

UTMB 1997 99

COMPUTATION NOTE BOOK

11-97 to 12-99

Ishey-E/M resona

POM UTMB

OSCE

Med Ed. Sept. 2003

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Laboratories

ORNIA

PROJECT COMPUTATION RECORD

SERIAL

Nº

251

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Hornet Resonance

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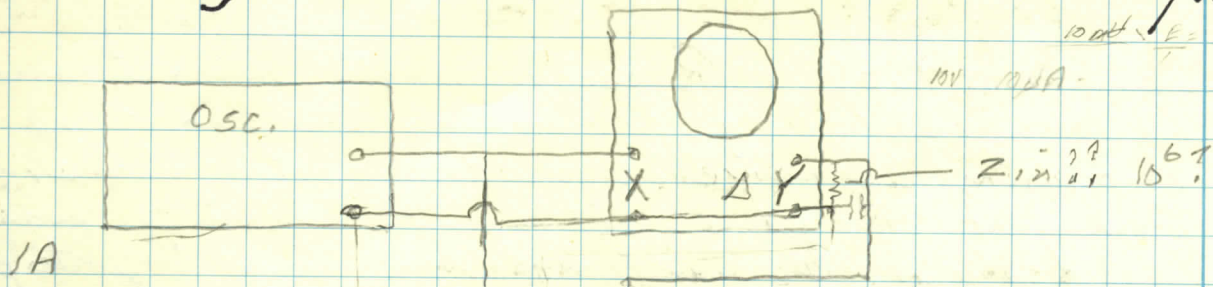
P.O.M.

89-

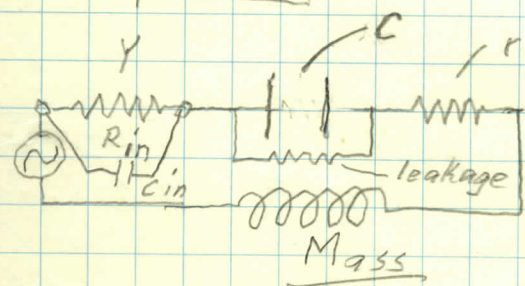
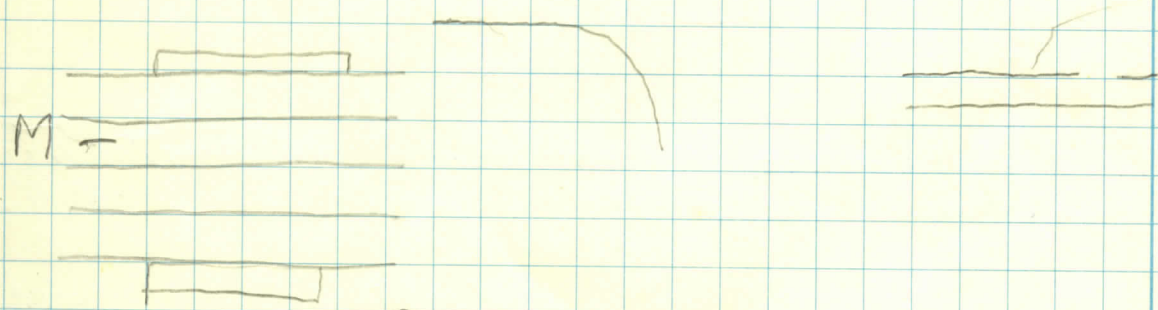
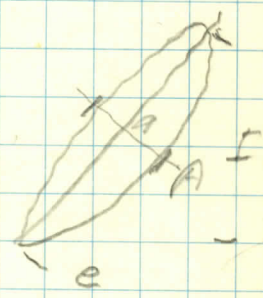
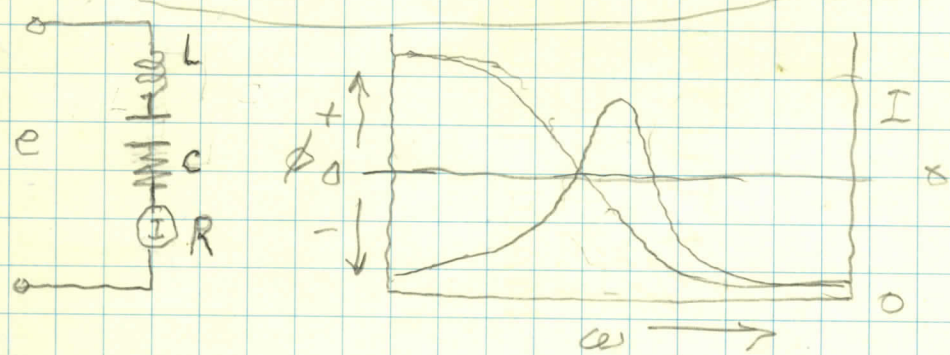
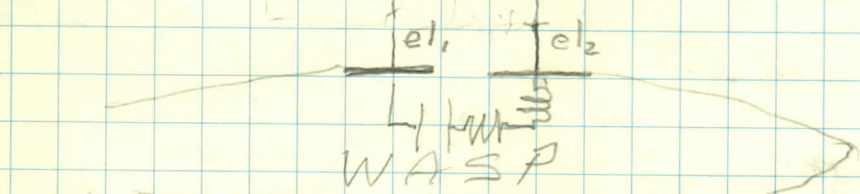
Travel

97-

15.11.97 Ishay V. Orientalis electrical resonance phenomena -



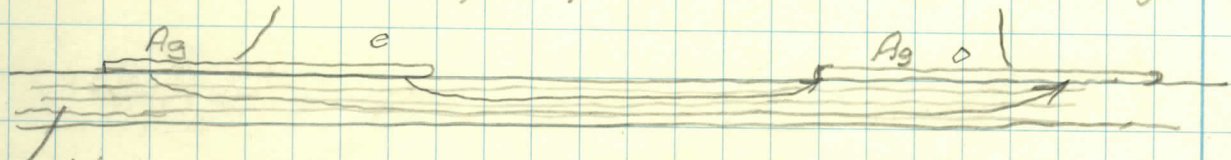
elec?
cuticle



$$F = \frac{\Delta X}{\Delta T} \cdot R$$

$$\Delta E = \Delta F$$

Ishay's student claims to have made above arrangement using ohmic connections. He then swept the freq. until $\phi = 0$ to det. resonance (f_r). He also swept freq. meas. current at const. voltage.



cuticle - This arrangement gives a strange current/voltage distribution.

Sample

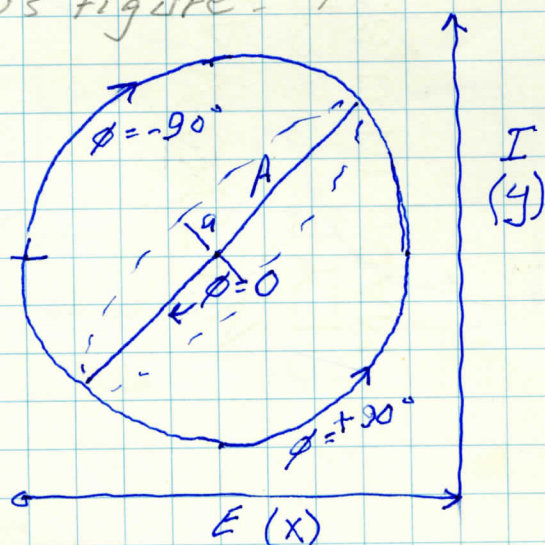
Time/Temp

127

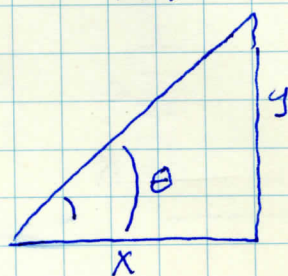
N/G

In 1986 a Russian emigre biologist worked 6 mos. in Ishaq's Lab looking for and then measuring resonance in dead hornet cuticles. His work was criticized, he left in a huff and I. was afraid to publish (and didn't know how to interpret the Russian's work and was afraid to ask the Russian).

The arrangement on the previous pg. produces a Lissajou's figure -



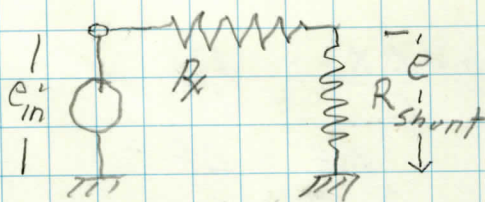
$$\phi \propto \frac{a}{A} (\times 90^\circ?)$$



$$\tan \theta = \frac{y k_1}{x k_2} = \frac{I}{E} = R$$

$k = \text{cal.}$

The (Mad) Russian did not record such basics as input volt., dropping resistor, etc. He made a note that V input, I , was adj. for 10 V/cm.



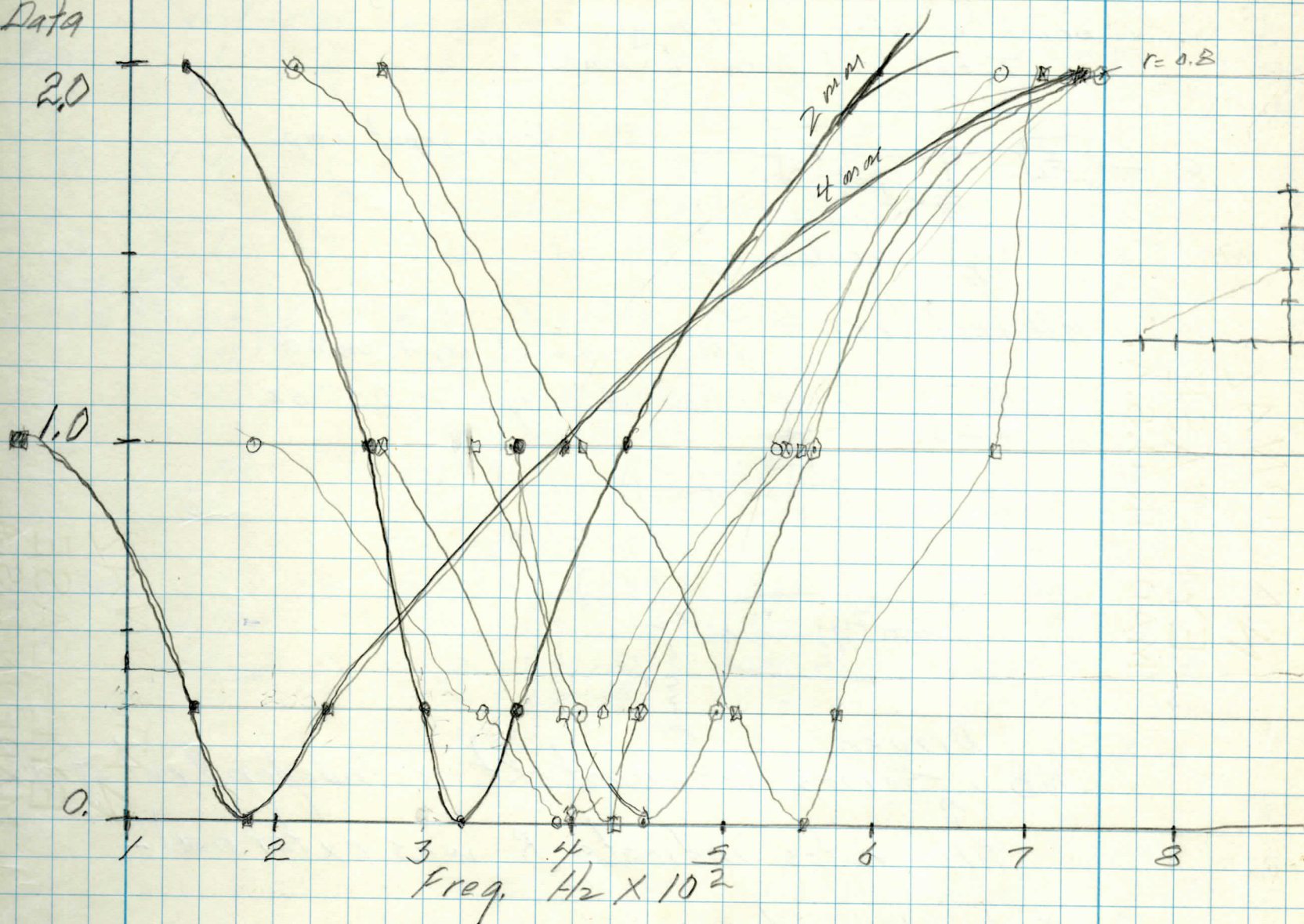
He also drew a cal curve for deter. R_x from E . When $R_x = 0$ $E = E_{in}$ and when $R_x = R$ $E = \frac{E_{in}}{2}$.

$$\text{For } R_x = 0, E_{in} = 5.35 (? \text{ div?}) = 53.5 \text{ V}$$

He appears to have generated cal. curve by subs. RETMA resistors for R_x . When $E_{in} = 1/2$, $R_x = 1 \text{ meg.}$ Check - at 9 m R_x $E = .45$?
At 2.7 m $E = 1.42$ $\frac{3.7}{1} = \frac{5.35}{x} \times 1.44 \text{ OK}$

$$\frac{265}{530}$$

22.11.97
Student
Data



The above amplitudes were guessed at but it appears to approximate
expert resonant response -
Cannot read Hebrew but at one point he appears to have
measurements 2 electrodes separated 2 + 4 mm - $\bullet$ + $\square$ above

$y = 4 \tan$ NB. Piezo phenomena may also explain capacitance effects prev.
found -

I must understand transduction of piezoelectricity - The relation between
mechanical and electrical properties.

