

001598

John Heslop

171.

①
Bench 3990 July 30/71

48/ -fault gouge in #6
-175°, 40° SW.

- appears to be a Zenolith of #2
caught up in the intrusive.

- fault gouge - 25°, 75° SE
- slicks pitch 10° SW.

49/ #2 $S_2 = 130°, 70° SW$

Zenolith of #2 in intrusive ??
Unit partly hornfelsed but S_2
still recognizable.

- fault gouge in #6.
- 90°, 80° S
- 20° E pitch on slicks

- fault gouge - 35°, 75° NW

②

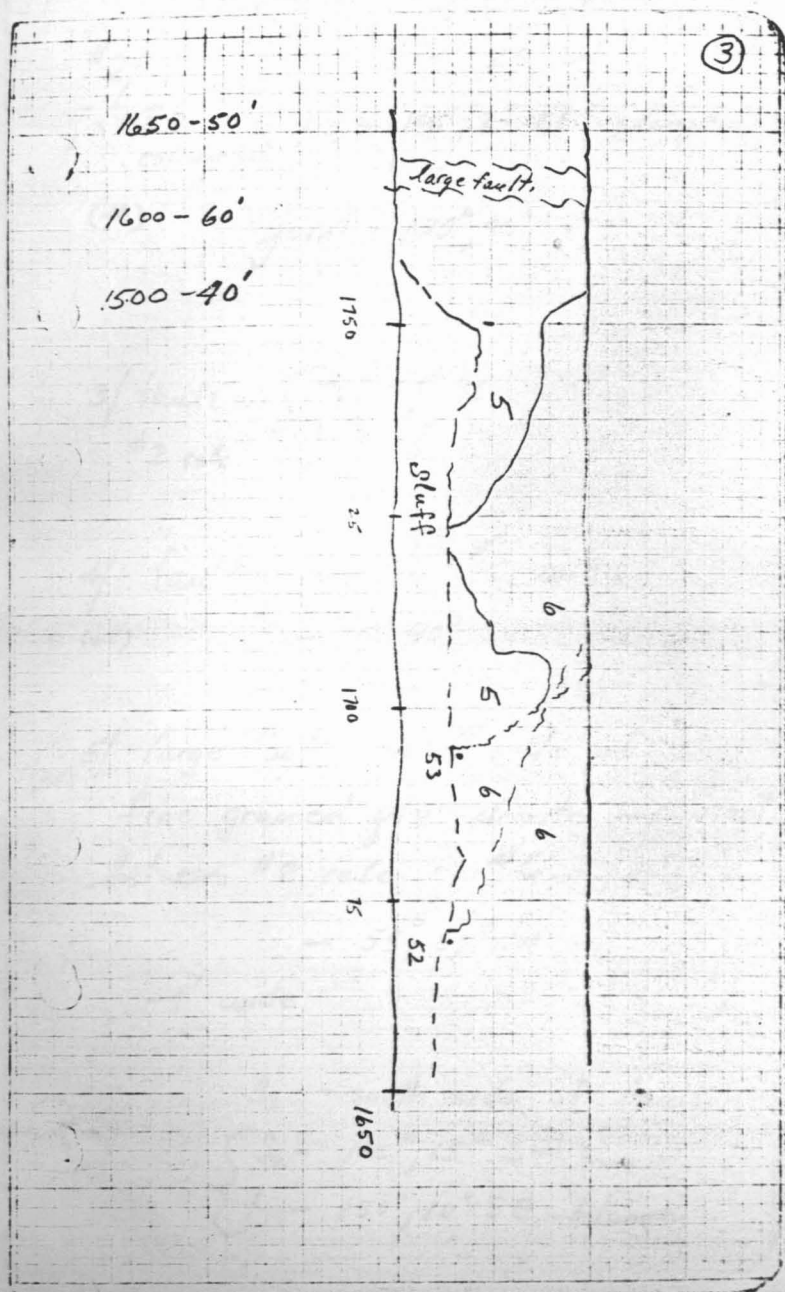
50/ fault in #6 { -130°, 75° NE
-5° pitch NW - slicks

joints in #6 { -92°, 73° S
-175°, 72° W
-135°, 13° SW

51/ fault { strikes $\approx 0°$
dip $\approx 45° W$

52/ fault in #6 { -80°, 85° SE
-30° E slicks pitch
Bottom 1665 - 1750 - appears to cut
off ore to north in intrusive

(625-635) same fault on
vertical face here 2' up above
sluff



④

53/- fault gouge in #6 - Contact between ore & #6.

