

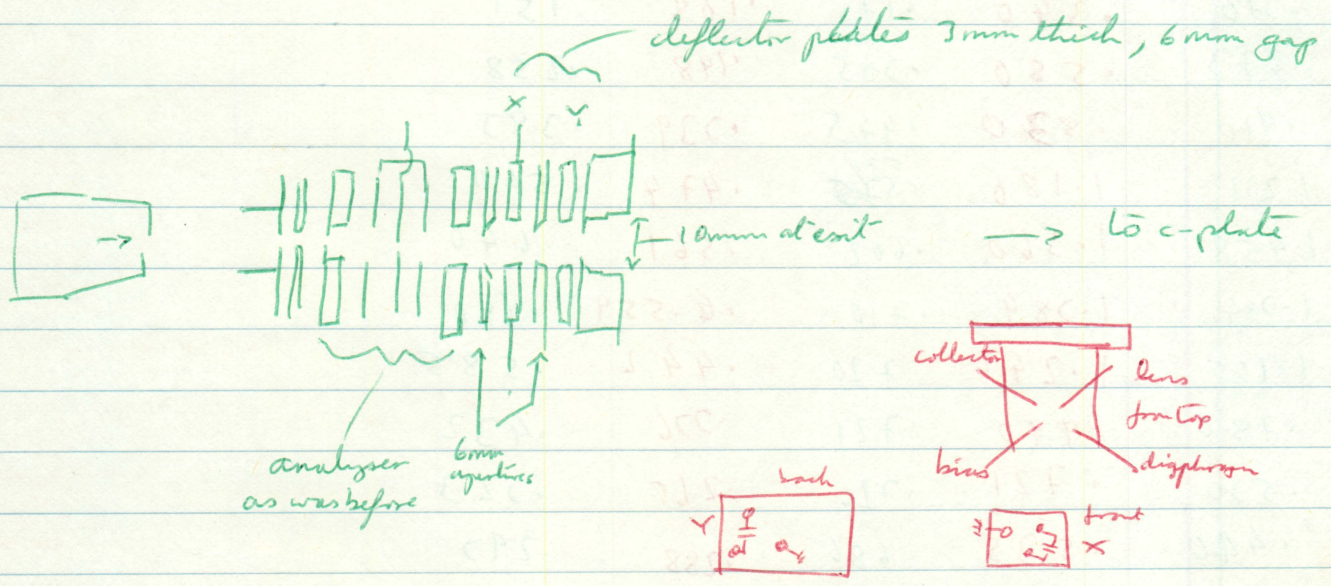
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DEPT OF METALLURGY & MATER SCI

UNIV OF CAMBRIDGE

27/2/81

Retarding analyser reassembled with larger apertures & deflector plates :-



ph blind

657 Harrys magnetite  $ph \times > \sim 10.0kV$  type labelled wrong, should be 250

a 9.96 + 1.8 vac  $260/580$  where  $\uparrow 1k$  - ? dislocated constants

b same place, contd.  $\rightarrow 250/580$  3k

more  $\begin{pmatrix} 25 \\ 25 \end{pmatrix}$

658 a 10.1 + 1.9 a 250/580 vac 4k

10.2 1 2.0

b 10.25 + 2.0 255/580 vac same place, contd. 5k

10.30 - 2.0

$ph \times >$  where  $\uparrow$

more  $ph \times >$  dark area LHS -

659 260/580  $10^4 + 2$  vac  $\sim 600$  vac - flushed

$$\frac{6.78}{7.46} = 0.908$$

$I_{in} = 7.59 / 35 \mu A$   
 $I_c = 20 \mu A$   
 $V_{ce} = 7.46$  } similar  
 $V_{ce} = 6.78 kV$  } meter  
 $6.58$

max at -2v  
6.68

	6.58	6.40	6.90	6.68
48	.035	.040	.038	.04
40	.042	.040	.040	.04
30	.104	.087	.059	.051
20	.270	.340	.175	.151
15	.673	.580	.365	.198
10	.970	.830	.445	.393
5	1.239	1.186	<del>1.575</del> <sup>1.575</sup>	.474
0	1.458	1.360	.602	.561
-5	1.744	1.789	.710	.559
10	1.805	1.244	.720	.442
15	.780	.990	.721	.376
20	.530	.721	.726	.265
25	.440	.535	.686	.288
30	.470	.430	.685	.266
35	.493			.269
40	.467	.464	.505	.280
50	.436	.56	.420	.242
60	.408	.520	.43	.21
70	.38	.48	.41	.20
80	.38	.47	.44	.19
90	.365	.46	.44	.19
100	.37	.44	.45	.195
125	.38	.42	.43	.195
150	.396	.41	.37	.198
175	.39	.39	.36	.21
200	.38	.38	.34	.21

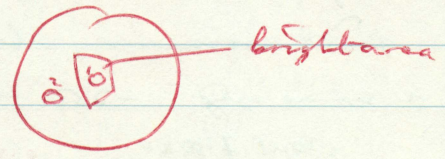
Fiducial displacement 7.18 v<sub>0</sub> guide ~ 5mm spot 2  
 more guide cross-over, loss of signal  
 spot ~ same size -250 - +20

50	.036		
40	.076		
30	.085	.044	.068
20	.307	.188	.194
15	.510	.439	.301
10	.785	.742	.476
5	1.016	1.101	.596
0	1.196	1.40	.800
5	1.284	1.506	1.086
10	1.199	1.401	1.235
15	1.050	1.217	1.225
20	.850	.975	1.113
25	.765	.79	.985
30	.610	.65	.83
40	.433	.535	.57
50	.395	.49	.38
60	.360	.49	.26
70	.366	.49	.22
80	.38	.52	.20
90	.395	.52	.22
100	.39	.51	.21
125	.38	.52	.23
150	.38	.50	.24
175	.36	.49	.24
200	.36	.48	.25
225	.35		.24
280	.35		.24

$$\sqrt{\frac{20 \mu A \cdot 7.50 \text{ kV}}{(15 \mu A) V_B}} = 7.10 \text{ kV} \Rightarrow \frac{8.5 \text{ kV}}{80 \mu A / 40 \mu A} = 8.06$$

Newly H's multistage 17.41 + 7.75 480/530 vac T 660 211K

more  $\mu h \times 3$  where  $\uparrow$  1  
 $\mu h \times 3$  2

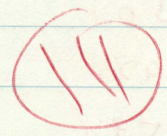


661 20 + 7.75 vac 480/530 v slow compared to  $\uparrow$  2ch3

$\mu h \times 3 \sim 20KV$

empt - pop to 24KV

- layer structure  
 $\mu h \times 3$

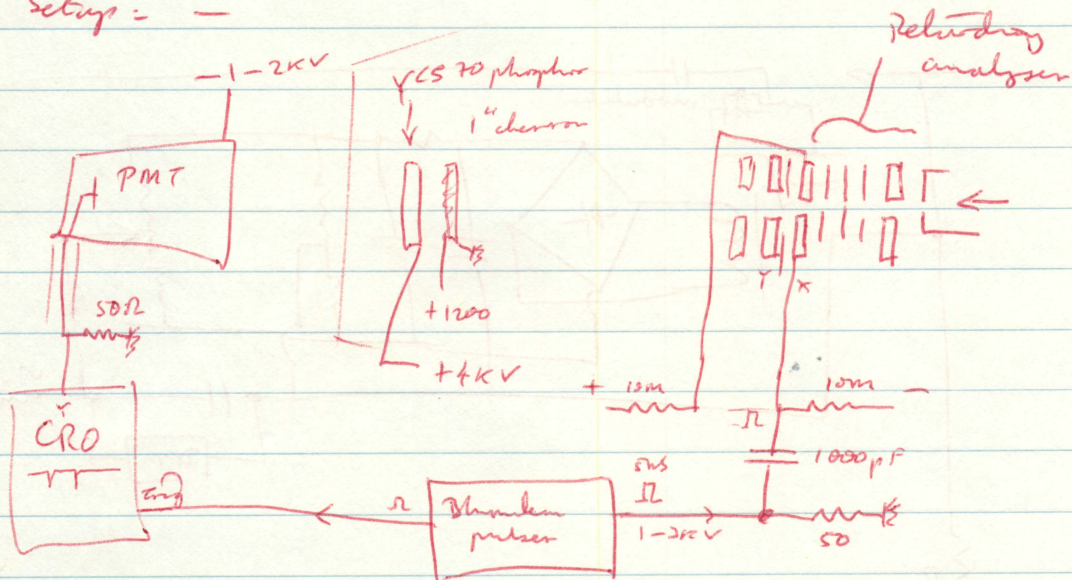


extract

2 Mar

Set up PMT (ex ALP) to see if can get any sense from time-gating output from retarding analyser

Setup: -



Get signal on scope showing  $Au^{++}$ ,  $Au^+$  clearly

- quite noisy, could do with longer sweep time

- length of peaks  $\sim 50ns$

As vary retarding volts, tend to lose  $Au^+$  first as

$V_{ret} \rightarrow$  very negative - ? why.