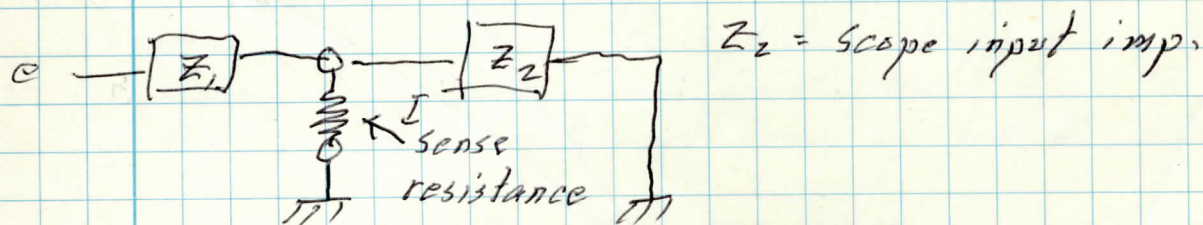
If the force vs voltage curve on a piezo xtal. is linear then;
 $F = MA = M \frac{d^2x}{dt^2}$ and $V \propto F = M \ddot{x}$ and if $F \propto x$ $V \propto F = x$

444x110
444x32

22.11.97 Reconstruction of data -

By noting pt. at which volt. is $\downarrow$ by $1/2$ current sense resistor is ~ 1 meg.

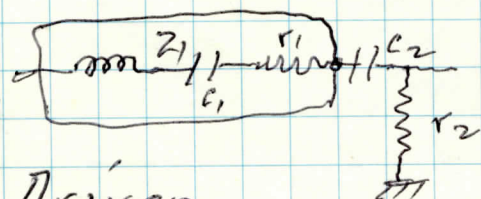
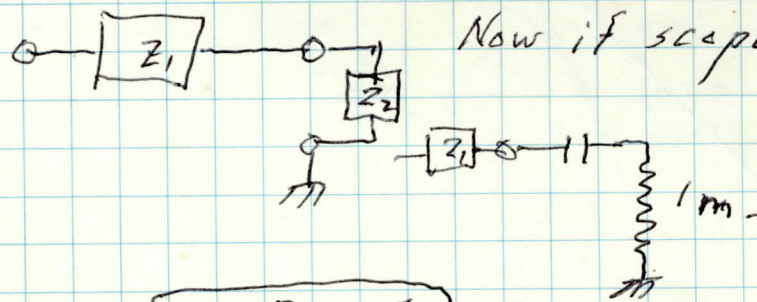
Total ckt then becomes:



Alternatives:

1M. is common input value

Now if scope is D.C. - OK



2V
200 pA

Driven

NB - Series resonant ckt. is independent of r_0

Also notes indicate R was external -

Est. L values

$$F = \frac{1}{2\pi} \sqrt{\frac{L}{C}} \quad \& \quad f^2 = \frac{1}{4\pi^2} \frac{L}{C} \quad \&$$

$$C f^2 4\pi^2 = L$$

$$10^{-5} \cdot (5 \cdot 10^2)^2 \cdot 1.6 \times 10^1 \times 9.9 = L$$

$$10^{-5} \cdot 2.5 \times 10^5 \cdot 1.6 \times 10^2 = 160 \text{ H}$$

Est. Power

$$A = \frac{53 \cdot 10^2}{1} \cdot \frac{10^2}{10^{1/2}}$$

$$F = \frac{1}{2\pi} \sqrt{\frac{L}{C}} \quad 2\pi f = 6.38 \times 10^3 = \sqrt{\frac{L}{10^{-5}}} \approx 3.16 \times 10^3 = \sqrt{L}$$

$$= \frac{1}{2\pi} \sqrt{\frac{16 \times 16}{10^{-5}}} \approx \frac{1.6 \times 10^{-1}}{2\pi} \sqrt{1.6 \times 10^{10}} = 1.3 \times 10^3$$

$L = 20$

26 Nov.

Ishay -

16-6

Samples. Y - Young A - Adult - Apparently MR ran
duplicates on ea. sample.

Page	1	2	3	4	5	6	7	8	9	n	used
Y	4	8	7	6	5	4	5	3	-	7	6
A	4	4	2	3	4	3	1	5	7	8	8

0 = incomplete $\emptyset$ unused

A	1	2	3	4	5	6	7	8
Res. Freq.	ΔF/% F ₀							
Hz 1 → 1A	324	301	348	203	243			
	400	44	68	45	518	770	290	
	298	346	320	430	290			
	.63	.48	.51	.75	.51			
	472	715	624	570	571			
	473	730	604	582	458	245	600	
	473	730	600	581	246	599		
	ΔF = ± 56%	± 12.9		F _r = 574 ± 97 Hz				
	449	710	617	585	563			

Resistance	0.4	0.8	0.35	1.20	0.8	0.65	0.80
	0.75	1.05	0.40	1.50	1.1	0.80	-
	0.80	1.10	0.40	1.45	1.35	0.80	1.05
	0.65	.98	0.38	1.38	1.08	0.75	.93
			841 K ± 35 K				

Y

	3	4	5	6	7	8
	909	80	647	748	545	
	139	654	62	497	680	136
	802	183	874	516	746	682
	.83	662	1.69	537	746	458
	685				458	811
					588 ± 149	423
	111%	667	166%	516	724	194%
					457	98%
					777	147%
					387	
					143% ± 40	

Res.

0.25	5.	0.15	0.35	0.10	0.2
0.15	-	0.15	0.35	0.15	0.25
0.15	-	0.15	0.30	0.20	0.3
0.18		0.15	0.33	0.15	.25
		213 K ± 81 K			

F ₀ : Hz X 10 ²	Y ₁	
	Y ₅	A ₂
	Y ₃	
		A ₃
		A ₆
		A ₄
	Y ₄	
	Y ₆	A ₁
	Y ₈	
	Y ₂	
	Y ₃	
	Y ₆	
	Y ₈	
	Y ₃	
	Y ₆	
	Y ₈	

Calc. V on F_0 for:
 $1.057 \mu\text{fd}$ cap and 0.32 H induct.

$$F_0 = \frac{1}{2\pi\sqrt{LC}} = \frac{1}{6.28\sqrt{1.07 \times 10^{-6}}} =$$

$$= .159 \sqrt{.3 \times 10^6} = .159 \sqrt{30 \times 10^4} = 1.59 \times 10^{-1} \times 10^2 \times .5159 = 7.95 \times 10$$

$$\begin{array}{r} \sim 16 \\ 6.28 \overline{) 1.070} \\ \underline{628} \\ 3720 \\ \underline{3720} \\ 0 \end{array}$$

$$\begin{array}{r} 1.59 \\ 5 \\ \hline 7.95 \end{array}$$

$$X_L \text{ KHZ} = 2\pi FL = \frac{1.59 \times 10^{-1} \times 10^3 \times 6.28}{\sim 12 \times 10^2 \Omega} \checkmark$$

$$\begin{array}{r} 1.59 \\ 63 \\ \hline 477 \\ 1154 \\ \hline 12017 \end{array}$$

9 Dec '97 Literature Search → 281 483 2488

✓ SC Lib. Jane Hultberg Found several reports of piezo, pyro + Ferro electricity, most rel. was Athenstaedt's work which incl. demo. of piezo/pyro effects in Cockroach -

On followup it appears that A's. work thoroughly anticipated my concept that p.p.t.c. effects have been a phenomena assoc. to life for eons and many classes. He, in peers, studied effect in plants, arthropods insects, mammalia, etc. What they have not done is bridge the gap between this effect and the ion generator mobile ion effect in neurons and other phenomena - if there is a connection -

I have put my bumble bee and crab nets up -

15 Dec '97 Items from Ishay. Arrived c Dry Ice Present -
Placed in ³⁴ ~~42~~ °F - 14-1800

A-1 pkg c 10 leads -

B-1 " " colloidal Ag

C-1 MetalligAR box -

$$X_C = \frac{1}{2\pi fC}$$

$$= \frac{1}{18 \times 10^3 \times 2\pi}$$

$$= \frac{10^3}{159}$$

$$= 159 \Omega$$

$X_L =$

$$F_0 = \frac{1}{2\pi} \sqrt{\frac{L}{C}}$$

$$= \frac{1}{2\pi} \sqrt{\frac{3.21 \times 10^{-1}}{1.08 \times 10^{-8}}}$$

$$= \frac{1}{2\pi} \sqrt{\frac{2.991 \times 10^{-7}}{1.08 \times 10^{-8}}} = \frac{1}{2\pi} \sqrt{2.991 \times 10^{-7} \times 1.159 \times 10^3}$$

$$= \frac{1}{2\pi} \sqrt{2.991 \times 1.159 \times 10^{-4}} = \frac{1}{2\pi} \sqrt{3.46 \times 10^{-4}}$$

$$= \frac{1}{2\pi} \times 0.0186 \times 10^2 = \frac{1}{2\pi} \times 1.86$$

$$L_1 = 0.321 H$$

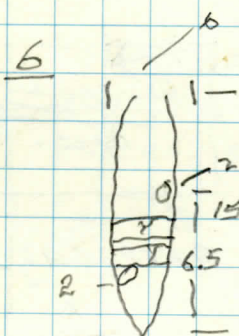
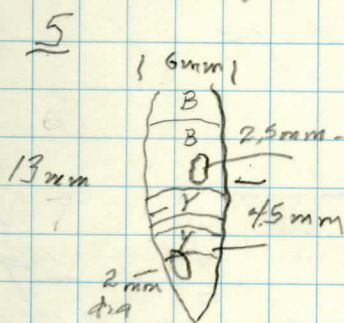
$$62.1 \Omega$$