{ - 165°, dip varies 70-90° NE
 { - slicks pitch 25° NW

(See P. 16)

Bench 3950 July 30/71

1/ #2 calcareous - biotite - chlorite schist

{ S₂ - 150°, 30° SW
 { L₃ - 120°, 15° NW plunge
 (25)

- cren. lin. - 175°, 10° SE plunge
 small cren. lin. found on same outcrop as L₃.

{ - fault gouge - 45°, 84° SE
 { - slicks - 20° SW pitch

- gouge filled with calcite

- joint set - 170, 75° SW

320 LX Pacific Rainproof

#2/ $\left\{ \begin{array}{l} S_2 - 138^\circ, 25^\circ \text{ SW} \\ L_3 - 140^\circ, 3^\circ \text{ SE} \end{array} \right.$ (5)
calcareous plunge

(48) joint - $175^\circ, 90^\circ$

3/ fault in $\left\{ \begin{array}{l} 75^\circ, 57^\circ \text{ SE} \\ \#2 \text{ calc.} \end{array} \right.$

4/ fault gouge in $\#2$ calc.
~ (65) - $80^\circ, 90^\circ$

(85) 5/ - large fault on S side of
fine grained gtz - diorite - contact
between $\#2$ calc + $\#6$.

- $55^\circ, 65^\circ \text{ NW}$

- 4' wide

S_2 - south side of fault

$\left\{ \begin{array}{l} S_2 - 105^\circ, 15^\circ \text{ SW} \\ L_3 - 150^\circ, 10^\circ \text{ SE} \end{array} \right.$ plunge

(6)

$\#6$ - joints - $95^\circ, 82^\circ \text{ N}$

6/ $\#2$ calc unit north of intrusive
(105) is extensively folded for 3-6'
north of intrusive.

folds $\left\{ \begin{array}{l} \text{axis} - 105^\circ, 10^\circ \text{ NW} \text{ plunge} \\ \text{plane} 105^\circ, 62^\circ \text{ NE} \end{array} \right.$

- appear to be good 110° set but
obviously due to intrusive!

7/ $\frac{1}{2}$ fold axis $\left\{ \begin{array}{l} - 105^\circ, 13^\circ \text{ SE} \text{ plunge} \\ \text{- axial plane} - 105^\circ, 64^\circ \text{ NE} \end{array} \right.$

- good S_1 's seen in $\#2$
unit rock.

- unable to get any readings.

⑦

Bench 3950 July 31/71

7/ $\left\{ \begin{array}{l} S_2 - 130^\circ, 15^\circ \text{ SW} \\ L_3 - \text{not available} \end{array} \right.$

joints - $70^\circ, 75^\circ$ NW ✓

8/ #26 $\left\{ \begin{array}{l} S_2 - 85^\circ, 33^\circ \text{ SE} \\ L_3 - \text{not available} \end{array} \right.$

biotite-
chlorite
schist.

joints - $105^\circ, 83^\circ$ NE ✓

F_1/F_2 fold axis - $\left\{ \begin{array}{l} 80^\circ, 15^\circ \text{ W plunge} \\ \text{axial plane} - 80^\circ, 35^\circ \text{ NE} \end{array} \right.$

* $L_3 - 145^\circ, 24-48^\circ$ plunge
over fold hinge

L_3 lineation continues over
fold hinge of F_1/F_2 fold.

- small fault - $85^\circ, 75^\circ$ NE

⑧

9/ #A $\left\{ \begin{array}{l} S_2 - 105^\circ, 20^\circ \text{ SW} \\ L_3 - \text{none} \\ \text{joints} \left\{ \begin{array}{l} -15^\circ, 77^\circ \text{ NW} \\ -138^\circ, 85^\circ \text{ SW} \end{array} \right. \end{array} \right.$ ✓ ✓

- fault gouge near #26/#A
contact.