Appearance of  $Au^{++}$  starts at  $\sim 0v$ , lots of  $Au^{++}$  by  $-10v$

Difficult to get defocused spot off screen - need

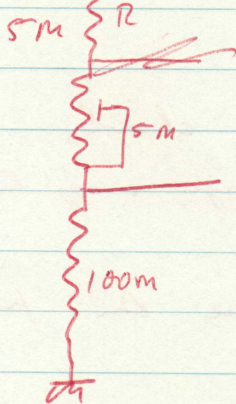
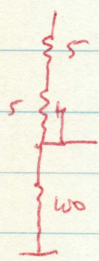
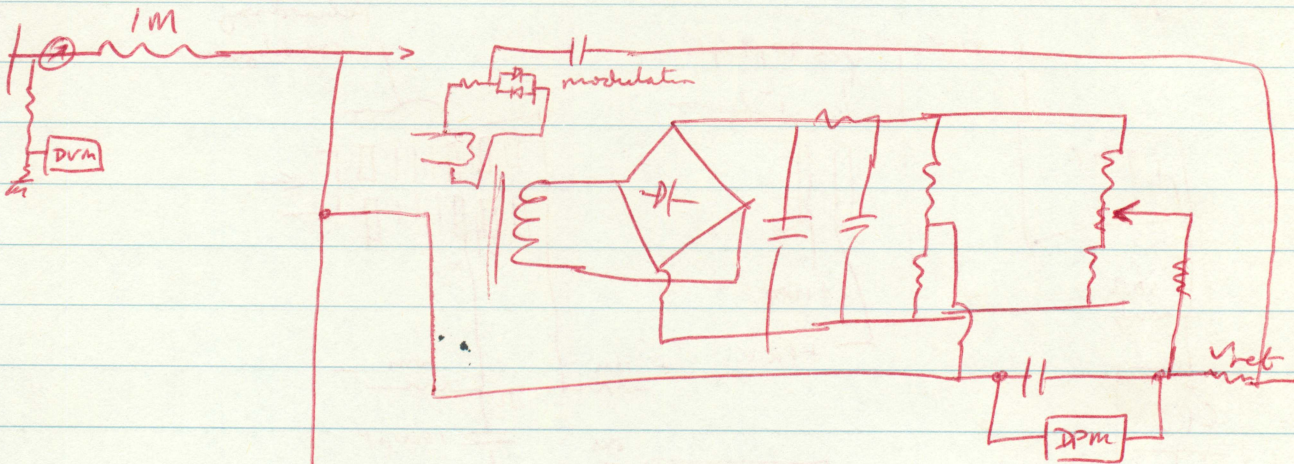
small aperture, preferably moveable: quite a lot

of background (? scattered  $e^-$  - vac  $\sim 2 \cdot 10^{-2}$  at start, source off)

Ques

Estimate  $V_{bias} \approx 0.9 - 0.95$  of  $V_{top}$

Top EHT



$$R = \frac{5}{10} \Rightarrow 0.95$$

$$\times 10 = \begin{matrix} 50M \\ 50M \\ 10M \end{matrix}$$

$$I_{ch} = \frac{6000}{10^9} = 6 \mu A \text{ typically}$$

$$\frac{100 + R}{R + 100} = 0.9 \quad R = \frac{10}{0.9} = 11.1$$

$$\frac{100 + 5R}{100 + R + 5} = 0.95 \quad R = \frac{105 - 92.75}{0.95} = 5.83$$

$$\frac{100 + R + 5}{100 + R} = \frac{0.9}{0.95}$$

$$99.75 + 0.95R = 90 + 0.9R$$

$$0.05R = 9.75$$

Wed

Experimenting with various sweep arrangements  
- eg  $\square$  sweeps from off original 200 ms  
- not enough amplitude.

Blunder in pulser works OK, but is too fast  $\Rightarrow$  v noisy signal.

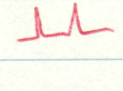
Eventually try 70  $\mu$ s thyristor pulser, 22 kV works well.

Thurs 70  $\mu$ s pulser

- settings :- c plate +1 kV
  - screen +4 kV
  - pulser +2 kV
  - deflection  $\pm$
  - $\pm$
  - PMT -1.5 kV
- } forget spot off screen

Tip 7.68 kV

low  $\approx 40 \mu$ A (inc 7  $\mu$ A resistor chain)  
 $i_c \approx 20 \mu$ A

1 scope 1  $\mu$ s/cm, 50 mV/cm (50  $\Omega$  load on PMT) Inverted 

f 7.5 | +20, 10, 5, 0, -5, -5, -10, -15, 20, -25, -30, -40, -50, -60, -70, -80, -90, -100

$\times 10$   $\times 1$

blunk

-125, -150, -175, -200, -250, -300, -350

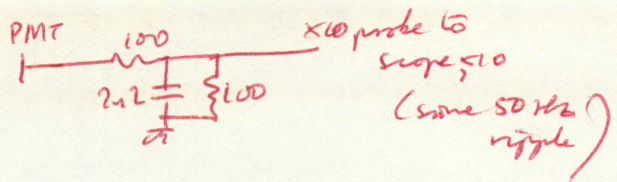
$\times 10$  2  $\mu$ s/cm, 1/2 sec f 7.5 more down about

+20, 10, 50; 0, -5, -10, -15, -20, -25, -30, 40, 50, 60, 70, 80

Multiph 2

-90, -100, -125, -150, -175, -200, -250, -300, -350





30 multigrid

20 select, 20, 10? blank 10 5 0 -5 -10 -15 -20 -25 -30

-> 0 multigrid, 1/5 sec

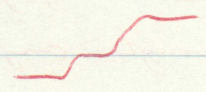
-20

-10

200, 10, 20

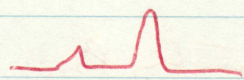
Blank

↑ all rubbish as deflection not on



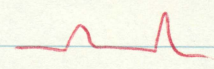
20 10 5 0 -5 -10 -15 -20 -25 -30

Amplifier 3



-40, -50, -75, -100, -125, -150, -175, -200, -250, -300, -350

Blank



5

1

7-1) March developing new ion sources, local built,  
& determining suitable alloy materials.

In particular, Al + Cr, enticed mgt v low, ~ 13% Al

Al + Cr } ~ mgt ~ 300-400  
Al + Si }

Al/Sn also low-mgt alloys,  
& Bi also

Expt: - put Al into low mgt alloys - ? temperature-dependent  
of  $Al_n^+$  cluster ions.

Expect  $Al_n$  as hi-temperature species - provided that  
there is a condensed phase present.

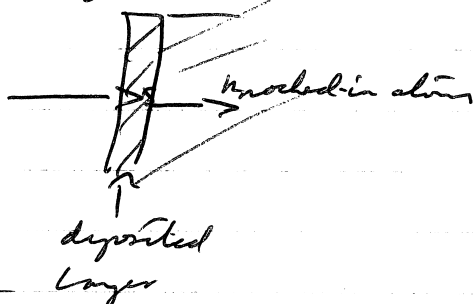
∴ Expect  $Al_n$   $\propto \frac{N_0}{T}$  if vapour/liquid interaction.  
If collisions in vapour,  $N_0 \propto \frac{1}{T}$ , presumably

Observed  $Al_n^+$  etc abundances suggest high temperature  
as generally (I think)  $\ll 1\%$  in mass-spect observations.

Also, NB very high Al-Cr, Al-Si bond energy  
- ? preferred guides from enthalpies?

Tues 24 March - Hans Norder visiting (on way to Manchester e-m conference)

- suggested that implantation of eg Au into metal might be interesting at low doses, where negligible chance of knock-on events, since most other data at high doses, where secondary effects important



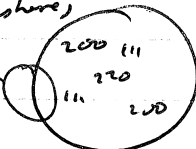
Also channelling possible, less critical angles than at higher energies.

Also interested in deposition of B in g-bcs on annealing, apparently not known if in thin film or discrete ppt's.

Also ? deposition of B, C on dislocations in boundaries, need to look at by in en to see pos of dislocations.

Test spectrum from GMS's T<sub>c</sub> C/7c - ph x 2 ~ 12 kV

✓ large carbide washers, deposited out



ph x 2 after prep ~ 13 kV

662 Spectrum from matrix

300/500 / vac ~ 70 K 12.15 ± 2.5

- electronic drifts  
? diff lead in amp.

8 kV - 12.76 ± 2.6

ph x 1 where ↑ 12.56 kV

plm ph

ph x 2

expt

ph x 2 ~ 15 kV pretty, no ph's

flushed

2.6 Manual  
 (top, ic V<sub>L</sub>  
 Vret

An source

	cp 700	600	700	700
48	.04	.11	.05	.04
50	.05	.20	.07	.04
60	.14	.42	.13	.07
70	.415	.75	.22	.24
85	.661	.91	.26	.41
100	.76	1.00	.29	.60
150	.88	1.02	.30	.73
200	.90	.97	.28	.81
250	.82	.88	.25	.75
300	.69	.74	.21	.61
350	.55	.62	.18	.48
400	.43	.52	.16	.35
450	.34	.42	.13	.29
500	.29	.36	.11	.28
550	.27	.28	.09	.29
600	.27	.25	.08	.31
650	.29	.24	.08	.32
700	.30	.23	.08	.31
750	.31	.22	.08	.31
800	.32	.23	.08	.31
850	.32	.23	.08	.31
900	.32	.23	.08	.31
950	.32	.23	.08	.31
1000	.32	.23	.08	.31
1050	.32	.23	.08	.31
1100	.32	.23	.08	.31
1150	.32	.23	.08	.31
1200	.32	.23	.08	.31
1250	.32	.23	.08	.31
1300	.32	.23	.08	.31
1350	.32	.23	.08	.31
1400	.32	.23	.08	.31
1450	.32	.23	.08	.31
1500	.32	.23	.08	.31
1550	.32	.23	.08	.31
1600	.32	.23	.08	.31
1650	.32	.23	.08	.31
1700	.32	.23	.08	.31
1750	.32	.23	.08	.31
1800	.32	.23	.08	.31
1850	.32	.23	.08	.31
1900	.32	.23	.08	.31
1950	.32	.23	.08	.31
2000	.32	.23	.08	.31

The residual voltage here depends on the heater current - however the heater & tip are connected correctly! also residue & posn of ~~change~~ minimum depend on tip current, Don't understand. Also note that the analyzer & signetting somewhere & all currents measured above a certain voltage (c - 50) are too low. ? curves shown.

7.62kV	7.99	7.57
75 μA	120	100
20 μA	40	15

← I<sub>t</sub> increasing, apparently something breaking down in the divider chain or H<sub>1</sub> insulating transformer for the returning volts.