$$D = 31 \Omega$$

$$C = 1.866 \mu$$

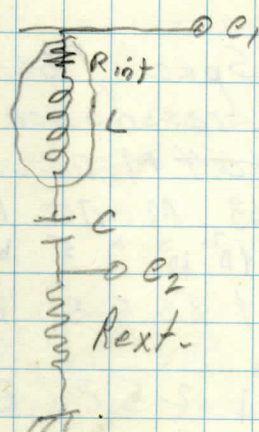
$$D = 33 \Omega$$

$$1.592 \times 10^{-1}$$

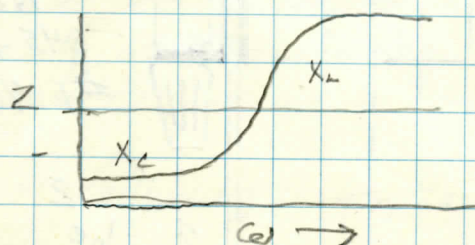


2 boxes left in freezer refrig at 42°F

Plan -



Use components that ~ 500 H res- and then meas. max. + V LCR mtr-



Brief survey - ~ 2100 69.6°F

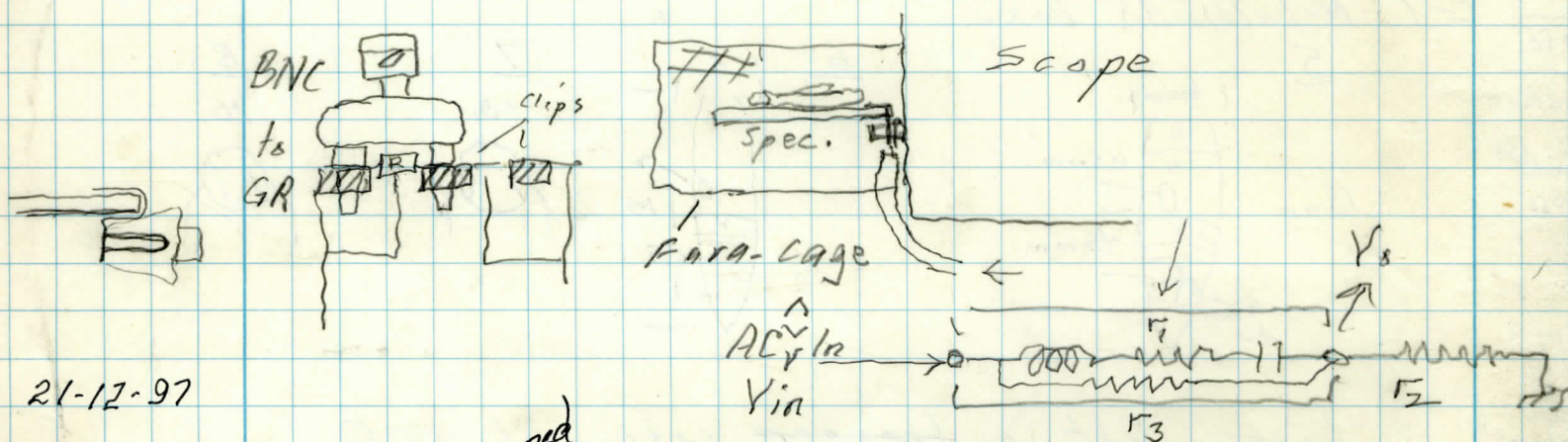
Hornet 5 showed only weak capacity effects - > 200 Meg res
< 1 pf capacitance -
#6

Cap #8 showed only tiny capacitance ~ 1 pF.

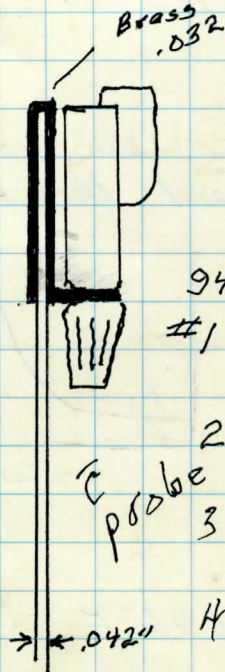
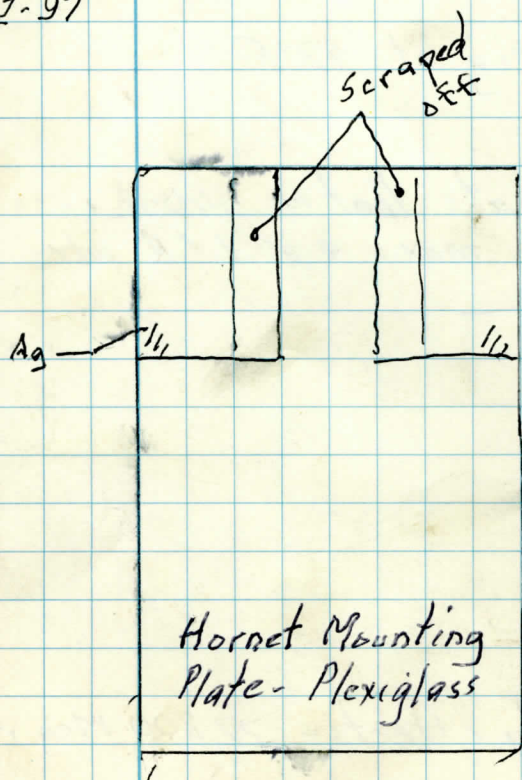
15.12.97 Hornets -

Arrived $\bar{c}$ dry ice in carton & then in refig. at $\sim 0^\circ\text{C}$.
Removed Box C at ~ 1800 and left specimens at Room Temperature over several hours.

N.B. Internal piezo resistance r_i is not necessarily ohmic but may be a function of motion -



21-12-97



Trial $\bar{c}$

Spec. #6

No resonance

945 ~~104~~ M DC. res.

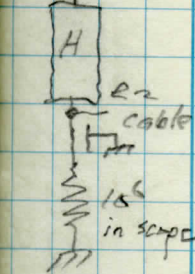
#1 463 M DC. No resn DC
 10^2 10^3 $\sim$ 5 6 X2. M

2 1 3.5 5 5 5 X22mV/200, 720

3 1 2 5 8 8 753

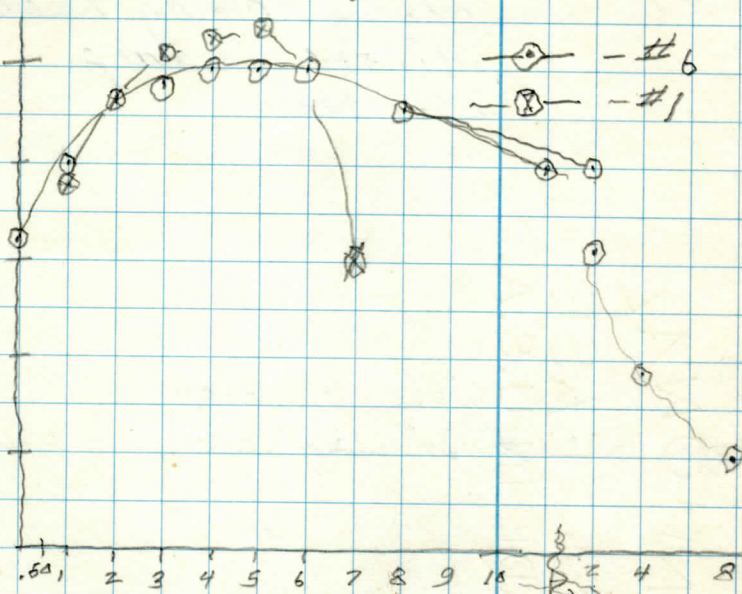
4 2 4 6 7 7 40084

15-12-97 Harriet X characteristics - Δ = Peak to peak to peak
 all voltage pk to pk.



- 1-10²
- 2-
- 3-
- 4-
- 5-
- 6-
- 7-
- 8-
- 1

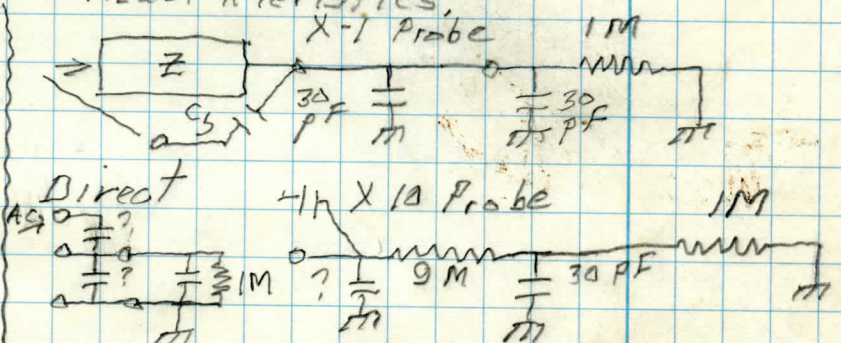
$4.3 \times 5V = .215V = 215mV$
 Flat to level 2
 $3.8 \times 5mV = 19.0mV$
 $4.7 \downarrow$
 5.2
 5.3
 $5.4 = 27 \frac{215}{27} \approx 8X$
 $3,$
 3



#1 cold -
 ~ 2230
 $88X$
 $25 \sqrt{2200}$
 $X_c (30PF \times 10^6 Hz)$
 $= 2\pi f C$
 $= .33 \cdot 10^{-6} \cdot 124$
 $\approx 4.8 \cdot 10^6 \Omega$

$4.4 \times 5V$
 $22 \downarrow$
 $3.2 \times 50mV$
 $4 .2V$
 4.7
 848
 $5,$
 $5, .25V$
 5
 4.6
 $4.$
 3.2
 1.8
 1

~ 2330
 $71.2^\circ F$
 Resistance, Spec. 1
 $R = 353 \Omega$
 (megohm) $229m$ $232M$
 Meas. X'teristics.



21-12-97 Exam of remaining Harriets - Improved measurement
 arr. made P. 14 but D.C. resistance had increased to
 NB-Scope $7 \cdot 10^8 \Omega$ and there was no evidence of resonance in #1, 5
 Input D.C. (see above) nor in any of remaining samples all of which
 appeared to be in good condition & electrodes intact. Orig. data
 on P-14.

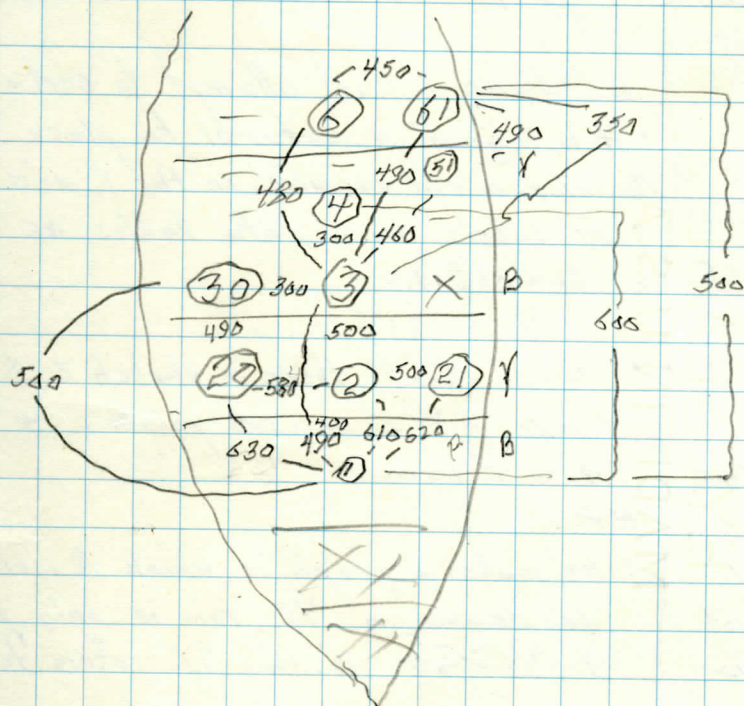
Sample #	V _{pk} to P _k	20 mV/cm X cm at Following Freqs, Hz	DC. res. Mohm	Dark	Light
		2×10^2 10^3 10^4 10^5 10^6		$\frac{353}{229}$	$\frac{421}{238}$
1		No evid. of resonance	463		
2		1 35 5 5 5	723		
3		1 2 5 8 8	753		
4		2 4 6 7 7	400		
5		No evid. of resonance 12/15 or 21	> 2500		
6		No evid. of resonance	945		

$\sim 10V. in. - 105 \Omega$
 $X 20mV LF: 5 \times 10^3$
 $\frac{10 \cdot 10^3}{20} \approx 500M(\Omega)$

25.12.98 Harriet resonance status

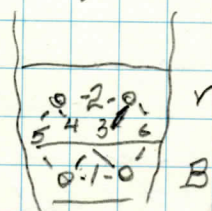
Suspect electrodes but chitin itself may be changing. Some investigators have used H_2O suspension of colloidal graphite $\equiv$ Al strip electrodes.

28.2.98 Review of Ishay data - Prelim. survey -



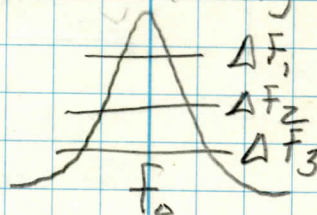
? lower freqs. on (within) this seg.?

? ↑ freq. to next segment



Next, they did a matrix of 6 meas. (X2) on 4 Young & 4 adults.

fres (F_0) and impedance at resonance (R_0)
Bandwidth (ΔF) at 3 levels



Ed Masely now has these data on file

Will try to get comparison of: Same vs across segment
W(R) vs (L) (5 vs 6), Yellows vs Black (1 vs 2), 1 or 2 vs 3 or 6
and path diff. 5 vs 4 or 3 vs 6
also both Young & Adult groups -

Will get corrected BW ($\frac{\Delta F}{F_0}$) etc. vs R_0 and
 R_0 vs ΔF

14 June 1998 Calculation of bandwidth



$$E = IR \text{ and}$$

$$R = \frac{E}{I}$$

$$\tan \theta = R = \frac{Y}{X}$$

hence ?

$$\frac{Y}{X} = \frac{E}{I}$$

this does not correspond to input adj.

