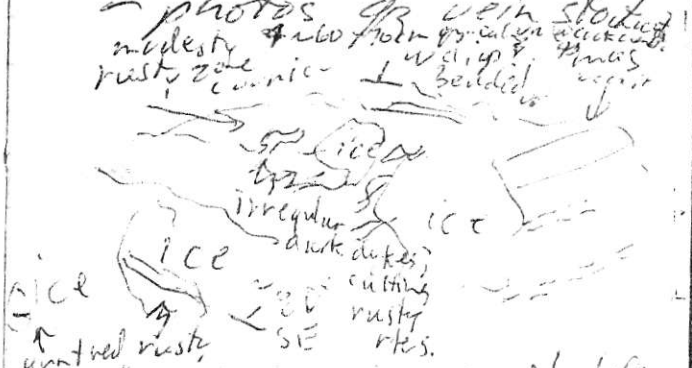
o/c here because of intense sil.

- o/c might av. 4-5% py?

KQ-87-51A - host alt. py - qz - ser. rk ⊙ minor - qz vein

51B - single 10 cm vein E most o/c in ice qz - py (tr. arsen. cp?)

- a few qz - cal veins in o/c but negl. exotic minerals
- photos qz vein stockwork



Sketch to W of cliffs

- appear to be mainly rel. mas. vol.
- cockcomb qz in qz - cal at veins indicate ope. spaces

~150-200m @ West
1562m across Brucej, Lin.
- similar py - serc-sil.
v. rusty o/c
o/c KQ-87-52A
but few qz veins
(~1-5% ?)
- ~80-100m S to E of
o/c 52B - similar
pale grey py sil serc.
mas. alt vol.? cut
by ~5% qz veins
@ diss. py
- many ~EW qz veins
cut of E & project
to o/c other side
of Lin.

- walked ~½mi S sl. up
across Snow to last
large o/c
pale grey (slightly)
- sericite schist (but mas o/c)
@ ~2-3% diss py
KQ-87-53A

53B ~50m S same
as 53A

- ~50m S - ~30m
wide (≈EW?) less
alt (chl. & ~1% py) hb.
porph (dyke?) 53C

~150m S to last point
of o/c

① R7-17 - 1628m
- ~70-80m from
crevasses & top of
icefalls
- same serc.
py o/c KQ-87-53D
- because some mas.
either alt. vol. (or intr?)
- only ~1% qz - carb veins
in o/c - distinctly
less than 51 & 52 area
& sl greenes i.e.
more chl.?
- photos to SW & SE
of rusty rk - appropriate hor. beds
& high peak to SE
vol. beds ~NS/30°W

157°/53° NW poor
on one fol.
others present
- some dark grn frags.
indicating and. pr.
- similar sem. mas alt rk across
large o/c to NE
- low meta grade
some qz-carb-bar qz-carb gash vein
- sl. less & py to NW
- ~200m NW ~30m
before end of
steep o/c
KQ-87-53E
serc-chl (~½%) alt.
(pl?) hb porph

- ~70-80m down steep
snow slope to o/c
area above ice
same serc. py mas.
alt. and.? (a few
frags)

- ~50m NW - 1469m

KQ-87-54A
typical of same pale
grey (grn) serc (chl) py
alt. rk (w scattered
low (regional meta grade
qz-carb veins
~1-2% py?
- indicates large pyritic
alt. zone in this area

- ~100N just above ice
1467m ~ 2-5m wide
major qz-carb (tr py) bar?
very substantial but barren? vein KQ-87-54B
EW/82°N
in fault & intrusive
contact (w contorted
grn alt (+meta?)
seds - ~NS/62°E
but overturned
locally along faults
- mas serc. py-chl.
rk might be intr.
truncating seds or
signif. fault (w major
barren vein [illegible]

- seds. trend uphill
under ice
more dens sil,
alt grn (sl. py)
mas, hb above ice
- another 1-3m
EW barren qz - carb vein

- ~80-100m N 54B
1438m
KQ-87-54C
typical of sil. (sl. py)
alt hb-pl. porph.
mas, o/c.
perhaps more sil.
here & more sericitic
near Brucejack Lk
& ⊙R7-17

- steep snow slope
to flat nr. gl.
- ~150m to sta.
same uniform rk

sl. alt. pl-hb porph.
intr.?