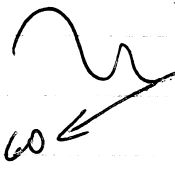
Ar

27 Mar

50	.07	<del>.16</del>	.16	.04	.02	.08	.09	.42	.52
40	.07	.25	.27	.04	.04	.16	.16	.52	.64
30	.27	.09	.52	.09	.05	.22	.26	.68	.8
25	.41	.46	.68	.16		.46	.44	.76	
20	.60	.57	.86	.20	.15	.55	.64	.80	.8
15	.81	.57	1.00	.47	.29	.65	.79	.82	
10	1.00	.55	1.10	.66	.56	.80	.92	.81	
5	1.06	.65	1.12	.82	.77	.89	.98	.80	
3	1.14		1.11	.85	.84	.89	.98	.80	
0	1.16	.62	1.07	.90	.92	.89	.96	.77	
-3	1.12		1.01	.88	.97	.85	.91	.86	
-5	1.06	.56	.97	.85	.95	.82	.87		
-10	.90	.48	.85	.72	.80	.72	.78		
-15	.76	<del>.42</del>	.72	.61	.65	.61	.66		
20	.64	.27	.62	.46	.44	.52	.55		
25	.52	.22	.57	.29	.40	.42	.48		
30	.44	.28	.47	.25	.26	.28	.42		
40	.26	.22	.28	.22	.26	.22	.26		
50	.22	.14	.22	.21	.2	.22	.25		
60	.22		.21	.21		.20	.25		
70	.22	.17	.29	.22		.20	.26		
80			.27						
90	.22	.16	.27	.26					
100	.22		.26						
125									
150	.26								
175									
200	.28		.21						

$i_c$ 20 $\mu A$ - 20 $\mu A$	40-50	50	20	10	30	40	60
$i_c$ 40 $\mu A$	80-90	90	40	20	70	90	150
V <sub>CE</sub> 7-68		8.2	7.53	7.42		8.01	20 $\mu A$ V
700	650	700	700	700	700	700	

20  $\mu A$  bias



0 40/100  
 10 104  
 19 104  
 15 107  
 82 115  
 84 124  
 84 166  
 83 172  
 78 10-68  
 72 168  
 64 176  
 58 186  
 46 100

5  $\mu$ A

at 210  $\mu$ A

the low-energy tail gets bigger approximately 10



- seems to be an artifact due to 50 Hz modulation of beam (gets less if turn heater transformer off, for example) - ? 50 Hz filter on beam, interaction with apertures (or even e-plate, fresh area hit by beam?) - don't know.

- moral, don't use 50 Hz modulators.

CS

60  $\mu$ A ic,  
 probably  $\sim$  100  $\mu$ A ic,  
 (beam getting broader)

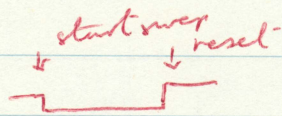
5  $\mu$ A

leakage in  
 isolation transformer, mostly  
 gets bigger as to heatings.

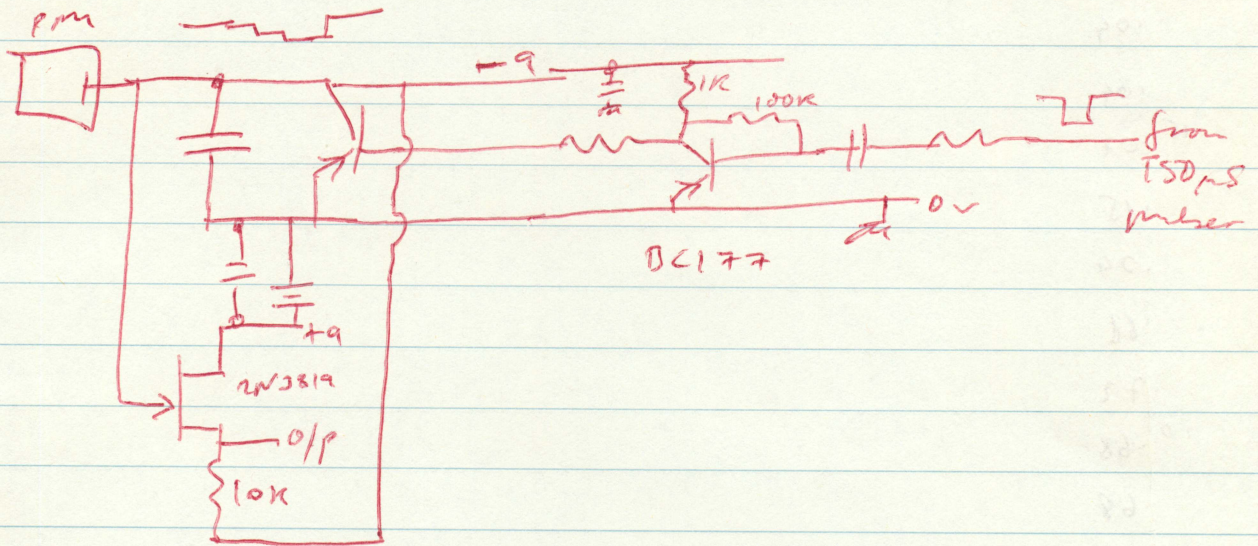
2

Mon 20 March 81

An Source



Reliability analysis, looking for appearance potential of An++ An+



Film control  
Blind x 2

-750 +4 single shot 1µs/m 20µA<sub>i</sub> 7.46KV  
 (0v) -2 -4 -6 -8 -10 -12 -14 -16 -18 -20 0v 2v 4v  
 -20, -30 multiple p-m volts -1.1KV -1.4KV ↓  
 -20-15-10-8 restored by hand etc. add some filter, shot to shot.

Multip 2

-8 -6 -4 -2 0 2 4 6 8 10 " " " 1.5µm

blind 40µA<sub>i</sub> 290i<sub>2</sub>

+20 15 10 8 6 4 2 0 -2 -4 -6 -8 -10

blind

-12 -14 -16 -18 -20 -25 -30 -40 -50

blind 10µA<sub>i</sub> 25i<sub>2</sub>

10 6 4 2 0

Multip 23

2 0 -2 -4 -6 -8 -10 -12 -14 -16 -18 -20 -25 -30

blind 10µA<sub>i</sub> 25i<sub>2</sub>

all at 0.5V/cm

5µA<sub>i</sub>

5 3 0 -2 -4 -6 -8 -10 -12 -14 -16 -18 (some stopping) (0.05 x 10) parallel

blind

3µA

+1 -1 -3 -5 -7 -9 -11 -13 -15 -17 -19

Multip 4

50, A 2

20 15 10 7 5 3 0 blank  
2 4 6 8 10 12 14 16 18 20 25 30 40 50 100 150 200

blank

Alloy source from Culham Ge 7.9% Au 58.01 Pt 31.4 32.6  
~ 700°C mpt, 2.9A heater  
Derek saw no B; only Au + Ge + Pt

Collenbury

Euster

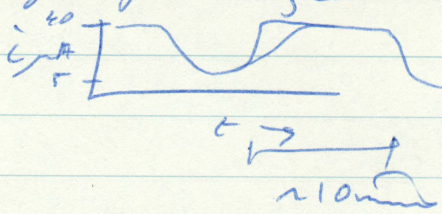
Holmes



27/4/01 Ge/Ar IPE/B source

— seems to give fluctuating current

~ 5.5 kV



? wetting, dendrites or something.

5.88 kV,  $i_c \approx 45 \mu A$   $i_p \approx 50 \mu A$

$P \approx 1 \times 10^{-6}$  (on  $2 \times 10^{-7}$  Coff)

Def average

5  $\mu s / \mu m$  x)

2  $\mu s / \mu m$  x)

in in

2  $\mu s / \mu m$  x)

5  $\mu s / \mu m$  x)

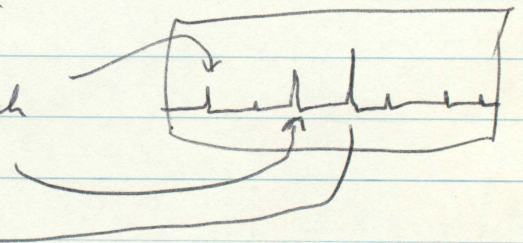
u ~

100  $\mu s / \mu m$  x) 1st. main peak

x) 2nd

x) 3rd

} lots of peaks.



T667 scan,  $i_c 30 \mu A$  5.66 kV  $i_p 25 \mu A$

bent tube low rate

at 140c late pin x3 of blue box mass spectrom.

15k x)

u x)

— 19k total

T664 as above, 32  $\mu A$ , 5.66 kV, no scan.

look at minor peaks

665 ~ 4

u

u

u

u

, gate for just heavier than

$Au^+ 5k$

& just shorter than ++

~ 4k

666 ~, centre on  $Ge^+$  I think ~ 5k

& ~ k looking for B

8 CVG

29 April 81 Au CeFD again

667 scan  $10 \mu A$   $5.49 kV$   $0-40 \mu s$   
 $-11 \mu A$

668 no scan  $5 \mu A$   $5.70 kV$   $0-40$   $60$  current

bug for  $2 \mu A$  - source stopping, keeps stopping

669 no scan  $20 \mu A$   $5.64 kV$   $4k$   
 $-20-30 \mu A$  at end

670  $5.45$   $4 \mu A$  no scan  $2k$   $2 \times 10^{-7}$  normally  
 $-6 \mu A$

671  $5.68$   $40 \mu A$  no scan  $10k$

672  $5.75$   $5 \mu A$  no scan  $10k$

673  $5.80$   $60 \mu A$  no scan  $10k$   $5 \times 10^{-7}$  u  
 $\rightarrow 4.2 \times 10^{-7}$  at end  
 $\rightarrow 2 \times 10^{-7}$  at  $20 \mu A$