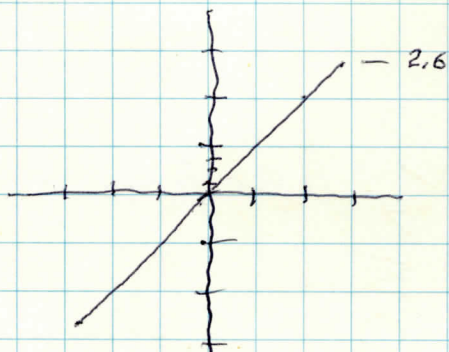


At one point he indicates Y cal. is 10 V/div. but in measurements the Y (Voltage) amplitude is not mentioned but a sketch has $Y = 4.4$ but 4.0 is max vert. At several points he indicates $X = 4$.

The only calib is noted as $Y = 10 \text{ V. div.}$

Bandwidths were taken also below and frequencies $F_{1,2}$ above resonance at three

undefined points, obviously at increasing distances from resonance. There are designations of $T_{\pm 1}, \pm 2$ above 1, 2, 3 $F_{1,2}$



scope Photo

15th June - Last attempt to sort out B.W.:

- It is logical & natural to place voltage, on the independent variable, on the X axis.
- He labels some data tables as $X =$
- 26.6.86(?) $X = 4$
 $\downarrow$
 $X = 3$
- $X = 3$ sheet there is sketch Z X axis of 4 units & Y $\in$ several points. + Fracts. $\in$ 4 in denom.

He

- He makes a graph in which R increases & decreases in Y/X this is only possible if $Y/X > \frac{E}{I}$ i.e. this Y/X refers to $\tan$

I'm satisfied X was voltage

What are magnitudes?

5 May 98

Ed's Layout & Analysis

16 Jun 98

At this time only resonance and Zreson- (R) are identified adequately to use. Will try for the following.

Significance of relation of Fres. & Zres. between regions - and between Y & A.

Examine - Y & A pops - ^{mean} Add trials I & II then
Mean & S.D. for ea. of 6 areas
For Z quan Fres & Res-Xc

? Sig. Δ's between areas -

Then Sig. Δ between Y & A

Fires) of Elect. 1-2/A

1	F ₀ Hz	Adult		Δ F % F ₀	Young	7	Adult		Young
		460	472				770	—	
				80/20			—	—	730 ¹⁵³
				61/12.9			—	—	791 ¹⁶⁴
							—	—	811 ²⁰⁴
							—	—	811
		473	473				—	—	286 ± 33
		Σ 455	± 31			8	290	—	346 ¹¹⁸
2	✓	687	715	90/13.4			292	—	394 ³⁶³
		730	730	88/12.3			—	—	423 ⁷⁶
		Σ 716	± 18				—	—	423 ⁹³
							—	—	397 ± 18
3	✓	623	624	73/11.7	654	454	570	111/24.4	
		604	600	78/12.5	662	570	582	123/21.6	
		Σ 613	± 11		685	581	—	—	
					684	Σ 547	± 54		
					671	± 14			
4	✓	454	445	90-20.2	497	570	580	96/16.8	
		458	458	78-16.6	516	578	578	81/14.0	
		458	458		537	578	—	—	
		Σ 458	± 8		537	Σ 577	± 3		
					671	± 14			
						n=7 Σ Σ 562	± 84		
5	✓	—	—		680	215/31.6	746	151/20.2	16.1% ± 3.9
					746	—	746	—	
					745	—	—	—	
					729	± 28			
6	✓	518	571	81/15.6	347	347	338	152/43.8	
		600	599	61/13.0	338	347	338	173/51.2	
		Σ 572	± 33		328	353	± 15		

$$n=5 \Sigma \Sigma 563 \pm 99$$

$$n=6 \Sigma \Sigma 601 \pm 165$$

Range - 455 - 716

353 - 786

36.3% F₀ ± 10

4 Jun Update

Ishay called and needs abstract. I have taken 2 days off for IRS, etc. Will produce something - Ed has elegant stat. analysis but don't have time -

Mean of e

Sample	Adult	Resonant Freq. - SD	6 db. Bandwidth
		Hz	% - S.D.
1			
A			
B	Young	601 ± 165	31.3 ± 10.8
2	Adult	582 ± 84	16.1 ± 3.9
A	716		
B	744		
3			
A			
B			
4			
A	426		
B	416		
5			
A			
B			
6			
A			426
B			
7			
A			871
B			864
8			
A			292
B			554

Wasp - Orientation Effects.

Use resistance at resonance as indicator of effect.

i.e. $\frac{1}{f} \times I$

Adult

Young

Sample

b-bY-Yb-bY-Y

1 .40 .45
.75 .50

2 .8 .3

3 $\begin{array}{r} 1.05 \\ .35 \\ \hline 1.35 \end{array}$ $\begin{array}{r} .35 \\ .40 \\ \hline .75 \end{array}$
 $\begin{array}{r} 1.20 \\ .44 \\ \hline 1.64 \end{array}$ $\begin{array}{r} 1.20 \\ .80 \\ \hline 2.00 \end{array}$
 $\begin{array}{r} 1.20 \\ .80 \\ \hline 2.00 \end{array}$ $\begin{array}{r} 1.50 \end{array}$

4 .8 .75
1.05 1.05

.15 .15
.10 .15

5 ——— .15 .2
.15 .25

6 .65 .25
.80 .25 $\begin{array}{r} .35 \\ .35 \end{array}$.5
.35 .55

7 ? .35 .65
.40 .80 .1 .35
.15 .4

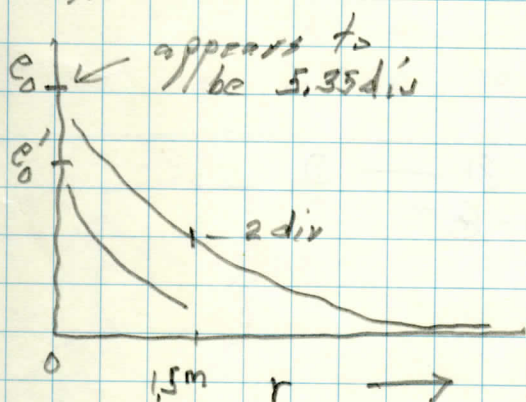
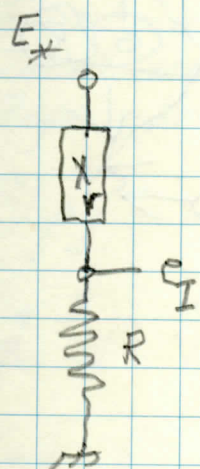
8 .2 .75
.25 1.10

17 June
1998

Calc. of value of current to voltage resistor R .

It appears that the arrangement shown was used to det. I . It is assumed that E was const. & I was determined from $I = e/r$. Rather than calc, it appears that he gen. a curve B by (1) subs. std. RETMA valued resistor in place of X_r - He does not show intersects. for $r=0$.

Set to
"3 or 4?"
divisions?



Neither

By simple volt. divider $R \propto e$

$$e_0 = R + r - \text{for } e_0 = \text{const}$$

$$R + r = \frac{E}{I} = e_0 \quad R + r = E_0 \quad 56$$

$$r = e$$

$$r_1 = e_1$$

$$I = \frac{e}{r}$$

$$R + r = R + r'$$

$$R +$$

$$R + 1.5 = E_0 + 1.5$$

$$E_0 = R + 2/1.5$$

$$R + 2.65 = E_0 + 1$$

$$\Delta R + 2.65 =$$

$$R + 2.65 = R + \frac{2}{1.5} + 1$$

$$R + 1.5 =$$

$$\frac{R}{2.35} = \frac{1.5}{2.6}$$

$$R = 3000$$

$$R + 1m = I \cdot$$

$$E_0 = I(R + r)$$

$$E_0 = I(R + 1.0)$$

$$e = I \cdot 1.5 \quad e = r I$$

$$1 = I \quad 2.65 = 1 \cdot I$$

$$e' = 1.5 \cdot I = 2.0$$

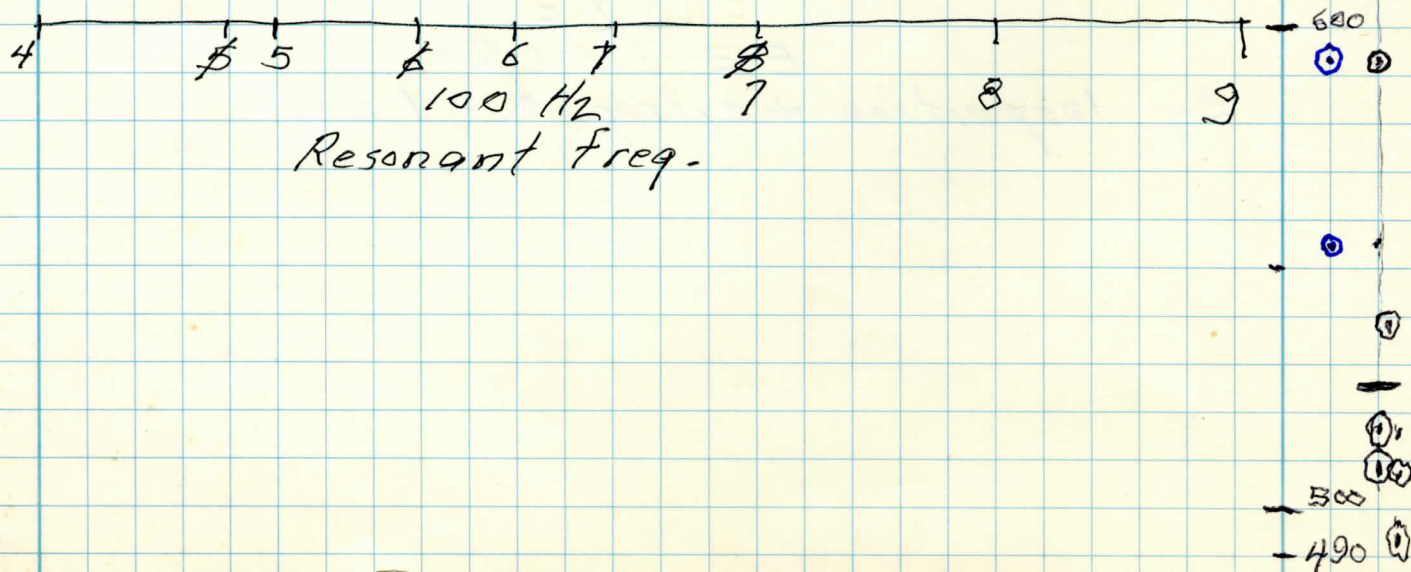
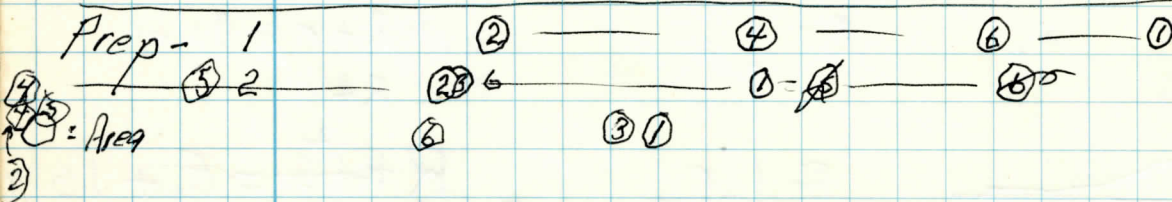
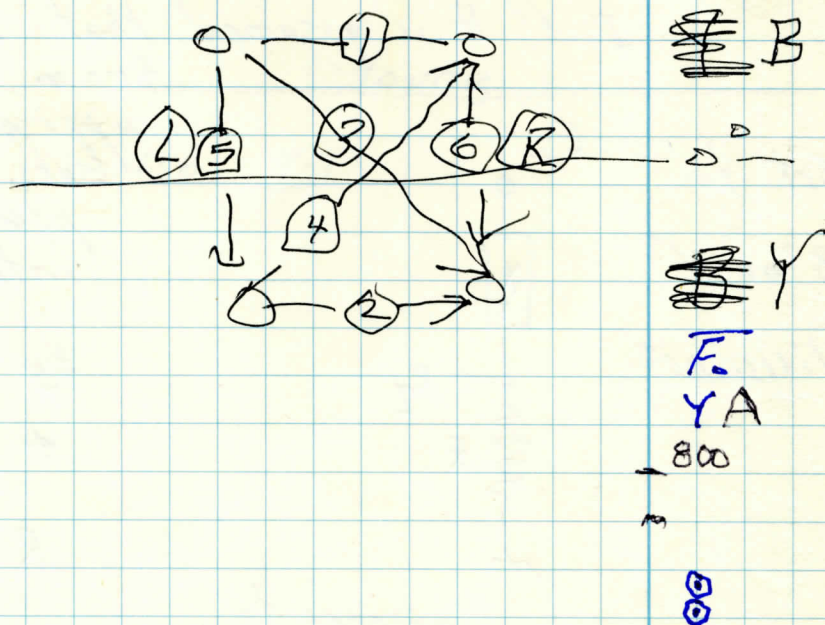
$$I =$$

$$E = 1.65 (R + 1.8)$$

By inspection & extrop $R = 1 \text{ meg}$

19 Jun Stat. Analy
Area Designs -

①	B	B	
②	Y	Y	
③	B	Y	-45
④	B	Y	+45
⑤	B	Y	(L)
⑥	B	Y	(R)



26 Jun 98 Update.

Ed Mosely promises to have resistance data by July 1. Returned orig. data sheets to Ishay for translation of note & a request for any and all info on equipment used.