$-90^\circ, 25^\circ$ S

10/ #A $\left\{ \begin{array}{l} S_2 - 125^\circ, 26^\circ \text{ SW} \\ L_3 - \text{none} - 170^\circ, 23^\circ \text{ SE plunge} \end{array} \right.$

joints $\left\{ \begin{array}{l} 30^\circ, 88^\circ \text{ NW} \\ -50^\circ, 65^\circ \text{ NW} \end{array} \right.$ ✓ ✓

large fault - $100^\circ, 52^\circ$ SW
1' wide

- plenty of gtz boudins here

9

11/ #A $\left\{ \begin{array}{l} S_2 - 100^\circ, 30^\circ \text{ SW} \\ L_3 - 155^\circ, 27^\circ \text{ SE plunge} \end{array} \right.$

Qtz boudin $\approx 135^\circ, 28^\circ \text{ SE}$
line.

joint - $45^\circ, 80^\circ \text{ NW}$ ✓

12/ #A $\begin{array}{l} S_2 - 100^\circ, 26^\circ \text{ SW} \\ L_3 - \text{none} \end{array}$

13/ fault gouge - $80^\circ, 70^\circ \text{ NW}$

$\left\{ \begin{array}{l} S_2 - 95^\circ, 18^\circ \text{ SW} \\ L_3 - 150^\circ, 18^\circ \text{ SE plunge} \end{array} \right.$

* - odd cren lin or S_1 surface

14/ - fault gouge - $90^\circ, 65^\circ \text{ S}$

joints - $25^\circ, 85^\circ \text{ NW}$ ✓

#A $\left\{ \begin{array}{l} S_2 - 112^\circ, 26^\circ \text{ SW} \\ L_3 - \text{none} \end{array} \right.$

10

14/ fault - $125^\circ, 28^\circ \text{ S}$

$\approx 6'$ above calcareous
bed.

- calcareous bed 6"
wide continues thru whole
face.

15/ $S_2 - 120^\circ, 35^\circ \text{ SW}$

- contains numerous staurolite?
porphyroblasts.

- joints $\left\{ \begin{array}{l} - 65^\circ, 70^\circ \text{ NW} \\ - 5^\circ, 78^\circ \text{ W} \end{array} \right.$ ✓ ✓

16/ - fault gouge - $90^\circ, 29^\circ \text{ S}$

- another 6" calcareous band
found above fault - right on top
of fault. Band is cut off

by fault at N end. (11)

S_2 - $120^\circ, 26^\circ$ SW
A L_3 - none found.

- Rock contains numerous porphy of staurolite??

- joints $\left\{ \begin{array}{l} 7^\circ, 80^\circ E \\ -100^\circ, 70^\circ SW \end{array} \right.$

17/ fault - $70^\circ, 53^\circ$ SE
#4 gouge

$\left\{ \begin{array}{l} S_2 - 120^\circ, 22^\circ SW \\ L_3 - none \end{array} \right.$

18/ fault gouge - $70^\circ, 90^\circ$

" " - $110^\circ, 70^\circ$ SW

slicks - 37° , NW pitch

" " - $40^\circ, 85^\circ$ SE

(12)

19/ fault gouge - $65^\circ, 70^\circ$ SE
- slicks 25° SW pitch

$\left\{ \begin{array}{l} S_2 - 138^\circ, 30^\circ SW \\ L_3 - 180^\circ, 27^\circ S \text{ plunge} \end{array} \right.$

- fault - $105^\circ, 50^\circ$ SW

20/ fault - $65^\circ, 65^\circ$ SE
#26

- slicks - none

- small folds close to
fault + may be due to faulting

fold axis - $\left\{ \begin{array}{l} 100^\circ, 52^\circ NW \text{ plunge} \\ axial plane - 100^\circ, 82^\circ SW \end{array} \right.$

- some pink andalusite
found in gouge zone

(13)

21/ #26 $S_2 - 115^\circ, 30^\circ SW$
 $L_3 - \text{not available}$

- Rock contains numerous
 porphs of staurolite.



found on S_2 surfaces.