674  $5.60$   $20 \mu A$   $6k$

675  $5.45$   $5 \mu A$  -

676  $5.42$   $3 \rightarrow 2 \rightarrow 4 \mu A$   $6k$

677  $5.41$   $2 \mu A$  -  $250$   $cm$

678  $5.41$   $2 \mu A$   $6k$   $2 \times 10^{-7}$

679  $5.41$   $2 \mu A$  gate for heavier than  $Au^+$   $5k$   $\leftarrow$  ? accidentally scan?  
 $4 \mu A$  then  $> Au^+$ ,  $< Au^+$   $5k$

680  $5.52$   $2 \mu A$  all no scan, check  $Au^{++}/Au^+$  ratio, looks to  $5k$

Fluorine Fe/Mn/Si/C again 160 /  $110^{-9}$  / Ne  
ph blank

$\mu \times 3$  7.3 kV ~ DW usual

T 681 6.5 + 1.2  $210^{-7}$  165/560 70 ions  
- flushed

Neutron ph blank

12.6 kV  $\mu \times 3$

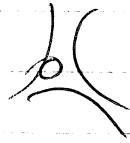
682 a ~~48~~ 11.12 + 2.3  $310^{-6}$  Ne / 60 ~ central  
darker area

ph blank

$\mu \times 3$  13.00 kV where  $\uparrow$

$\mu \times 3$  or darker area

- more again w/ no ions



b ~~12.15~~ 2.7 245/560  $110^{-6}$  from bright area in centre

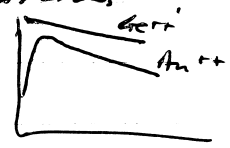
- 12.28 + 2.45 300/560 @ 5 kV

- 12.55 + 2.44

9.3 kV ions

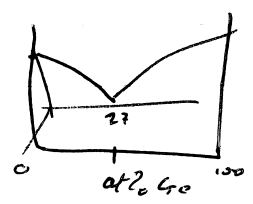
$\mu \times 3$  where  $\uparrow$  - bright still, better pic

5/5 worked out numbers for previous Au/Ge types  
 - considerable variation in % of Au species as vary collector - get more clusters at high currents  
 also drop in Au<sup>++</sup> at low currents

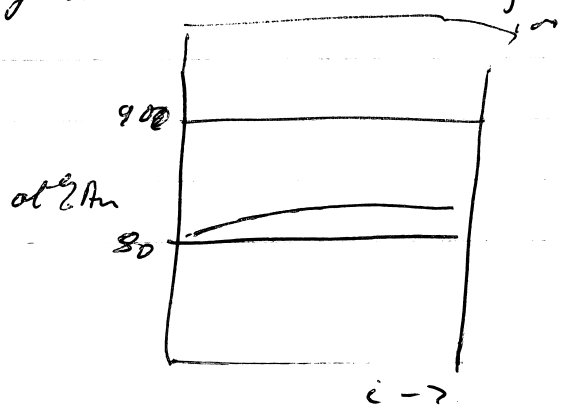


? alloys comp, temperature

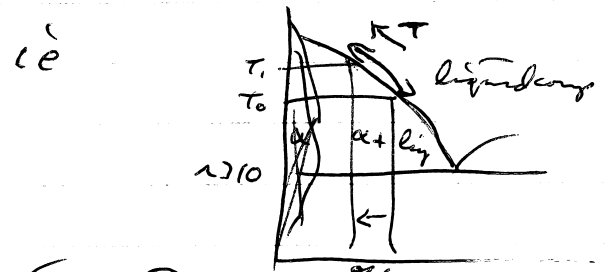
phase diag of Au-Ge



% comp of ion beam is nearly constant: -



looks as if liquid comp is fun of  $(temp = \tau(i_{heater}) + \tau'(i_{source}))$



Increasing  $\tau$  should decrease % Ge, if solid present.  
 Suggest  $\tau$  too low to get B, Pt in soln, since  
 PtD enthalpy  $\Delta \sim 810^\circ$

a 1% or so of Pt is seen at 2.4 A, I think

Change in comp of beam implies  $\tau \rightarrow \tau + 150$  or so as  $i \rightarrow 2$  to 60 pA  
 of equilibrium - could account for increase in % of AuGe etc

6/5 AuGe (P+D) source a) filling in gaps in  $i_{comp}$  vs  $i_c$  curve, esp at  $i_c$   
 b) looking for change in comp (not  $i_{comp}$ ) as  $f_n$  of  $i_{h}$  varies

683 5.87KV 20  $\mu$ A no scan 2.9A  $3 \times 10^{-7}$   
 $\rightarrow 16 \mu$ A 2K  $i_{on}$

source kept trying out - ran at 60+  $\mu$ A to try to clear it

684 21  $\mu$ A 5.50 w scan 2.9A 10K

- 685 15.5  $\mu$ A 5.46KV 2.9A 10K  
 $-16.5 \mu$ A

- 686 7  $\mu$ A 5.40 2.9A 10K

687 4  $\mu$ A 5.38 2.9A 9K

688 2  $\mu$ A 5.77 2.9A 3K  
 $-$  source stopped

689 3  $\mu$ A 5.77 2.9A 10K  
 $- 3 \frac{1}{2}$

690 2  $\mu$ A 5.76 10K

- 691 1 5.75 at 2.50  $i_{on}$   
 restarted 1.3 5.75  $\sim$  slow - 3K

30  $\mu$ A, 5.52 at 2.9A; reduce to  $i_h = 2.7A$  @ 4-17  $\mu$ m  
 $-$  would run at  $> 2.7A$ , but kept trying out.

$\therefore i_h \Rightarrow 3.1A$

$i_v \propto T$  quite strongly

692 3.1A 30  $\mu$ A 5.53KV 10K  $2.570^{-7}$

693 3.1A 2  $\mu$ A 5.56KV 5K6

694 3.1A 4  $\mu$ A 5.77 11K

695  $8 \mu A$  5-40 - 2k2 - stopped 3-1A

696  $16 \rightarrow 15 \mu A$  5-45 10k 3.1

697  $45.5 - 42 \mu A$  5-64kV 3.1

An 4 PTD 3-3A

698 30  $\mu$ A 5-55 3-3A no sum 9K - noisy  
~~change~~ ~~discrimination level~~ to cut out noise

699 20  $\mu$ A 5-50 3-3A ) 10K  
& again

700 10  $\mu$ A 5-44 3-3 10K  
-12  $\mu$ A

701 4  $\mu$ A 5-38 3-3 10K  
-5  $\mu$ A

702 2  $\mu$ A 5-36 KV 3-3 10K  
-2.5  $\mu$ A

703 2.5 5-37 excluding  $Ar^+$  (ie)  $Ar^+$ ,  $\langle Ar_s^+ \rangle$  - 5K  
-0.5 3-3  $\langle Ge^+ \rangle$   $\langle Ge^+ \rangle$ ,  $\langle Ar^+ \rangle$  5K  
 $\langle Ge^+ \rangle$  (1K


704 1.5  $\mu$ A 5-35 3-3

Mon 14<sup>th</sup> - abstract for IFE3

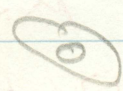
Lines [ Harry's 2nd alloy T 705 60K 5.4 + 0.8 130/505  $10^{-7}$  Ne  
0.29C - corking - 5.5 + 1.05 135/520  
4.05 Ni - actually still 3K5  
2.00 Si re music Inhibition  
120015' → 340 hrs wa flashed

Newsper (repolished) T 706 7.78 + 1.75 190/560  $4 \cdot 10^{-7}$  Ne / 60K  
v slow lots of H, sub pump, fil gone 8.7 + 1.8 210/  
Stop at 7K7 v v slow, lots of H  
ph > @ 9.68 L DW  
more slowly

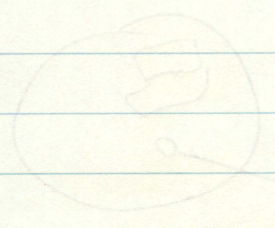
T 707 9.7 + 1.9 240/560 vac  
- 10.7 + 2.0 250/ 260/ ~ 5K usual  
ph > where? (but still OK rate)



T 708 from dark area 10.7 + 2 260/560 vac  
ph > 2 what  
back to bright area  
ph > 2



709 11.1 + 2.3 280/560 vac  
- 11.53 + 2.4 v 1K  
going home time





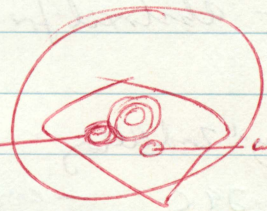
1) Digitizing with Phil Powell, etc; calculations to Arden, et

Thurs 14<sup>th</sup> Same [Harry/2] spec actually 7000s.c

ph blind

ph x 2 on bright area

ph bright



where 709

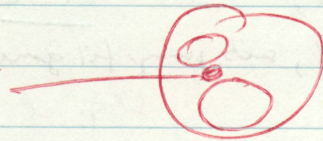
T 710 a 11.4 + 2.4 var 290/560 60x 110<sup>-9</sup>  
-11.9 + 2.4

b same place with 11.9 + 2.5 295/560 var 125 x 2.6

ph x 2

ph x 2 on dark area

Control dark area



T 711 310/560 12.5 + 2.60 var  
2k 7000s -12.7 + 2.6

ph x 2 ? pop

more ph x 2 dark area

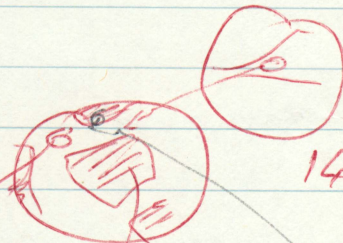


T 712 320/560 var 13 + 2.7

a -13.26 1k2

-pop -ph x 2

ph x 2 or area



bright

14.7kV

b 325/560 13.4 + 2.7 - oxide  
-13.6 + 2.8

713 340/560 13.7 + 2.8 var from top bright area

ph x 2

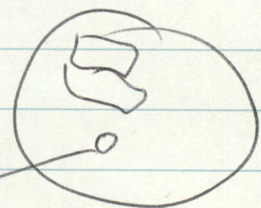
MT 6 16kV ph x 2

17 ph x 2

ph x 2

714 a ~ 16 + 2.4 400/560 var dark (big) area at bottom

4k



fasted, good call rate - ? dodgy electron microscopy?