Function

Signal Gen. - Neutronics 200 TPC Max out 20 VPP @ 50Ω

Scope - Kenwood CS 8010 Max. Sens. 1 mV/div (cm.)

Notes. (5) pg. 10V/? on Y axis

Fig 1 Adj. to sens. of 10V/div on Y axis

N.B. $\bar{c}$ 1 mag. current resistor

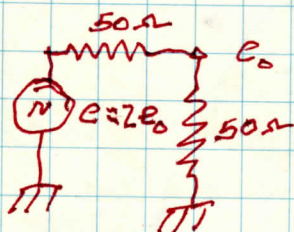
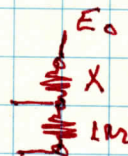
$$\tan = \frac{Y}{X}$$

$$X = 4.$$

$$Y = 5.6 \approx X = 0$$

and this is 56 V!

Yet gen. max. is 20 VPP at 50Ω out + unloaded 40 VPP



2 July Today Mosely gave me the stats. on resistance at resonance. Data was avail. from 4 (complete) & 5 (partial) adults & 6 (complete) young. in which 6 areas within each prep. was examined. There was a diff. (signific.) between areas in either $\Delta(Y \text{ vs } BB)$ between groups and in the $B-B$ area there was a P of .003 between Y & A. $P = .02$

There is also a similar difference in resonant freqs. N.B. F_{res} of series ckt. is not affected by resistance.

4 July At this time I believe I understand the work and data on resonance and resistance at resonance but there are still discrepancies such as max. generator out put and deflections. The three points on the bandpass curves still elude me. Data analysis show sig. Δ 's in freq. & res. in several areas. At this time I will review basic theory by plotting ellipses of phase shift resonant ckt.

4 July

Review of basics

For the case of θ & $\theta + 90^\circ$;

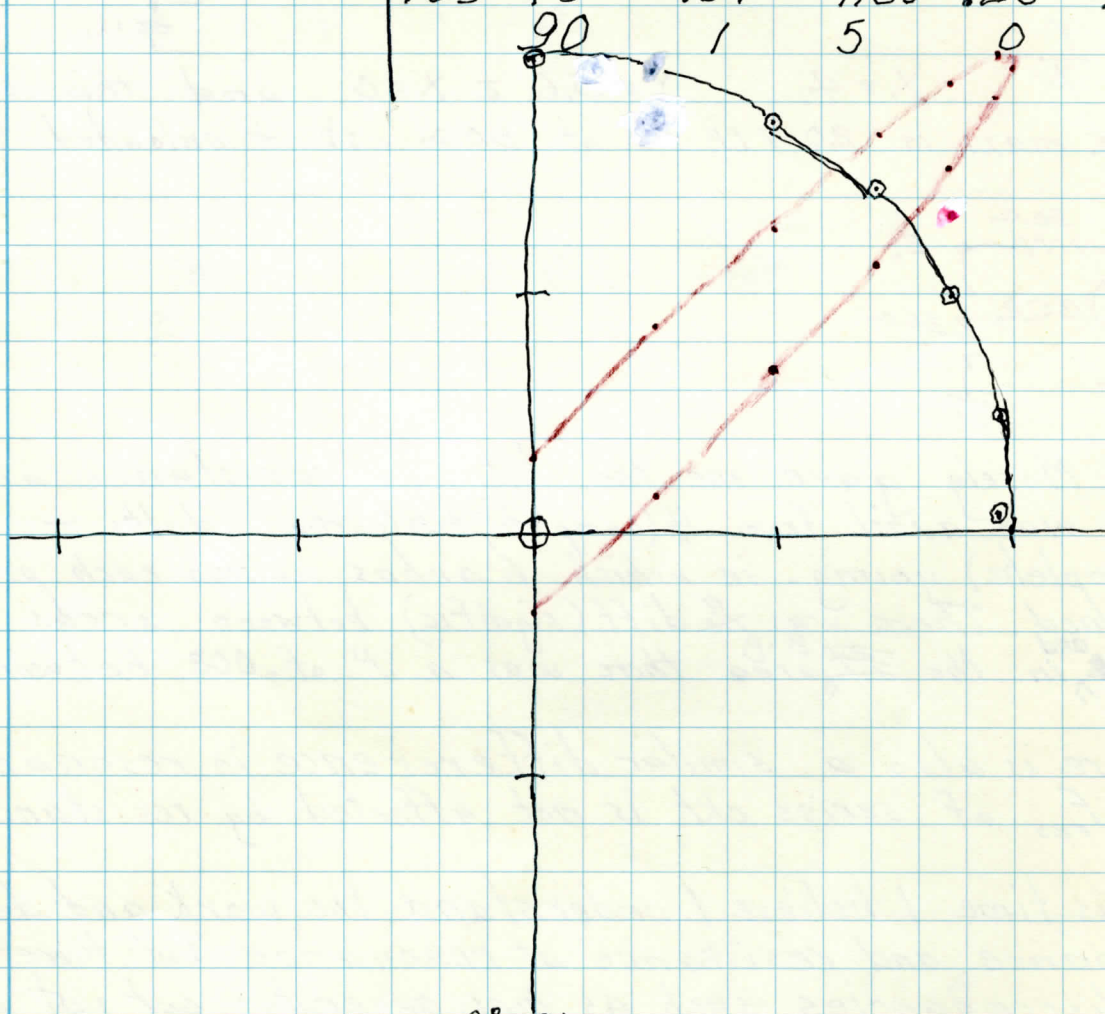
$$X = X_0 \sin \theta; X_0 = 5$$

$$Y = X_0 \cos \theta$$



Values become(-)

	θ	$\sin \theta$	X	$\cos \theta$	Y
180	0	0	0	1	5
195	15	.26	1.29	.97	4.83
	30	.5	2.5	.87	4.33
	45	.71	3.54	.71	3.54
	60	.87	4.33	.5	2.5
	75	.97	4.83	.26	1.29
	90	1	5	0	0



θ	$\sin$	$\sin \theta + 10^\circ$	2° quad.
180	0	.17	-.17
165	.26	.42	.09
150	.50	.64	.34
135	.71	.82	.57
120	.87	.94	.77
105	.97	1.00	.91
90	1.0	.98	

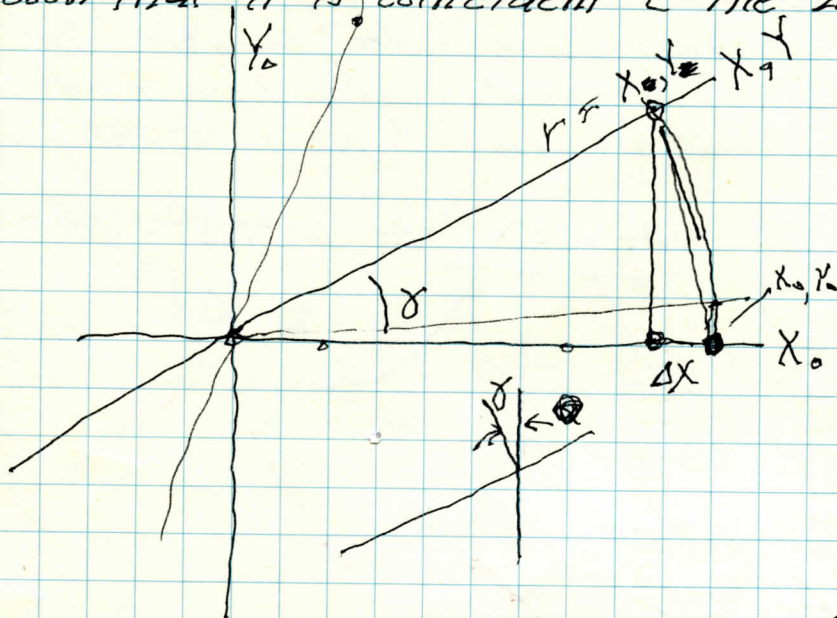
5 July Review, Cont'd. Rotation of Cartesian Ref. Frame
 The ellipse (family) on the prev. pg. is related to the phase δ between X & Y by geometry, presumably by Major, A , & Minor, B , axes. I cannot determine these from the tilted case and need to rotate the long Axis A such that it is coincident $\bar{c}$ the zero axis. This appears to require that all points on the X, Y curve have the difference between X_0, Y_0 . From inspection this would require all X pts to be multiplied by some $f(x)$, appar. $\sin \theta$.

6:18 = 3

19:34 = 3

3.7 am

6.4



require that all points on the X, Y curve have the difference between X_0, Y_0 . From inspection this would require all X pts to be multiplied by some $f(x)$, appar. $\sin \theta$.

Try this on prev. pg. data
 For ellipse of $\theta + 10^\circ$
 ???

$$X_0 = \sqrt{X^2 + Y^2} = \sqrt{(\sin \theta)^2 + (\cos \theta + \Delta)^2}$$

For ellipse on prev. pg.:

$$\theta = 45^\circ \rightarrow 75^\circ + \theta + 10^\circ = 85^\circ$$

Illogic =

Alzheimers, or rust?!

$$\frac{X_0}{r} = \cos \delta \quad \& \quad r = \frac{X_0}{\cos \delta} \quad \text{numerically } \checkmark$$

$$\text{so } X = \frac{\sin \theta}{\cos \delta} \quad \text{and } Y = f$$

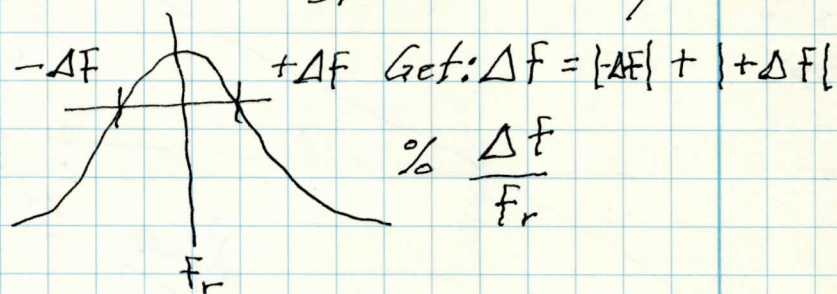
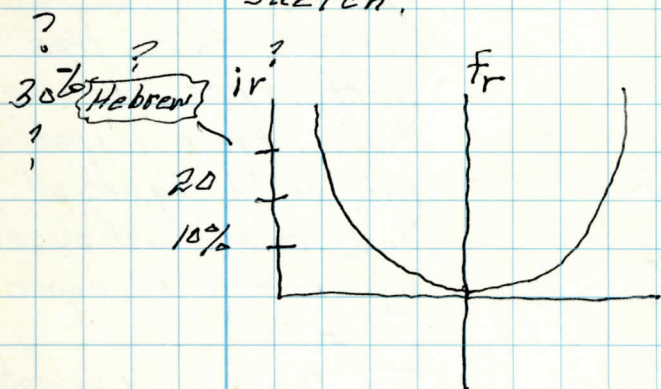
Back to trig. Do some calcs. on res. - next pg.
 Try $\sin \theta$ again!
 So

29 July

Interpretation of Shay Date

This effort has consumed an inordinate amount of time and effort. Most of it has been unraveled but his generation of bandwidth data eludes me. There are frequencies measured at 3 unknown points above and below resonance designated $T_{30}, \pm 1, \pm 2$. There are scribbles on the back of a sheet that seem to have errors or are indecipherable but see sketch:

I can't waste more time and will look at some typical 10% ?? points.