⊙ R7-18 - 1407m
- S end of flw
- at stream - steep snow
& o/c to the SE
- EW line @ end
of major snowfield
to E
- same py (~1-2%)
mas! green-grey
pl.-hb porph.?
KQ-87-54D typical

- ~100m E & N
very rusty o/c's
- pos. vol. & seds
in EW qz
veins overlying
intr.?

- ~150-180m N along
flat ~50m?
before end of
o/c
same rk
KQ-87-54E

Just 30m of o/c
rusty grn alt tuck
seds
170°/10°E poor
on bedding
- same rusty o/c
above intr?
to E
- here comes U
to ice

~½ mi to sta core

⊙ R7-19 - 1342m
- pt. of o/c
in ice
- excellent
o/c of dark
turbidites, facing
E 082°/vert
good dip dir.
on bedding
- riprups, loading
of grading indicate

tops E also dewatering str
EQ-87-55
typical of 30cm thick
S.S. bed
photos scour &
convolute lam.

- thicker pale sed
or vol. units?
at top of o/c
~25-30m V.

- ~60-70m
261/85° good dip
dir. on bedding
i.e overturned
- although minor faults
bedding is very
uniform in 2 o/cs
- 55A - ripple x-lam
f.g.S.S. & siltst
tbl. arg.

~½ mi cover to next
sta.

①R7-20 – 1280m at ice
– large bold
o/c of sl. rusty
sl. buff weath.
and ⊥ br.
~½ mi? up ice from
①R7-8

KQ-87-56
– dark matrix
graphitic? ~½% py?
– many similar
angular frags.
⊥ appears to
be vol. – could
be large-scale debris flow
– cliff to top of bold
~30-40m E
– 1333m
147°/85°NE
poor on
well bedded
bl. arg in
cliff
– bl. seds in contact
(w) andesitic
debris flow
unit?

1358m top of ~~[illegible]~~
& at small lake
& snow patch
– fault in creek ~EW
br and bu shifted
E N of creek

– ~150m E uphill
no good o/c
then NS vert
cleaved med. grey
~ 150m NE
173°/65°E poor
on bedding in
pale sericitic S.S.
1423m & at least
10m more to ridge
crest

~50m E 024°/vert
fair on bedding
in S.S. & silst.
[illegible]
folds in o/c

- then seds dip
~75°W

- 1449m
@ of snow of
ridge crest.
and lin. to
@ R7-6

- E of lin NS/vert
buff weath tuffs
@ prominent
drag folds
@ vert. axes

- ~100m E of lin
1462m along high
ridge
KQ-87-57
typical of
buff fol. sera
lap. tuff?

- Scattered large terminated pyrox phenos
2 in RC sample

~7½m Wide SE/~75°NW
trending
mas. med grn
meta pl. hbl porpl
dyke cuts
fol. tuff
KQ-87-58
in lin.
- 2nd larger snow-filled
SE lin looks similar

- to get around cliffs
had to go SE
top of knob 1500m
KQ-87-59
typical of
buff fol. tuffs but poor o/c.

- ~30-50m
dark clif seds
in lin. (fault
- snow junction
EW cross fol.
bl. sed ring go acro
ridge to SE

to S of EW draw appears that black sediments might cap the f.g. pl.-hb. porph

- ~1/2-2/3 way to Brucejack Lin.
KQ-87-60 - fol. green-gry f.g. pl. hb. porph.
- camp elev. 1365m

Summary

1) Black arg., ls & grey S.S. (wacke) occur in more than one locality. Could occur under significant parts of ice fields
2) Much sericite (±chl), py alt. (± qz veins) along the Brucejack Lineament but not much evidence of base &/or precious metals. Pyritic (1-2 %) alt. (chl-serc) pl.-hb porphyry intr. in most SW o/c's may underlie pyritic & veined seds. & vol. to N & NE.
3) Dark turbidites at ⊙R7-19 don't appear to be badly faulted or folded.
4) Poor day for mineralization.