b more shifts

- 2x

estimat

19/5/81

Probe P1-D

3-3A

715

50  $\mu$ A  
-48

KV not known, deduce  $2 \times 10^{-7}$

10K

716

60-58

3-3A

10K

717

41-47

3-25-

10K

718

3-5  
- damping up

3-3A  
1

719

3-4  $\mu$ A 6  $\frac{1}{2}$ K

3-3A

720

1.5-2  $\mu$ A 7K5

3-3

3-5A

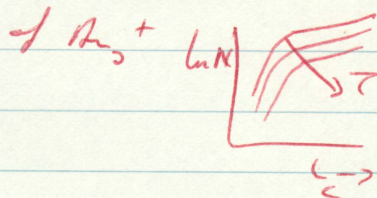
721

20  $\mu$ A

6

- looking for apparent  $\tau$  dependence

(attend)



722

30  $\mu$ A  
24

3-5A

- stop 1K7

723

20  
24

3-5A

dry again

2K4

- rats - suspect nearby tap

mean is 80  $\mu$ A for  $\sim 20$ s

724

32-31

3-5

10K

725

40-38 - with tap

10K

726

60-58

10K

727

10

$\sim 2$ K5 - stopped

pushing up time 9-30 pm

Repairing chetometer

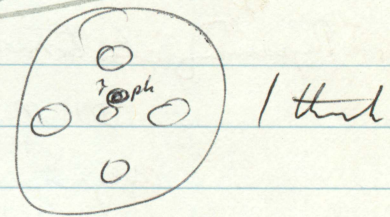
DPM level

any or IAP dead - repair base for inside

T728 [Havy's 2nd unit, new top] [- NB ~~count~~ 21M/s,  
at 20M/s,  
a 4.20 + .85 = 1.00 110/560  $1.0^{-2}$  Ne / 60  
b 4.45 + 1 3.35K  
- 4.56 + 1.20 } all 115/560  $1.0^{-2}$  Ne

gphometer,

2/15/81 Same Henry (2) - 7eMns.c - can see Mn in spectra well resolved  
 ph x 3 5.1 KV - v faint



more v slightly up  
 7729 5800 + 1 } 130/560 vac 160  
 - 5.37 + 1.3 } all at 130/560

- best energy compar 5K

$$\frac{\Delta E}{E} \approx \frac{600}{8000} \approx 7.5\%$$

Mns 5.8 KV  
 exact a bit

$$\frac{206}{E} = \frac{6}{50}$$

$$\frac{2500 \times 2}{50} \approx 100$$

More left a bit, ph x 2 6.2 KV

770 a 5.8 + 1.7 vac 155/560 5K  
 6.00 - 1.6

b 6.1 + 1.6 same place cont'd 160/560  
 - 6.48 + 1.6 170/560 5K

ph x 2 6.9 KV  
 more ph x 1

ph Mn  
 still in axial

771 7.84 + 1.6 } a 195/560 / vac / 60K 7K all 1 point  
 8.22 + 1.7 }  
 -> 8.29 + 1.7 } b 210/560 / vac / could same place 4K

ph x 3 8.29 where ?

ph x 3 8.74

ph x 2 on dark hole

- flushed

✓

22 May 81

An GPRB till- 20° ()

732      30 A      5.959 kV      2.9 A      10 K

733      21 A      5.854      2.9 A      10 K

734      11-12 MS-785      2.9 A      10 K

735      5-4      5.704      2.9 A      9 K

736      2      5.720 v shv      3 K 7

Mon 25

727	20 A	5.750 kV	2.9 A	20° tilt	10k
728	29 A -28	5.919	2.9 A	" "	115 <sup>7</sup> 10k
739	60-58	6.266 kV	"	"	210 <sup>7</sup> 10k
740	53-50	6.105	"	"	10k
741	15-12	5.722			10k
742	8	5.677			10k

⊗ Check calibration of collector current vs. tip current (cont'd)

$i_c$	$i_c$ (150) (auto)	$i_c$ (20°)	500
5		4	4.8
10		8.5	9.2
20		17.7	18.2
30		27.5	28.2
40		37.8	37.8
50		52-54	53
60		75	78

error appears not to be a fn of angle for  $\theta \leq 20^\circ$

Aug 26<sup>th</sup>

743	40 $\mu$ A <sup>44 <math>\mu</math>A at end</sup>	5.945KV	30° tilt - 2.9A	10K
744	20 $\mu$ A <sup>=20</sup>	5.707	" " "	110 <sup>-7</sup> 10K
745	10 $\mu$ A <sup>=12</sup>	5.596	" "	10K
746	5 $\mu$ A <sup>=6.3</sup>	5.562	" "	10K
747	2.5 $\mu$ A <sup>5.52</sup>	5.521	" "	6K v slow
748	15 $\mu$ A <sup>16</sup>	5.562	" "	10K
749	20 $\mu$ A	5.801	" "	6Hz
750	50 $\mu$ A <sup>=48</sup>	5.663 <sup>6.063</sup>	" "	
751	60 $\mu$ A <sup>=80</sup>	6.415	" $\Rightarrow$ 2A at end	10K 210 <sup>-7</sup>



Wed 27<sup>th</sup> (Hubert D) 35°  
~~45°~~ max tilt pos

<u>752</u>	40 $\mu$ A <sup>= 44 <math>\mu</math>A</sup>	5-920	2-9A	110°	10K
<u>753</u>	20 $\mu$ A <sup>= 22</sup>	5-727	2-9A	35°	10K
<u>754</u>	8.5 $\mu$ A <sup>= 11.5</sup>	5-625		35°	20K
<u>755</u>	4 $\mu$ A <sup>= 8</sup>	5-658		35°	10K

*Leave - get right time*  
*- current probably high as scope on the +, not that, by accident -*

(756) 2 - drifted to 4 after 760 cm  
 restart 756 2 - v v slow, no com (18 in 2 mins!)

- abandon

756	15 $\mu$ A <sup>= 18 <math>\mu</math>A</sup>	5-765		35°	7K
757	20 $\mu$ A <sup>= 24.5</sup>	5-902		4	10K
758	50 $\mu$ A	6-190		4	10K
<u>759</u>	<u>mislabeled 752</u>	60 $\mu$ A <sup>= 70</sup> <sub>- 58</sub>	6-468	2.0°	10K



Mon 1<sup>st</sup> June - adding up the 6c No's

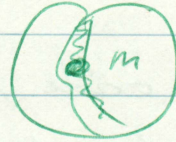
2nd June MP's work

ph analysis

ph x various @ < 31V, 3W ~ 10

onto oxide LKS

ph x several



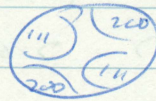
761 a 4.50 + 1.0      110<sup>-6</sup> Ne / 60      120/530  
 -4.75                      1K2

b 4.75 + 1              210<sup>-7</sup> Ne              120/560  
 -4.85 + 17              800 - slow

oxide popped off

ph x several

ph x several round  
 (Ape + some ve)



Pretty x 2

ph on 420/200 region



762 a 5.00 + 1.1      120/560      210<sup>-7</sup> Ne / 60      Mutton

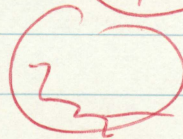
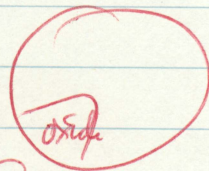
b 5.24 + 1.1              125/560  
 -                      3K

ph x > ~ axial 6KV  
 wrap

ph x 3 pretty 6KV

ph x > " "

ph x > other side of top 6.87KV



? stepped edge on oxide

cool

GMSS 72C (.08C - .21Ti - .4Mn / Hc limit 1000s 700°

Test 7/2/80 @ 6 fracture

~~760~~

~~760~~

µm x 2

760 160/530 210<sup>-7</sup>Ne/60 aligned on carbide LHS  
6.27 ± 1.2 - 6.20 ± 1.7



4 June 81

Analyte PT D repeats  
76

	Analyte	PT	D	29A	35°		
764	30 $\mu$ A			6.02K		1.9K	? N <sub>2</sub>
765	20			6.00			
766	25			6.06			
767	40			6.25		7K7	

---

768	50			6.42	30°	10K	
-----	----	--	--	------	-----	-----	--

769	60-58			6.62	30°	10K	
-----	-------	--	--	------	-----	-----	--

3.1A

770	20			5.99	20°	10K	Calibration $\approx 6^\circ$ , to aligns down to
-----	----	--	--	------	-----	-----	---

771	54			6.68		10 <sup>-7</sup>	- odd peak in spectrum.
-----	----	--	--	------	--	------------------	-------------------------

5 Done - adding age numbers,  
change the source to energy analyzer  
the - to 20K message

GMS's T.C. again - repair detector amp - new felt  
- add magnet on top of chevron - cuts  
down after tubes,  
amplifier a bit noisier

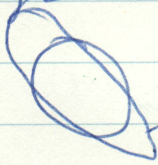
772 Align on carbide 175/560 start at 6.7+1.4 /  $2 \times 10^{-7}$  Ne

a

- check alignment @ 200

$\begin{matrix} 7.05 + 1.4 \\ - 7.1 + 1.8 \end{matrix} \Rightarrow 2K(100)$

→



carbide

- some Fe from matrix, prob

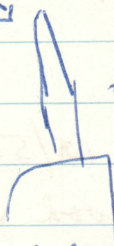
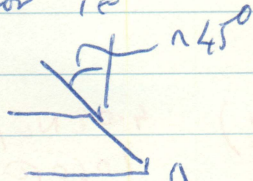
b small carbide

$8.2 - \frac{1.5}{1.7}$

205/560 /  $2 \times 10^{-7}$  Ne

2K1

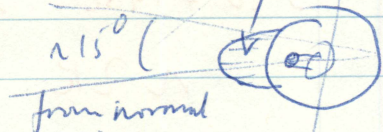
N.B. discover in source, tube PTD, has had beam  
intensity extractor is



← needle bent  $\sim 15^\circ$  off axis

axis of magnetic

gouge out of extractor



$\sim 15^\circ$  from normal

rotate 'til at  $\sim 0^\circ$

to magnetic axis  
for next expt.