22/- $\left\{ \begin{array}{l} S_2 - 75^\circ, 10^\circ SE \\ L_3 - \text{none} \end{array} \right.$

- possible slump block.
 - fault gouge $-90^\circ, 90^\circ$

23/ " " $105^\circ, 75^\circ NE$

#1

(14)

24/ fault $-115^\circ, 38^\circ NE$
 good #26

" $-100^\circ, 60^\circ SW$

25/ fault $-90^\circ, 48^\circ N$
 #26

" $-135^\circ, 47^\circ NE$

F_2/F_9 - axis $\left\{ \begin{array}{l} -110^\circ, 9^\circ NW \text{ plunge} \\ \text{plane } -110^\circ, \approx 62^\circ NE \end{array} \right.$

- very small folds.

26/ fault $-100^\circ, 20^\circ SW$
 #26

" $-100^\circ, 60^\circ SW$

sticks $-24^\circ SE$ pitch

#26/ fault in - 120°, 88° SW. (15)
#26.

27/#26. Numerous small folds in
#26 rock

(850) axis - { 100°, 35° NW plunge
plane - { 100°, 75° SW

- cren. lineation developed ||
fold axis.

(16)

Bench 3990

Aug 2/71

54/ Qtzite

S₂ - 118°, 48° SW

|| comp'n banding

L₃ - not available

S₂ - 119°, 59° SW
S₂ - 122°, 52° SW
S₂ - 120°, 52° SW

S₂ - 112°, 30° SW

S₂ - 145°, 27° SW

S₂ - 190°, 0-5° W

S₂ - 109°, 72° NE

S₂ - 103°, 90°

S₂ - 112°, 55° SW

joints { -155°, 85° SW ✓
 -20°, 90° ✓

55/ #1

S₂ - 115°, 58° SW

L₃ - 155°, 34° SE plunge

L₄ - 110°, 4° NW "

L₄ - cut & contorted by L₃

- joints - 0°, 90° ✓

56/ #1

S₂ - 110°, 61° SW

L₃ - N.F.G.

L₄ - 110°, 0° plunge

fault - ≈ 140°, 55-60° SW

sticks - 20° NW pitch ref.

(17)
56/ fault gouge - $90^{\circ}, 65^{\circ} S$

" " - $90^{\circ}, 65^{\circ} S$
" " - $115^{\circ}, 60^{\circ} NE$

57/

define fold
axis !!
-anticline-

S_2

- $110^{\circ}, 67^{\circ} SW$

- $108^{\circ}, 53^{\circ} SW$

- $115^{\circ}, 48^{\circ} SW$

- $120^{\circ}, 35^{\circ} SW$

- $155^{\circ}, 22^{\circ} SW$

- $175^{\circ}, 5^{\circ} W$

- $94^{\circ}, 23^{\circ} N$

- $85^{\circ}, 45^{\circ} N$

- $135^{\circ}, 63^{\circ} SW$

- $135^{\circ}, 60^{\circ} SW$

L1 - $100^{\circ}, 0-5^{\circ} W$ plunge

parasitic fold
axis! - on S side
axial plane - $95^{\circ}, 80^{\circ} S$ plunge of larger anticline

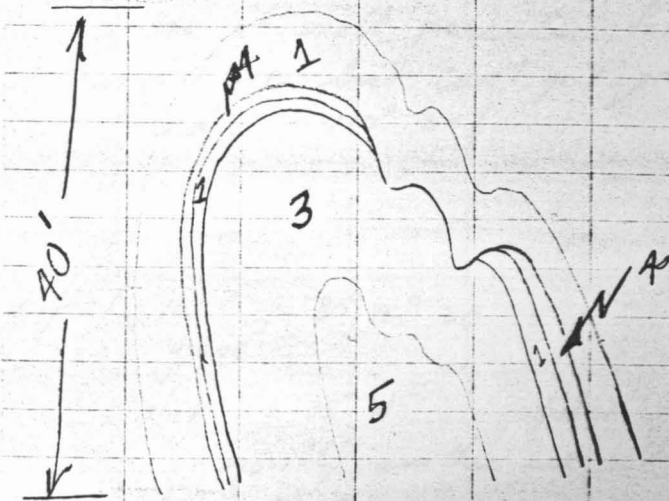
large fold of tite core, with
#4 next to #1. Also ore in
core