Area Using Mosely's Spread Sheets.

Subj	X-7	-ΔF	+ΔF	ΔF	Fr	% ΔF / Fr
1		41	118	159	730	21.7
2		92	69	161	791	20.4
2		71	95	166	948	17.5
		69	72	141	966	14.7
3		82	52	134	872	15.1
		66	40	106	880	12.0
4		82	44	126	871	14.5
		52	82	134	864	15.5

6 Sept.

Above problem is easily solved by eqn. (37) P-413 in *Radiation H.B.* - For large freq. Δ's where $\Delta/A > 10$

$$\frac{I_{\text{reson.}}}{I_{\text{at } F}} = \frac{F}{F_0} \quad \text{hence - do series of } \frac{F}{F_0} \text{ and est.}$$

No! Q is v. low & cond. $\Delta/A > 10$ not met

6 Sept. Resonance & B.W.

Calc. some examples for Fecl: Z as $f(\omega)$ for series
 $Z = \sqrt{r^2 + (\omega L - 1/\omega C)^2}$ Let $f_0 = \frac{1}{2\pi\sqrt{LC}} = 5 \times 10^2$

$$500 \cdot 2\pi = \frac{1}{\sqrt{LC}} \quad \sqrt{LC} = \frac{1}{500} \quad LC = \frac{1}{2.5 \times 10^5 C^2} ?$$

$$\sqrt{LC} = \frac{.2 \times 10^{-2}}{C} \quad LC = \frac{.04 \times 10^{-4}}{C^2} = \frac{4 \times 10^{-6}}{C^2} \quad \text{Let } L = \frac{4}{C^2} \text{ H } C = 10^{-6} \text{ F}$$

r calc. $f = \frac{1}{\sqrt{\frac{4}{10^{-6}} \cdot 10^{-6}}} = \frac{1}{\sqrt{4 \cdot 10^{-6}}} = \frac{1}{2 \cdot 10^{-3}} = 500$

Try again

$$500 \cdot 2\pi = \frac{1}{\sqrt{LC}} \quad \& \sqrt{LC} = \frac{1}{3141.6} = 3.18389 \cdot 10^{-4}$$

$$LC = 1.013 \cdot 10^{-7} \quad L = 1.013 \text{ H } \& C = 10^{-7} \text{ F}$$

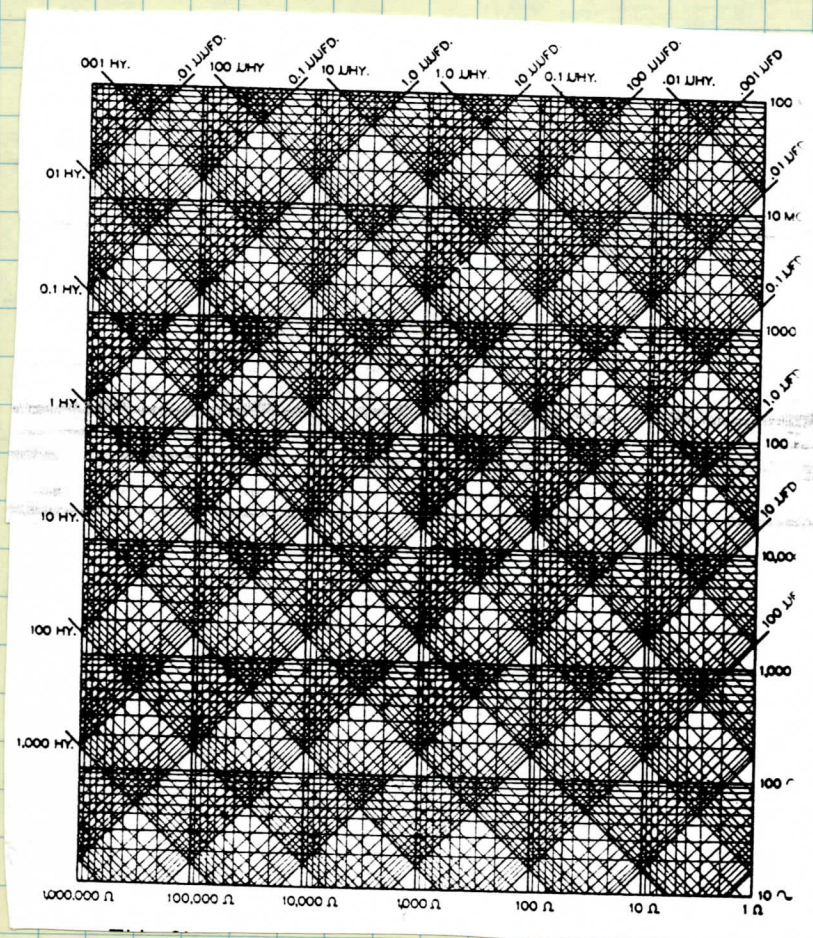
r calc. $f_0 = 500 \text{ Hz}$

$f =$	X_C	X_L	r	Z
500			10^4	10
$(3.18 \cdot 10^3) = 6.28 \cdot 10^7$				
520				

Try graphing - $X_L = \omega L$ & $\log X_L = \log \omega L$ $X_C = \frac{1}{\omega C}$

Freq Hz	$L = 1$ H	X_L ohm	$\log X_L$	$C =$ 10^{-6} F	X_C ohm	$\log X_C$	Log Freq
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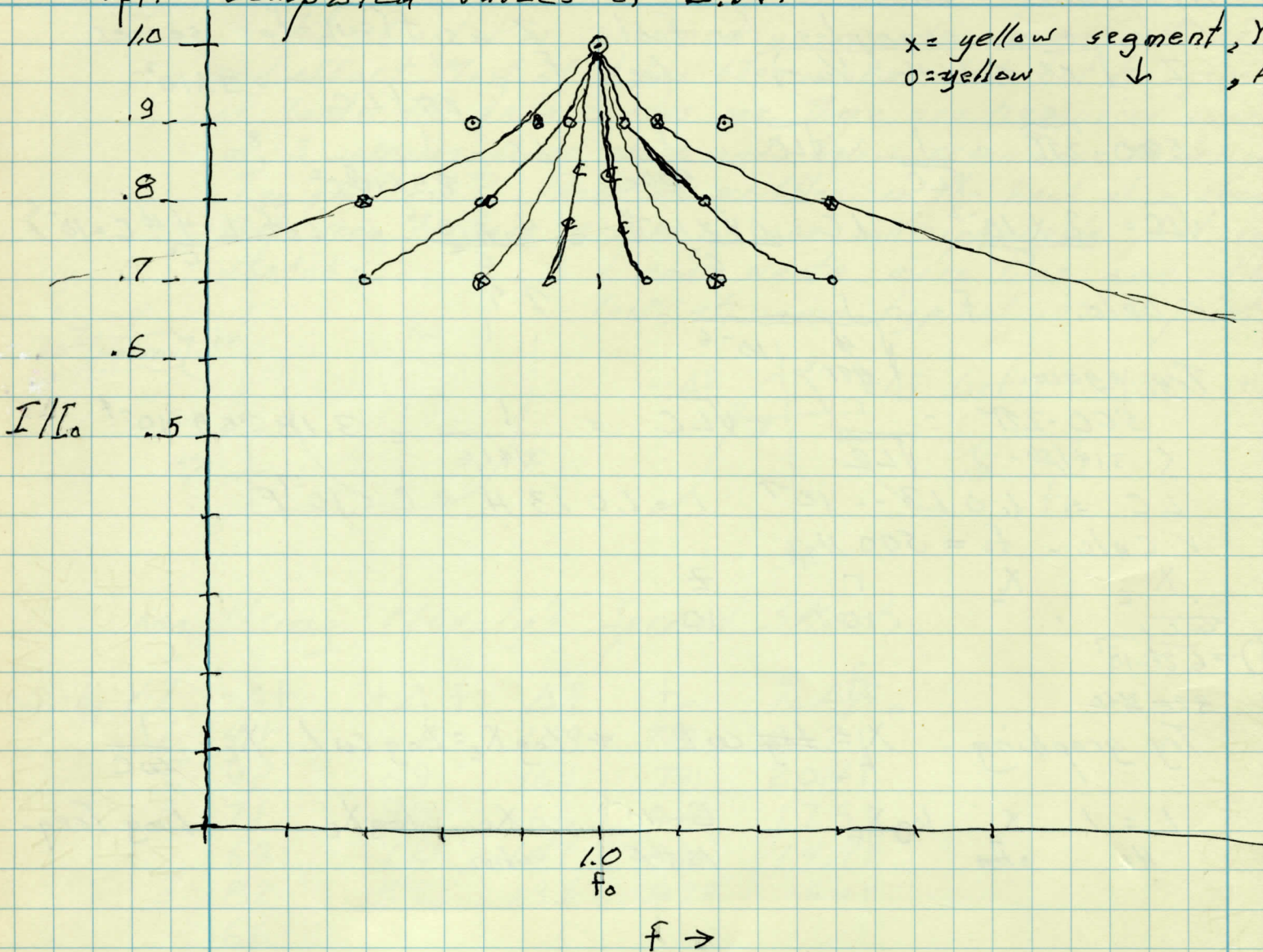
1
2
3
4
5
6
7
8
9
10
11
12



15 Sept. Computed values of B.W.

25

x = yellow segment, Young
 o = yellow ↓ , Adult.



From: 2nd, Band width = $BW = \frac{\omega}{Q}$ or $\Delta F = \frac{f_0}{Q}$ and $Q = \frac{Z_0}{R}$
 Bucksbaums 3 db.
 H.B. of Q yellow, Y $\approx \frac{1}{2.8} = .36$ $Q_{corrected} \approx 1.8$
 Electr. Ref. Data Q yellow, A $\approx \frac{1}{1.18} = .85$ $Q \downarrow \approx 4.2$
 Prant. Hall-1972

$$\text{Spring const} - K = \frac{\Delta F}{\Delta X}$$

$$\text{Cap. } C = \frac{Q}{E - F}$$

$$E - F$$

$$Q - X$$

25.9.98 Correction of BW data

$$A \left\{ \frac{A_0}{A} = \frac{2}{r_1} = \sqrt{1 + Q^2 \left(\frac{f - f_0}{f_0} \right)^2} \right.$$

$$\frac{A_0^2}{A^2} = 1 + Q^2 (x)^2$$

$$\frac{A_0^2}{A^2} - 1 = X^2 \quad X = \sqrt{\frac{A_0^2/A^2 - 1}{Q^2}}$$

We know -

$$A = (1 + Q^2 X^2)^{1/2}$$

then

$$A^2 = 1 + Q^2 X^2$$

$$\frac{A^2 - 1}{X^2} = Q^2 \quad Q = \sqrt{\frac{A^2 - 1}{X^2}}$$

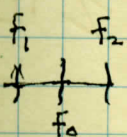
$$f = f_0 \pm BW = \left| \frac{f_2 - f_1}{2f_0} \right| (\text{norm}) = \pm BW_n$$

Why couldn't I see this????