2. Results above,  $0^\circ \hat{=}$  edge of beam

$35^\circ \hat{=}$  centre of beam

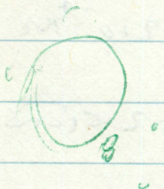
7.7/30  
7.1/1

2.9/30/50, 60

773 a  $8.37 \pm 1.7$   $215/560$   $210^{\circ} \text{Ne}$   
 start on carbide  $-1.8$  magnet

b)  $8.41 + 1.85$  same place, no magnet  
 $8.45 - 1.9$

774  $8.5 + 1.9$  same place, magnet again.  
 $8.55 + 1.99$   $\sim 1\%$



Mon 8th - dry joint in any somewhere - fix  
 some spec

775  $8.7 + 1.75$  start on carbide (? successful)  
 $-9.1 + 2.0$  flushed  $220/560/210^{\circ} \text{Ne}$   
 $2K6 \text{ cm}$

Kurrys 2nd alloy (really!)  $4.09 \text{ Ni} / 2.05 \text{ Si} / .39 \text{ C}$   
 $1060 @ 15' \rightarrow 743 @ 2 \text{ hrs}$

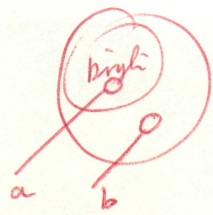
776 a  $3.85 + 0.650$  }  $100/560/570^{\circ} \text{Ne}/60K$   
 $-3.90 + 0.950$  } good resolu limit, Fe + Ni isotopes  
 $\sim 2K$   $\Delta V = 250$   
 $\Delta V/V = \frac{250}{4700} = 7.45\%$

$$\left[ = \frac{20t}{t} \quad \Delta t \approx 190 \text{ ns} \right]$$

b) 6 from dark area

$$4.7 + .8$$

$$- 4.50 + .90$$



$$110/560/510^7 \text{ Ne}/60$$

2K6 ins, Li carbon

777 dark area  
further  
from bite

$$4.75 + .85$$

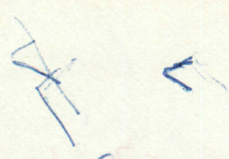
$$- + .95$$

2K7  
good line time.

$$120/560/110^7 \text{ Ne}/60 \text{ K}$$

- In mountains, running & outgassing An source in TOF  
(want to look at  $i^-$  < 10 pA)



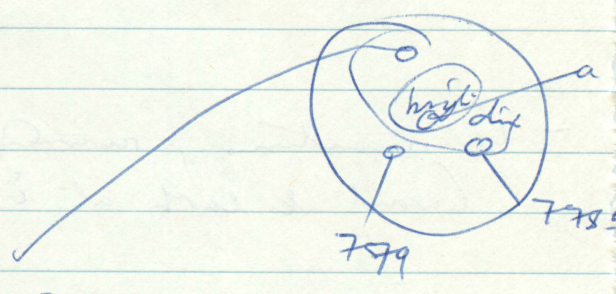


Some Hanny's end

778 bright area  $4.40 \pm 0.9$   $125/560 \cdot 2 \cdot 10^{-7} \text{ Ne}/60$   
 $- 5.06 \pm 1.05$   $\sim$   $3k8$

b from dark area  $5.1 \pm 1.1$   $170/560$   
 $- 5.2 \pm 1.19$   
 - some  $O^+$  - ? too close to edge  $2k4$   
 - noise

779 a dark area at edge  $5.75 \pm 1.15$



b  $5.70 \pm 1.2$   $\frac{150}{560} / 2 \cdot 10^{-7}$   
 $\sim 500$  - low quality, flashed

Newspaper Hanny's end

780 a  $3.92 \pm .60$   
 $- 4.0 \pm .92$  hic

$100/560 / 2 \cdot 10^{-7} \text{ Ne}/60$  noise

b  $6.15 \pm 1.00$   $6c$   $155/560 / \mu / \mu$   
 $6.25 \pm 1.79$   $- 2k8$

10<sup>th</sup> Run

An Source again - look at W(i) for  $L < 20 \mu A$

781	30 $\mu A$ -21	7.93 kV	axial	10K	
782	20 $\mu A$	7.74		7K	2107
783	10 $\mu A$	7.63		skipped @ 700	
784	10 $\mu A$	7.60		4K	
785	7.5 $\mu A$	7.59		1500	
786	6.0 $\mu A$	7.58		800	
787	4.0 $\mu A$	7.55		200	
788	2 $\mu A$			200	
789	4 $\mu A$	7.56		280	
790	15 $\mu A$	7.67		750	
791	15 $\mu A$ - 17 $\mu A$	7.69		2K	
792	25 $\mu A$	7.78		10K	
793	42 $\mu A$	7.93 kV		10K	
794	51 $\mu A$ - 48	8.02		10K	
795	60 $\mu A$ $\rightarrow$ 50	8.17		2K	(adjusted beam volts on deflection)
796	6 $\mu A$	7.59 kV		480	
[797	5 $\mu A$	7.55		190 ]	
797	4 $\mu A$	7.56		280	
798	2.5	7.54		150	
799	2 $\mu A$	7.55		377	
800	3 $\mu A$	7.57		120	
$\rightarrow$ 801	17 $\mu A$ - restarted several times		- back off at 1K - all held <sup>2109</sup> without rest		
802	12.5 $\mu A$	7.61		350	
803	12.5	7.61		6K	
804	8.5	7.57			
	- restart @ 1500		$\rightarrow$ 1860		
806	36 $\mu A$	7.87		10K	

Resonance again

- yesterday's spectra have several  $^{20}\text{Na}^+$ ,  $^{13}\text{C}^+$ , & low  $\text{Am}^{++}/\text{Am}^+$  val

807  $20\mu\text{A}$  ( $45\text{e}_2$ ) 7.63 19K  $2.5 \cdot 10^{-7}$

808  $20\mu\text{A}$  7.57 2K5  
end of time

809  $15\mu\text{A} \rightarrow 20\mu\text{A}$  7.57 2K, stopped

810  $10\mu\text{A}$  7.45 2K

811  $6\mu\text{A}$  7.42 rest at 200 2K4

812  $4\mu\text{A}$  7.40  $\hookrightarrow$  200, 1K5, 2K 3K4

813  $2\mu\text{A}$  7.40 2K rest at 200

814  $8\mu\text{A}$  7.51 2K5

- step change in operating volts

815  $12\mu\text{A}$  7.42 2K - stopped

816  $25\mu\text{A} \rightarrow 22$  7.60 4K5

817 42-45 7.80 8K

818 52-50 ( $80\text{e}_2$ ) 7.88 10K

long pulse

819 64  $i_{\text{e}} \sim 100$  8.00 10K

in  $W^{\text{th}}$   $J_{\text{min}}$

Same Kerrings  $W^{\text{th}}$  spec

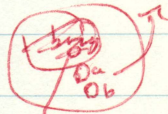
Replaced 36K  $\mu$ resistor in IAP pulser with  $4 \times 8.2K, 2.5W$  w.w., as original burnt out.

820 a dark area at side of top  $6.8 + 1.2$  170/580 /  $2 \times 10^7$  Ne / 60K

- end up just on interface  $6.94 + 1.27$  3K

820b - further into dark area  $7.2 + 1.27$  180/580 /  $2 \times 10^7$  Ne / 60

$7.28 + 1.51$  1K



822 - bright area ~~at~~ raised

-22K

$7.45 + 1.51$   
 $7.55 + 1.89$

190/580 /  $2 \times 10^7$  Ne / 60

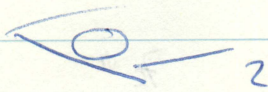
- started on brite

- then @  $\sim 10K$  interface under ph

at  $\sim 15K$  clear

then interface back

22K



- stop @ 22K

ph Amp

ph  $\times 4$  or 5 8.26KV

- more into front - ph  $\times 3$

822  $7.95 + 1.80$

$8.25 + 1.80$

205/580

8K

$2 \times 10^7$  Ne

ph  $\times 5$  where  $\uparrow$

9.07KV

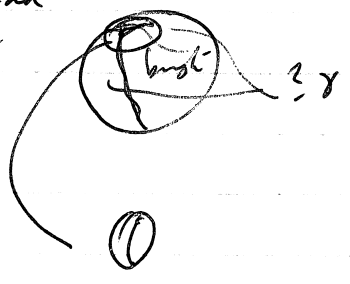
but bit ph  $\times 3$



Mon 15/6  
 ph x 3

same heavy load  
 ~ 9.2 kV

1AP x 2

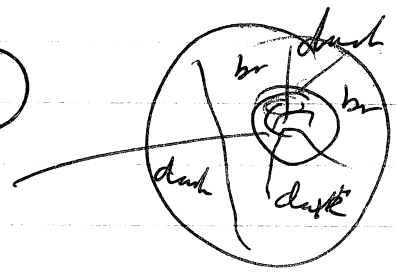


60	480	=	20	60
6	220	=	26	
12	314		37	
18	385		46	
24	444		54	
29	484		61	
26	524		66	
14	250		42	

7c<sup>++</sup>  
 C<sup>++</sup> v little  
 C<sup>++</sup>  
 ~ Si<sup>++</sup> v little

1AP x 2

more casual



C<sup>++</sup>  
 C<sup>++</sup> ?