(18)

- parasitic fold on NE limb of
main fold -

- axis $\left\{ \begin{array}{l} -85^{\circ}, 40^{\circ} E \text{ plunge} \\ \text{axial plane} \left\{ \begin{array}{l} -75^{\circ}, 80-85^{\circ} SE \end{array} \right. \end{array} \right.$

- different from main fold
data. - "may be erroneous"



fault gouge -

19) Bench 3990 August 4/71

58/ Qtz boudin line in S_2

$\approx 125^\circ, 10^\circ \text{NW}$

- small scale folds in S_2

fold axis = $\{ 110^\circ, 6^\circ \text{ plunge SE.}$

axial plane $\{ 110^\circ, 80^\circ \text{ NE.}$

$S_2 - 120^\circ, 68^\circ \text{ SW}$

- Cren lin. \parallel axial plane of
small 110° fold set ie L_4

fault gouge - $130^\circ, 55^\circ \text{ NE}$

$\{$ - synclinal axis $\approx 850'$

$\{$ - anticlinal axis $\approx 835'$

59/ F_2/F_4 folds $\{ 110^\circ, 20^\circ \text{ NW - axis}$
 $\{ 110^\circ, \approx 90^\circ - \text{plane}$

- parasitic folds on larger
anticline. (835)

20)

on S. side of anticline $\{ S_2 - 130^\circ, 48^\circ \text{ SW}$
 $\{ L_4 - 90^\circ, 40^\circ \text{ W plunge}$

60/ S. side of anticline $\{ S_2 - 110^\circ, 50^\circ \text{ SW}$
 $\{ L_4 - 118^\circ, 25^\circ \text{ SE plunge}$

- no. of small parasitic folds
found here but can't get good
trend. - 110° set.

61/ fault gouge - $80^\circ, 75^\circ \text{ SE}$

slicks = 35° W pitch

- possibly another set (older)

pitch 15° NE.

N of fault $\{ S_2 - 100^\circ, 46^\circ \text{ SW}$
 $\{ L_4 - 125^\circ, 30^\circ \text{ SE plunge}$

67

S of fault - S_2 115°, 60° SW

(21)

- small folds located here

together { fault gouge - 130°, 75° SW

} fault gouge - 109°, 73° SW

younger - 0° pitch p.o.f.

older \approx 15° SE pitch p.o.f.

- small chevron folds next to fault.

axis { -100-105°, 10° SE plunge

plane { -150°, 5-10° NE

- possibly due to faulting or rotated due to "

- andalusite in gtz in #1

(22)

63/#1 { - fold axis - 110°, 20° NW plunge
- axial plane - 110°, 65° SW
- L_4 lin || fold axis

fault gouge - 65°, 65° SE (-

Small fold ??? $F_2/F_3?$ axis { -55-60°, 35° SW plunge
plane { -165°, 30-35° SWfolded S_1, S_2 ??define { - 61°, 66° SE
fold { - 60°, 75° SE
axis! { - 148°, 34° SW
- 10°, 26° NW

foliation || axial plane

125°, 23° SW

10 LX Pacific Rampart

(23)

Bench 3990

(100')

(fault - $70^{\circ}, 68^{\circ}NW$

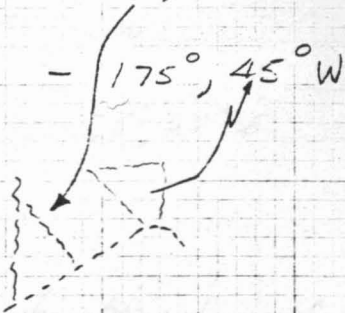
" - $85^{\circ}, 86^{\circ}SE$ - large

(fault gtz filled

" - $90^{\circ}, 68^{\circ}N$

(fault - $95^{\circ}, 50^{\circ}SW$

" - $175^{\circ}, 45^{\circ}W$



{ - cren lineation || fold axis -
 { - intersection of S_2 + folded surface.