$$\frac{f_2 - f_1}{f_0} = A \quad \frac{f \cdot f - f_0^2}{f_0^2} = A^2$$

$$f^2 - f_0^2 = f f_0 \cdot A$$

$$f^2 = f f_0 \cdot A + f_0^2$$



$$\pm \frac{f_2 - f_1}{2}$$

Using Typical Data X

	$\frac{A}{A_0}$	$\frac{A_0}{A}$	$\frac{f_2 - f_1}{f_0}$	$\frac{f - f_0}{f_0}$	$\frac{f}{f_0}$	$\frac{f - f_0}{f}$	$\frac{f_2 - f_1}{2f_0}$	$\frac{f - f_0}{f}$	Q	R_0	R_{corr}	Q_{corr}
Y-2 85	.8	1.25	1.22	1.61	.61	1.64	1.03	1.069	1.56	72	13.4	3.4
-2 90	.9	1.11	.17	1.085	.92	.92	.027	1.37	1.23	16.2	6.2	
-2 70	.7	1.428	1.36	1.68	.595	1.085	1.177	2.039	.93			
2 80	.8	1.25	.5	1.3	.769	.531	.28	1.56	2.01			2.92

Region -

$$\frac{A}{A_0} \quad \frac{A_0}{A} \quad \left(\frac{A_0}{A} \right)^2 - 1 \quad B.W. \div 2 \quad \pm \frac{BW}{2} \quad \frac{1}{f_0} = \frac{f - f_0}{f}$$

Y-2 70%	.7	1.428	2.040	1.040	1.36	2.68	1.68	.595	1.084	1.176	.94
A-2 90	.9	1.111	1.234	.234	.21	.105	1.105	.905	.200	.040	2.41
80	.8	1.25	1.562	.562	.8	.4	1.4	.714	.685	.469	1.09
Y-3 70	.7	1.428	2.041	1.041	1.46	.73	1.73	.578	1.152	1.327	.88
90	.9	1.111	1.234	.234	.2	.1	1.1	.909	.19	.036	2.54
80	.8	1.25	1.562	.562	.88	.44	1.44	.745	.745	.55	1.00
Y-3 70	.7	1.428		1.041	1.35	.675	1.675	.597	1.077	1.16	.946
A-3 90	.9	1.111		.234	.16	.08	1.08	.926	0.154	.015	3.14
80	.8	1.25		.562	.54	.27	1.27	.787	.482	.233	1.55
70	.7	1.428		1.428	1.26	.63	1.63	.613	1.017	1.033	.851

Improving OSCE Sims.

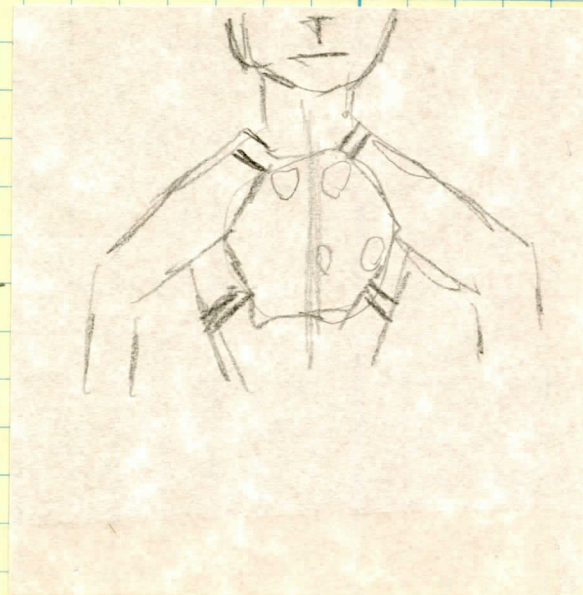
Simulated pts. can give hxs, but v. seldom convincing Pxs. It is possible to use synthetic pulse, E.R., ausc. generators separated from the pts. but it would be more realistic to attach transducers directly to pts. in realistic fashion.

This could be eith 'vests' (large area overlays) or 'patches' limited overlays of small areas or a combination of both.

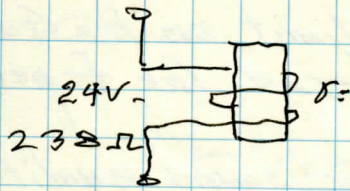
Simulated items inclu

19 Feb Dr. Szauter -
2003

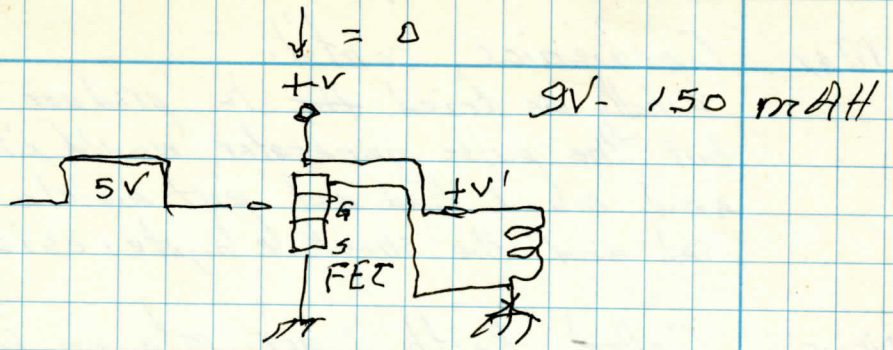
Discussed above - She described her concept of v. simple patch → she has \$5K for development - I suggested we try local (LITMB) shop - Agreed to: Szauter will develop simple scenarios I will put together simple demo -



27 Mark Cardionics



63 mA ~



Mark:

MPL BP Trn

K Sound

0 50mV

1

2

3

4 250mV

7 1000 ↓

- Fab. Box & FET Tr batts to 1/F C MST.
- Mist. Sound Trainer
- W.T. - CKT to 1/F C MPL BP Arm
- Pulse Box

1715

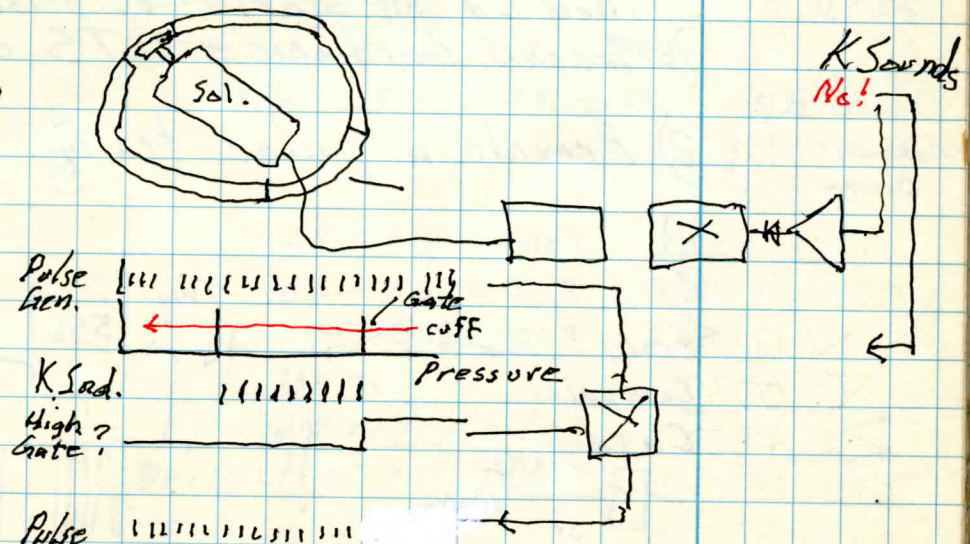
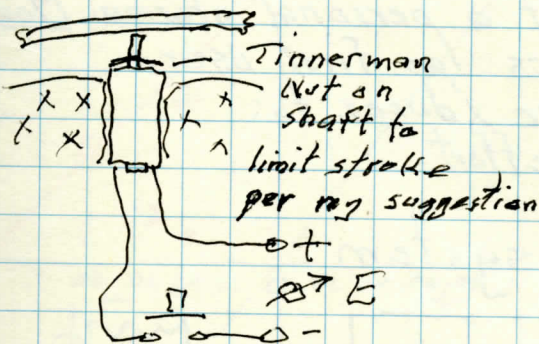
Discussion to Keith:

K. wants to concentrate on simple pulse indication for his torsos and Multi Sound Trainer.

I described my need for a dual pulse (modulated) unit and for a pulse on the BP arm.

Mark (BSEE) had placed a guardian Solenoid (above) in a torso as below. This gave an adequate impulse.

We then discussed installation in the MPL arm which can be done at an angle.



Mk. and I discussed addition of a simple pulse to the MST (+Torso). This will involve taking an existing 5V? systolic pulse & adding a FET driver + separate power supply (battery)

2K/2003

29 Mar Cardionics, cont'd.

Finally we tried the to produce a shaped pulse, triangle, but the pulse generator wouldn't drive the Leers solenoid and mark had not put an elastic limit on the Guardian sol. and the shock & hysteresis altered the perception -

30 Mar Called Keith & arr. mtg on cardiac sound quality 4th Apr + briefly discussed above - Will w put details in Hc. E cc, to Sencer, tech. mgmt.

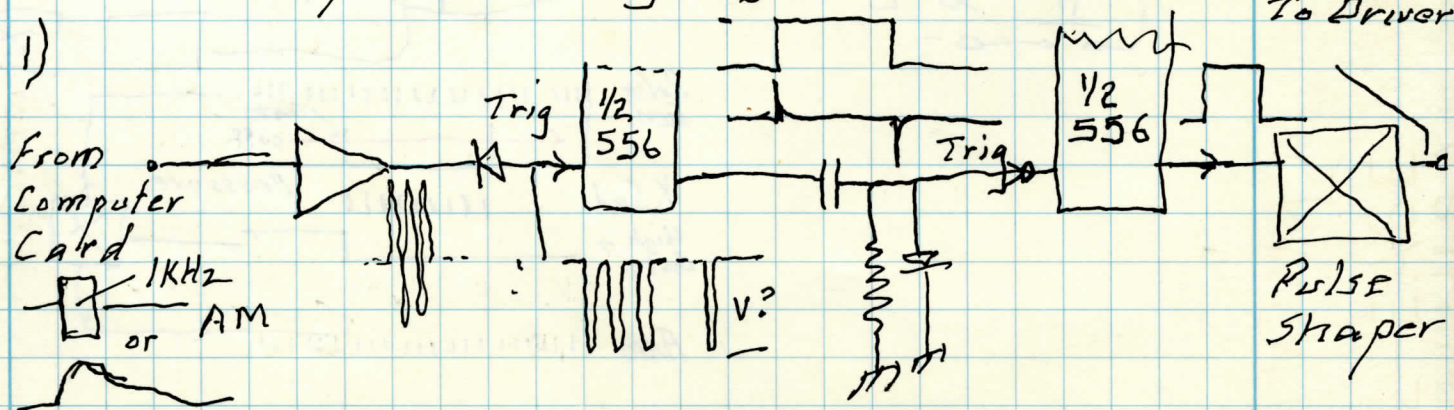
20 Sept '03
STS
Med-Ed.
status

Review UTMB situation c K.J., Cardionics; They have neither heard nor received anything from anyone re STS. Discussed what is needed for Keith to proceed.

I agreed to do prototype V.C. pulse unit in 2 wks if KB would provide me c bench P/S. immed. He agreed. The only way he can do STS is for me to finish above and I doubt he will do much then. I will start a personal informal Medical Education program c Cardionics as first user.