Si<sup>++</sup> no on lot-

M<sup>++</sup>

-problem getting

1AP x 1

1AP x 1 log left

7c<sup>++</sup> fast

C<sup>++</sup>

C<sup>++</sup>

1AP x 2  
 1AP x 1

move a bit to right

2x

(6

C u?

blush

- doesn't behave

try again, top left

1A"

max

2x 11

- flushed

- hydrogen needs replacement

2-275 Denver  
defl beds 295

- attempt to get

best PFD source operating

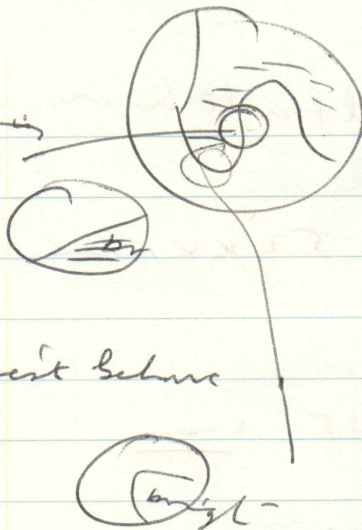
in retarding analyzer

- problems in top to bottom - v. high extractor current

- source keeps sparking & tripping out

- etc

- etc



Wed 77<sup>th</sup> June - Phil Powell in am.

824 76  $\mu$ A <sup>extra 45</sup> 7.52 kV norm

52k  $1.8 \times 10^{-7}$

825 35  $\mu$ A 7.55 scan

10k

826 70 <sup>90iz</sup> 8.17 norm

11k9

827 70 8.17 Scan

9k5

Done

June 18<sup>th</sup> more

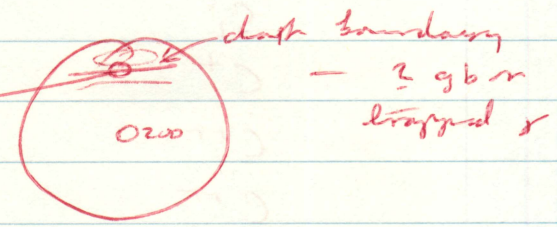
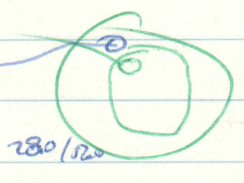


828 a 8.56 + 1.7 ferrite - trapped? 220/560/210<sup>+</sup>/60  
 - 9.4 + 1.8 - gate out H@ ~200  
 - <sup>detected</sup> screen H? sub disk - replace

b 9.8 + 1.7 [225/520] 210<sup>+</sup>/60  
 - 10.1 + 1.8 - 150 - misaligned?

829 a 11.5 + 1.8 280/560/210<sup>+</sup>  
 from top of ferrite disk

b oxide 11.8 + 1.9 - 2  
 ~7K in  
 except a bit  
 ph x 2 ~ 11.5KV



870 ph on binding  
 15 + 2.0 230/530/van  
 - still oxide

<sup>except what</sup>  
 ph x 4, 18.5, 15KV ? distance round 200

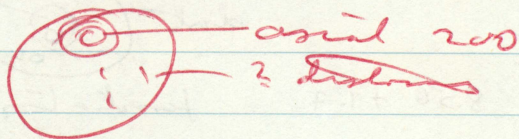


Di 19

Put new KBr2 into LAP electrons.

Kungsm  
skid

LAP x 2



$Zc^{++} 45 = 270$

6 171 21

12 242 30

14 262 32

29 277 46

26 262 42

18 297 35

Zc

C<sup>++</sup>

Si<sup>i</sup>

C<sup>+</sup>

C<sup>++</sup>

C<sup>++</sup>

Zc

C<sup>++</sup>

LAP x 2

more LAP x 2

Fe<sup>++</sup>

C<sup>++</sup> dual

C<sup>++</sup>

C<sup>++</sup>

Si<sup>++</sup>

C<sup>+</sup>

Ni<sup>i</sup>

Zc

C<sup>+</sup>

C<sup>++</sup>

C<sup>++</sup>

Si<sup>++</sup>

Fe<sup>++</sup>



$15 - 9 + 2 \cdot 5 = 11$

$16 - 8 + 2 \cdot 75 = 28$

EMPA

LAP x ~ 4 15-41 KV

ph 5 15-PKV

- reform LAP

x

h

h

h

C<sup>+</sup>

C

C

N<sub>c</sub>

C

C

S<sub>i</sub>

More level (24 = 200 us)

-17.28 + 2.9

ph x N ~ 15 KV

ph x N 17 KV ~ 9W

LAP x several

LAP top left

2e<sup>+</sup>

C<sup>+</sup> v little

C

- flushed

LAP blind

(i = 130 uA)

831

ph 95 uA 9-21

normal

- Muz !! 8x

832

ph 27 uA 7.62

gating from  $\int 10 - A_{tr}$

- A<sub>tr</sub> not saturating,

looking for A<sub>tr</sub><sup>2+</sup>

833

ph A<sub>tr</sub> just heavier than A<sub>tr</sub><sup>+</sup> up to 5 ) A<sub>tr</sub><sup>+</sup>

27 uA, 7.62

- 5%  
- 5%

Newspaper drawings Fe/Ws/Si/C

824 3.00 + 640  
- 2.05 + 810

25/580 / 570<sup>-2</sup>Ne/160 ~ as usual  
1K

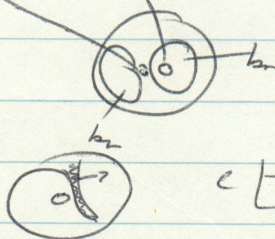
$$\frac{\Delta V}{V} = \frac{50 + 270}{2775} = \frac{320}{2775} \sim 8.5\%$$

825  
~~824~~ a 3.44 + 650

from dark film

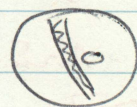
90/580 / 570<sup>-2</sup> 160

inspect @ 1000,  
interface used



c [ ] roughly

b in shift ph to other side of beam  
inspect @ 2K

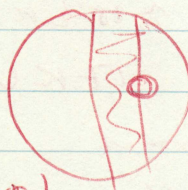


u a 4K (3.50 + 1.00)

- 100/580 280 + 0.82

- 2.97 + 1.01

ph x1 where ↑



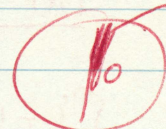
- 10K5

- looks as if y @ coming to an end -

? some sort of q-b where plate was

ph height

more about ph x>  
ph x>  
going home time



still blank

Thurs 876 on dark line next to (835)

4.52 + 700 110/560/210 - 7 Ne/60  
4.25 + 850  
- 11 gated out (M < 2.6)

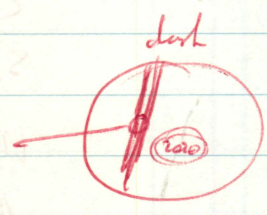
stop @ 225 - dark line getting hard to see

ph x3 as usual 4.7M  
except a bit

- ? v disordered ferrite

877 4.8 + 1KV from ferrite as usual 120/560/van  
+ 1.21 - 9K

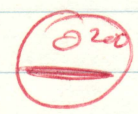
878 4.9 + 1 130/560/van from bldng, LHS  
- 5.04 + 1.08  
lots of c, but none at end



ph x3 - bldng moved

d/

VAP 820 where ↑



7c	100	640
6	296	= 35
12	420	= 52
14	450	55
18	570	63
24	642	70
29	657	101
36	725	114

7c

C

C

- but fast coherency times

7c

VAP x2



VAP x2



7c

C<sup>2</sup>

Si

C<sup>1</sup>

C<sup>2</sup>

End of path

VAP Analysis

VAP x 2

Zc

C

C

Mc

Zc

C

C

Si



VAP x 2m 2

Mh 2

VAP x 2



C<sup>2</sup>

Zc

C<sup>2</sup>

Si

C<sup>+</sup>

M<sup>+</sup>

C<sup>2</sup>

Fe

C<sup>2</sup> I think

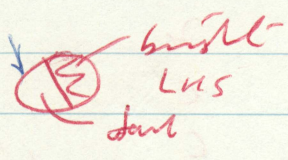
6-27 + 12

VAP x 2m 2

Mh 2

Zc VAP x 3

C<sup>2</sup> Fe



C<sup>2</sup> - flushed

blank

VAP film

8/6/81

SS 17/7 as r  
 839 a  $\left\{ \begin{array}{l} 4.92 + 850 \\ \text{ph} \times 200 \times \text{of detector, f 8, focussed spot.} \\ - 4.46 + 1.00 \end{array} \right.$  120/560 vac axial  
 2K5

b same place 5.2 + 900 — 170/560 vac  
~~5.2 + 1.0~~ 8K7  
 - 5.29 + 1.5 ~ 8K

ph x >

More to dark area, left left



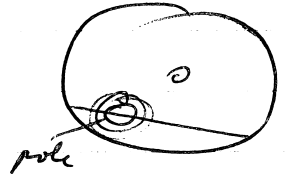
840 5.9 + 1.1 155/560 vac  
 - 6 + 1.5 ~ 8K

ph x > ~ 7Kv

840 was close to (? on) or a-b

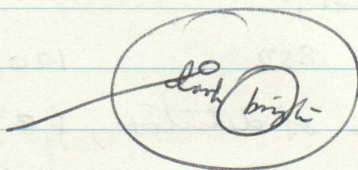
estimat

- gbs lightly decorated,  
 but v many spots in  
 matrix as well  
 ∴ hard to see gbs



2nd

Huang's Fe M<sub>2,3</sub> L<sub>2,3</sub> -



841 a  
b

oxide

170/560

ferrite - vol ~ 400 mV

pts p<sub>1</sub> p<sub>2</sub> x 1/2 day of detector op

- a) No mag field 200ns/cm
- b) wrong mag field ~
- c) correct mag field ✓

842

off ? white @ top - flushed after 140 hrs.