(24)

(64/ fault gouge - $160^{\circ}, 60^{\circ}SW$
slicks - $78^{\circ}NW$ pitch

(S_1 contact = \rightarrow

{ S_2 - $103^{\circ}, 48^{\circ}SW$

{ L_4 - $135^{\circ}, 23^{\circ}SE$ plunge

(65/ S_2 - $82^{\circ}, 44^{\circ}N$

(fault - $155^{\circ}, 42^{\circ}SW$

F_4 - axis - $119^{\circ}, 5^{\circ}SE$ plunge

plane - $114^{\circ}, 75^{\circ}SW$

weak cren foliation || to axial plane.

(S_1 ?? (collect specimen)

- joint or fault $175^{\circ}, 85^{\circ}W$

(25)

Bench 3950 Aug 4/71

28/ fault - 100°, 90°

(630) $\left\{ \begin{array}{l} S_2 - 95^\circ, 40^\circ S \text{ (Avg)} \\ L_2 - 155^\circ, 36^\circ \text{ SE plunge} \\ F_A \text{ axis} - 105^\circ, 20^\circ \text{ SE plunge} \\ \text{axial plane} - 105^\circ, 90^\circ \end{array} \right.$

fault - 94°, 82° N

- numerous folds 110° set.

- LA lin || fold axis
- SA - 100°, 85° SW

(650) fault gouge - 75°, 45° SE

29/ #1/4*

(660)

- large fault w/ graphitic schist in fault.

- 120°, 25-30° SW

- possible thrust

20 LX Pacific Rainproof

(26)

$S_2 = 125^\circ, 35-45^\circ \text{ SW}$

- fault - 85°, 89° SE

F_A { - fold axis 107, 19° NW plunge

- axial plane 107, 90°

- cren lin || fold axis

* note - folds are doubly plunging
& can die out east or west.

30/ #5 $S_2 - 120^\circ, 36^\circ \text{ SW}$

in sulphides.

#1 - $S_2 - 100^\circ, 40^\circ \text{ SW}$

fault gouge - 100°, 72° SW

" " - 125°, 65° SW

31/ - large - 80°, 75° SE

fault gouge

#1

- gtz assoc w/ fault.

(712)

- slicks - 47° SW pitch prof.

(27)

32/ fault gouge -55°, 80° SE -

" " -70°, 60° SE -

- small 110° folds

S_2 - 140°, 30° SW

F_4 - folds axis $\approx 112^\circ, 35^\circ$ NW plunge
axial plane $\approx 112^\circ, 90^\circ$

cren. lin. || fold axis

33/ fault gouge - 135°, 40° SW -

- 70°, 85° SE -

- 115°, 86° NE -

(28)

Station

Bench: 3950

Date: 21 Aug

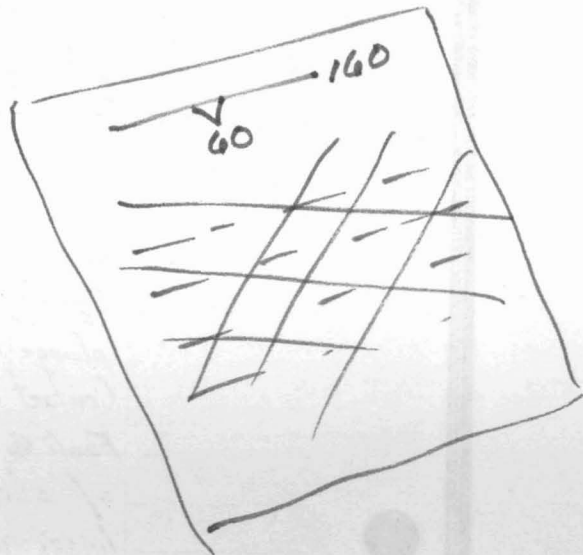
34) RT-3 in conformable contact w/ RT-1
& in fault contact w/ RT-1

(Anticline to SW??)