Newspec MPTs 1x O<sub>2</sub>

ph x 5 12.0KV Ne/60/10V

cryst- about  
ph x ~ 5 repeat 3 or 4 times

~ ~ pretty, double spirals etc

- set of p<sub>1</sub> p<sub>2</sub> of detector, hopefully f 3.5 & f 8

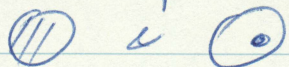
a) focussed spot.

b) atoms under ph -

ph blank

ph x 3 of spec tilted slightly so just visible below ph

ph x 3 ~ 15KV, 100 pA, to show rough surface  
more of deflector f 3.5



det volts ~ 1.8 KV

- try to reprobe - pop

- probe on Me port

- except a little - ph & or



damage

- He in port

- except -

-



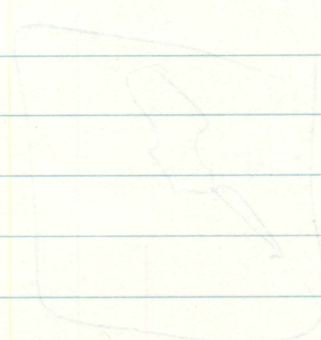
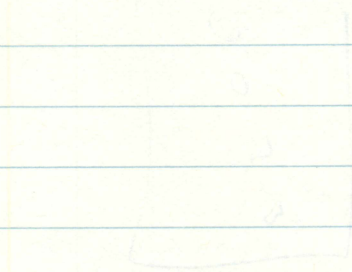
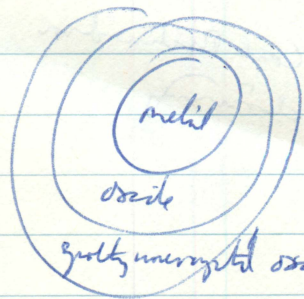
14.5 keV

- Mupik (H)



look like

- flushed



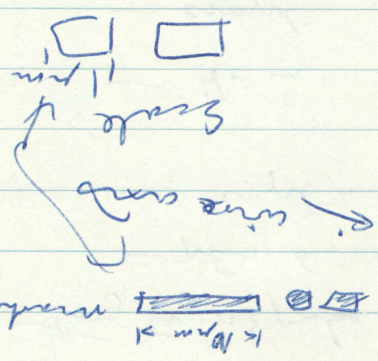
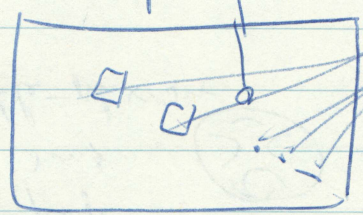
power lab 94



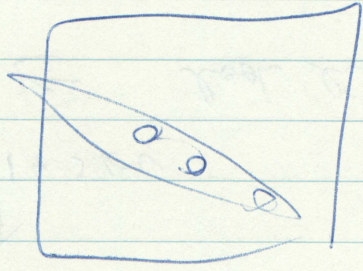
Stefans 1/17 on LS1 100

Mr

particles all risk in the (not)

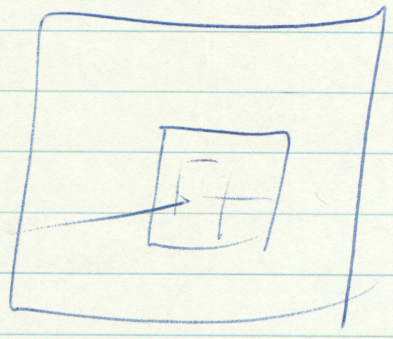


Car production during



and stinger, all the

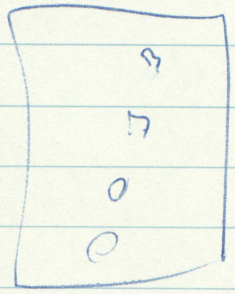
Carbon cast spuz



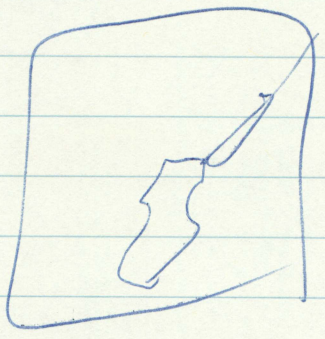
Structure At risk cube

75 mm spuz

still cant hold 7? in something



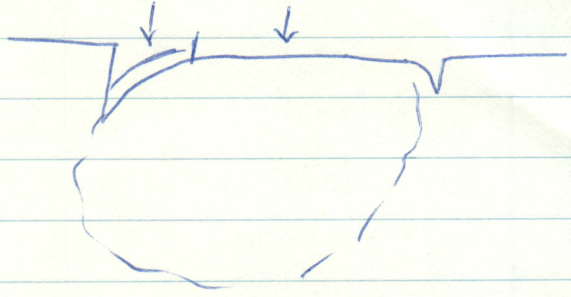
100 mm stinger

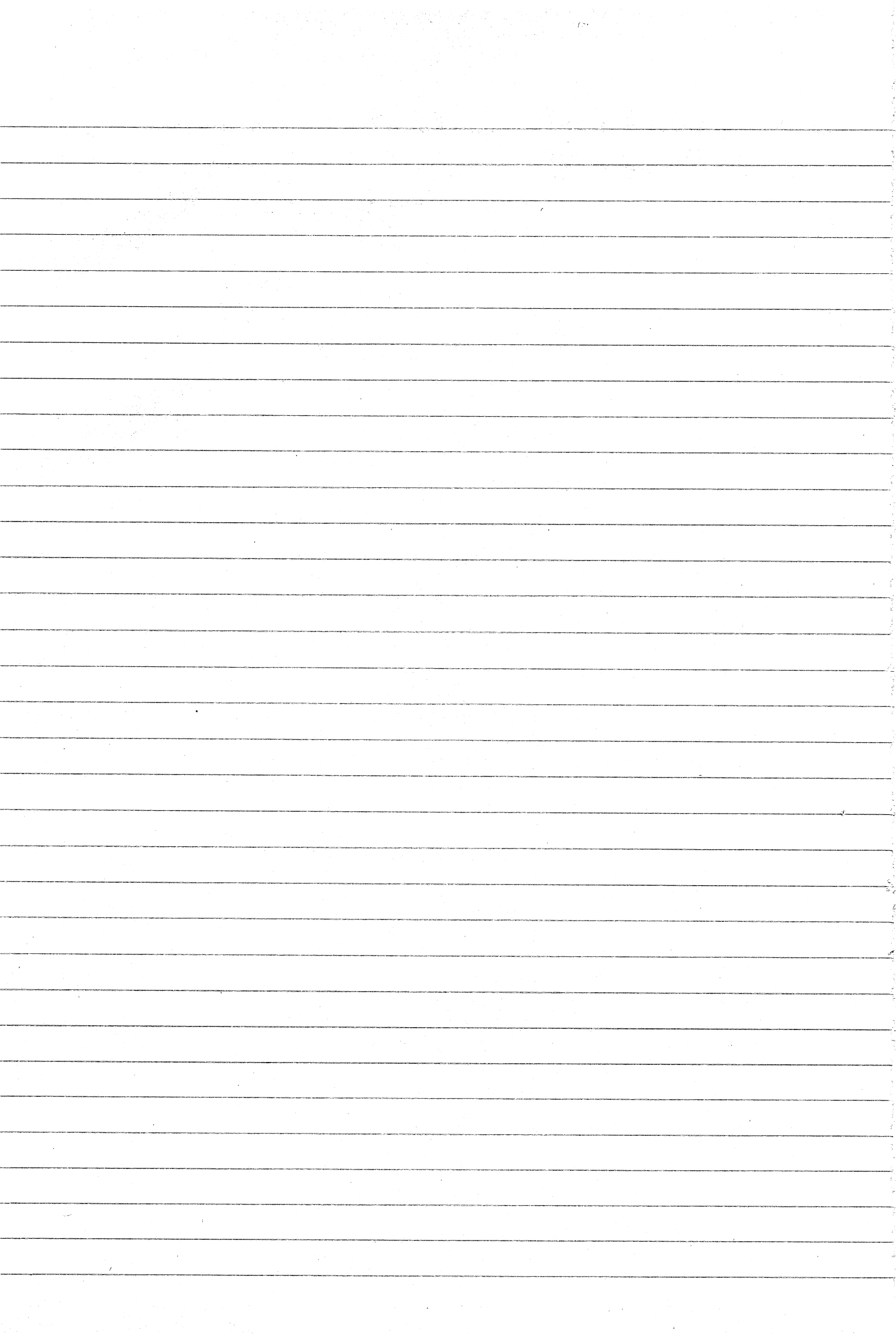


8

+ the dot map

& no edge to centre contrast -  $\therefore$  assume  
was just edge of wire





1chick  
wt% at%

Ge 7.9  
72.54  
Au 58.01  
197  
Pt 31.4  
195.1  
B 2.6  
10.81

~~19.29~~  
17.52  
[19.29]  
~~27.20~~  
26.54  
[52.20]  
~~19.99~~  
[28.52]  
~~19.99~~  
29.89

70 72 73 74 76  
20.55 27.07 76.1 76.74 76.7  
197  
600  
190 192 194 195 196 198  
101 107 108 107.7 105.4 102.3  
10 11  
18.98 81.02  
19.45 81.55

++  
m.  
35 36 36.5 37 38  
140 ~~140~~ - 152  
98.5  
394  
95 96 97 97.5 98  
380 - 396  
5 5.5  
20-22

Always 2nd alloy wt% Fe 55.85 / 93.56% .39C / 4.05Ni / 2.005Si 28.09

1200 @ 15' → 240 2hrs 400  
at% 92.15 1.788 3.791 3.917

Fe / .39C / 4.09Ni / 2.055Si

1060 @ 15' → 240 @ 2hr → 200  
28/5/81

- 1088
- 2945
- 1609
- 2405

Excluding boron, alloy = 19.29 at% Ge + 52.20 at% Au + 28.52 at% Pt  
= 19.29 at% Ge + 80.72 at% (Au + Pt)

Measured, Ge + 81.76 ± 2.65 at% Au + Pt

75.46 1.1  
17.27 0.3  
..  
..