1g. folds internal to granite unit possibly F_2 i.e. folds in S_1 w/ S_2 axial planes. Axis trend 130° plunge 40° SE. Axial plane $\Sigma 107^\circ \Delta 55^\circ$ NW. Contact of 1g's $\Sigma 115^\circ \Delta 42^\circ$ SW. Fault @ N end of oop $\Sigma 92^\circ \Delta 84^\circ$ N w/ slicks pitching 5-10° E. Corelation lineation || fold axis. Wk. to read developed S_4 meta. fol. || axial plane. Fault at N end of oop equiv. to that 300' north of addition 2 wall of pit. Unit contact offsets \Rightarrow normal movement on this fault and one @ station 35. Jts ① 157°, 68° SW ② 43°, 70° NW

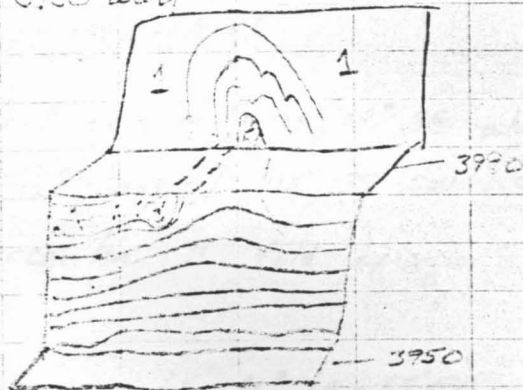
35) RT-1 & 5: Musc. schist in fault contact w/ mass. sulfides



(29)

- Fault Σ 103, Δ 60SW Three sets
of slickensides pitching ① 25°NW
② 35SW ③ 75°NW in plane of fault
Set ③ cuts ① & ② giving dominantly
dip slip movement along fault during
last stage of movement

30) RT-C: Banding Σ 160, 165 Δ 20°NE
Anticline on 3990 seen to generate
progressively upward from middle of
3950 wall



- Faults: ① 0°, 80°W slicks 23°SE, 2°NW
pitching set latest
② 155, 85SW slicks 5°NW

(30)

37) RT-3/5 Syncline of 3 folded into S
F₄ axis 103, 5°SE Axial plane
 Σ 103 Δ 80°SW Banding in
slickens Σ 145 Δ 22°NE

Bench 3910 August 5/71

1/1 #1 Small antinodal hinge in
#1 unit.

define fold axis!

{	S_2	- 165°, 45° SW
		- 160°, 45° SW
		- 35°, 50° NW
		- 15°, 33° NW

L₄ - 115°, 40° NW // fold
plunge axis.

- fault gouge - 105°, 65° NW

F₄ - fold axis - { 120°, 13° NW plunge
axial plane - { 120°, 73° NW

③ 2) #1 F_4 fold axis $\left\{ \begin{array}{l} -105^\circ, 7^\circ \text{ SW, plunge} \\ \text{axial plane} \end{array} \right. -105^\circ, 90^\circ$

- extensively folded unit #1

- numerous small parasitic folds on S limb of larger anticline!

- fault gouge $-100^\circ, 13^\circ \text{ SW}$

3) #1 musc. schist

F_4 fold axis $- \left\{ \begin{array}{l} 115^\circ, 19^\circ \text{ SE plunge} \\ \text{axial plane} \end{array} \right. - \left\{ \begin{array}{l} 115^\circ, 70^\circ \text{ SW} \\ \text{cren. lin. || fold axis.} \end{array} \right.$

faults $- 65^\circ, 95^\circ \text{ SE} - 85^\circ \text{ NW.}$

$- 80^\circ, 90^\circ$

$- 90^\circ, 90^\circ$

65, \perp

- larger $-45^\circ, 88^\circ \text{ SE}$
fault in #1, #3.

- good graphitic schist in fault gouge
 $\approx 1'$ thick.

4) #3 S_2 $\left\{ \begin{array}{l} -105^\circ, 30^\circ \text{ SW} \\ \text{define} \\ \text{fold} \\ \text{axis?} \end{array} \right. - \left\{ \begin{array}{l} -138^\circ, 37^\circ \text{ SW} \\ -140^\circ, 32^\circ \text{ SW} \\ \text{all } S_2 \text{'s from S} \\ \text{limb of large anticline} \end{array} \right.$

Banding in sulphides conformable to S_2 in quartzite.

Good well-banded quartzite.

joints in ore $-50^\circ, 73^\circ \text{ NW}$
 $-10^\circ, 80^\circ \text{ SE}$ - possible fault.

- ore folded slightly - gentle parasitic folds - not as well developed as in #1 unit.

(35)

10/ 420' Banding in
massive sulphides

115°, 27° SW