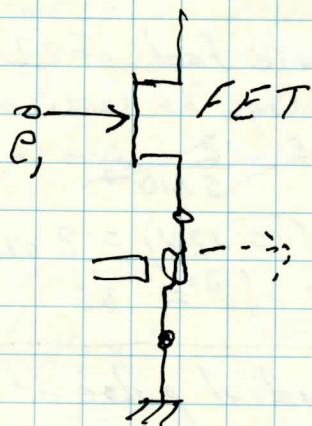
Med Ed will start c V.C. pulse xducer, to:

- 1) Support Cardionics STS effort.
- 2) Provide a pulse training system

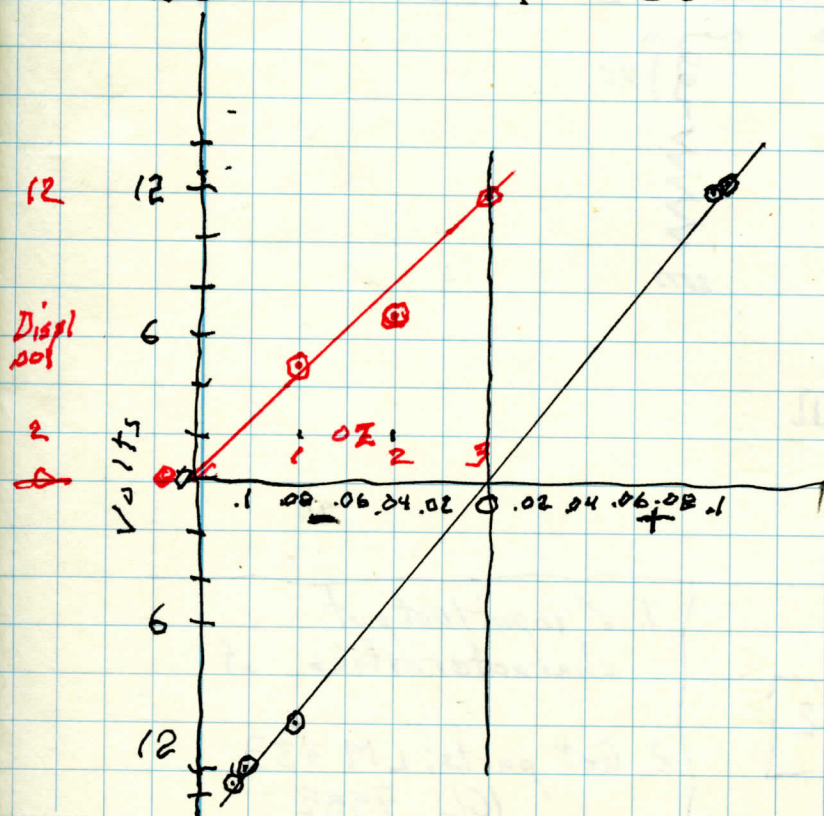
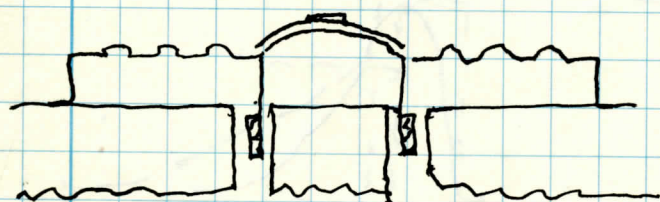


20 Sept. Med Ed
1) STS, cont'd.

Driver.



V.C. Spt. X' teristics.
Displ. vs. I



$$R_{VL} = 8.2 - 1.3 = 6.9 \Omega$$

-13.25 V bottomed Spt

$$+12.29 V - \Delta X = .443 - 3.45^{.098} / .387 = \text{unload posn}$$

$$+12.20 \quad .458 - .364 = .094$$

$$-12.02 \quad 0.340 - .241 = .099$$

$$-12.10 \quad 0.325 - .220 = .105 \quad \text{max displ} = .0155$$

$$13.01 \quad 0.320 - .240 = .080$$

$$9.96 \quad .317 - .236 = .081 \quad \text{NB Used } 11/16" \text{ washer + nut.}$$

$$.071 - .064 = .007 \quad 202$$

$$.070 - .058 = .012 \quad 302$$

$$.074 - .069 = .005 \quad 102$$

Assy Prod Unit

$$.091 - .019 = .072 \quad 13.0 V$$

$$0.58 - (.002) = 0.60$$

~~$$\frac{100 \text{ mm Hg}}{740 \text{ "}} = \frac{133 \text{ mm Hg}}{6894 \text{ #/in}^2} \text{ ??}$$~~

$$\begin{aligned} 1 \text{ mm Hg} &= .01933 \text{ PSI} \\ \text{or } 100 \text{ " " } &= 1.93 \text{ " "} \end{aligned}$$

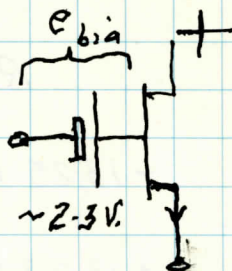
To generate field of ≈ 2 PSI
over 1" sq. at sens. of V.C. 5×10^{-3} in/oz
~~Displ. of $\frac{2}{5 \times 10^{-3}}$~~ or $.2 \times 10^2$ oz/in
20 oz/in
+ 1" ($\approx 12V$) = 2 oz
1" $^2 = \sqrt{1 \text{ in}^2} \approx .3$ "

✓ Calc. & plan on 12 V for radial pulse -

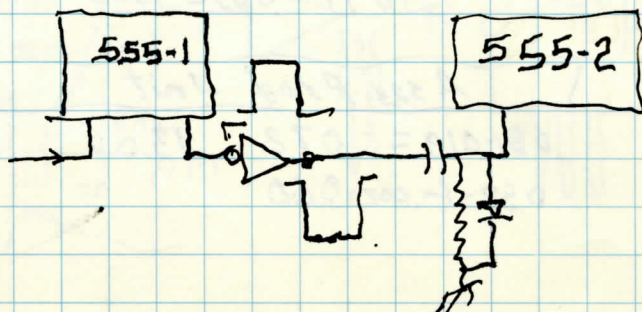
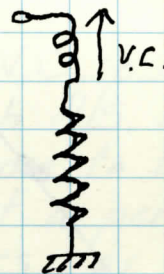
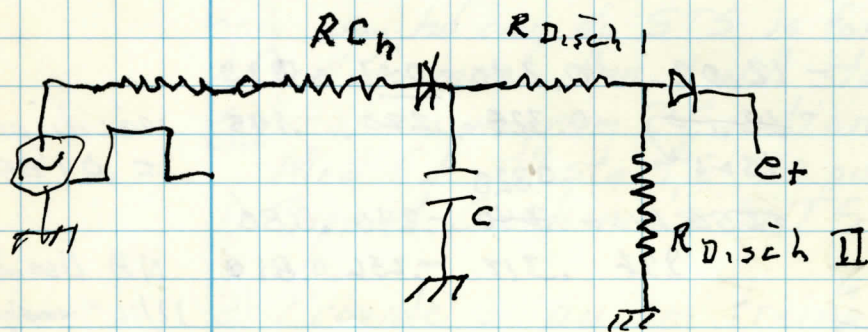
No! N. Pulse is AP or $\sim 40 \text{ mm Hg}$ - so $.4 \times 12V \approx 5V$!

$$I = 12V / 6.9\Omega \approx 1.7A$$

For FET:



555 Data: Output
Can go $\sim +\text{supply}$



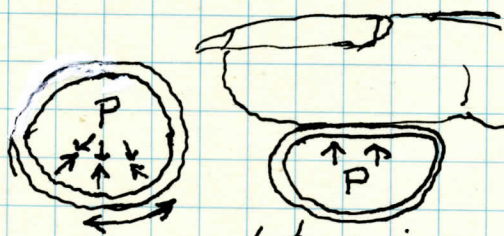
1. ✓ input/output characteristics of
2. Get parts: LM 339
ICL 7555
TLC 551

20

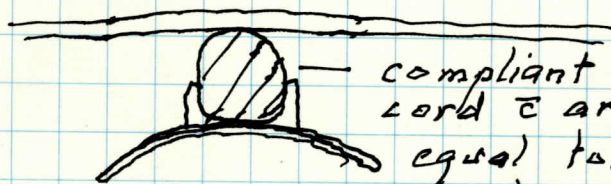
Summary

Meas. of V.C. characteristics plus observation show a large, apparently rugged unit $\bar{c}$ force/displacement adequate to simulate pulse.

Force vs voltage/I is derived from compliance assuming compl. is linear and that at 0 displ. (isometric) full force is available. Palpation of pulse is probably some combination of force/displacement. (in practice there must be overlap).



Intervening
compliant
Tissue Not
shown



compliant
cord $\bar{c}$ area + Force
equal to Δ pressure
in actual vessel.



.5

22.10.98

C/O of Sony Discman C.D. player.

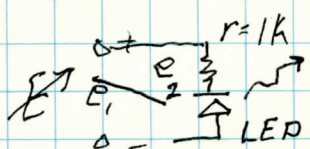
Will try to simplify ATA Transducer & LED instead of pulse unit.

16 Ω out at 15 mW max.

$$W = \frac{E^2}{R} \quad \& \quad (W \cdot R)^{1/2} = E = (1.5 \times 10^{-3} \times 16 \times 10)^{1/2} = \sqrt{2.4 \times 10^{-1}} = .48 \text{ V}$$

$$= I^2 R \left\{ \frac{W}{R} \right\}^{1/2} = I \quad \& \quad \sqrt{\frac{1.5 \times 10^{-3}}{16 \times 10}} = \sqrt{9.375 \times 10^{-2}} = .306 \text{ A}$$

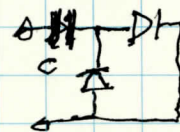
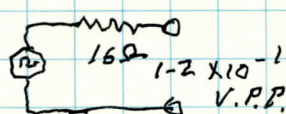
Determine LED characteristics

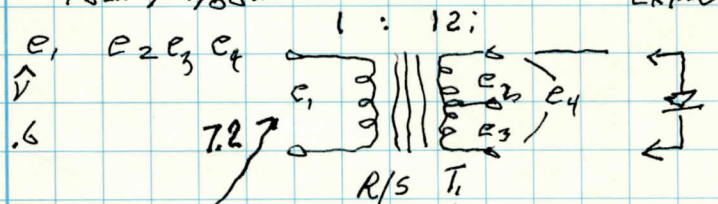


E_1	E_2	I	LED	mW
V	V	mA		
1.8	1.38		Red Radio Shack	< 4.

Ckt 1

LED



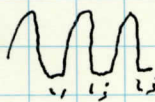
$$\frac{16}{30} = \frac{480}{480}$$
1.1 $\rightarrow$ 3.0 V - 30:116 $\Omega \rightarrow$ 480 Ω 
 $T_1 = R.S. \quad CT \ 1k \text{ to } 8\Omega \quad \text{Pri.} \quad \text{Sec.}$
 $.4\Omega \quad 45\Omega \text{ D.C.}$

Heath
Pulse
Funct. Gen driving

transistor output

$Z_{out} = 50 \times 12 = 600\Omega$

Ckt. 0 } barely visible in pass
 & Red } light - Top & A.C. ~~output~~
 R/S diode } waveform clipped



Effort to find L.E.D. that can be driven by C.D. player.

Found a 2.1 V 2ma (4.2 mW) unit at R.S.

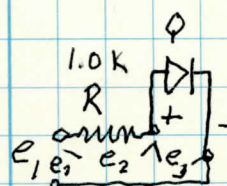
Also need to educate myself on LED characteristics.

I E curve - forward and backward, breakdown values

Q = RS 276 310

2.1 V 2ma

5.2 mcd



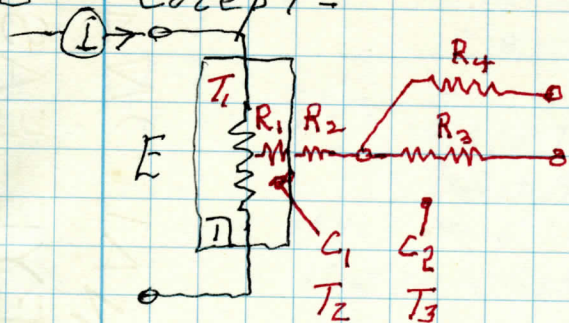
E_1	E_2	I	Lt.
V	V	ma	
0	.53	0	-
0	1.00	0	-
0	1.50	0	-
0	1.59	0	-
.01	1.70	.01	vis.
.03	1.75	.03	7v
.06	1.85	.06	+

E_1	E_2	I	Lt.
V	V	ma	
.13	1.90	.13	
.21	2.00	.21	
.30	2.10	.3	
.39	2.20	.39	
	2.30		
	2.40		
	2.50		
	2.60		
	2.70		
	2.80		
	2.90		
	3.00		

NB - It is easily seen
in pres. of bench lts.
at 1.0 ma

31 July 1998 Continuation of Flap Perfusion - See 'Red' N.B. p 59-62

Cocept-

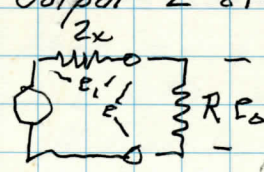


23.10.93

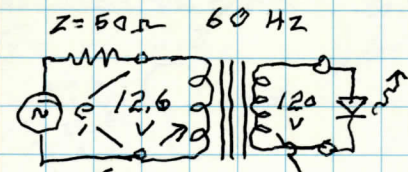
Simplify ATA-

Output Z of HK Gen-1274

HK



R_e, L_p
 Ω V_{rms}
51.9 7.757
60.6 6.91 8.15
1 KHz ≈ 0.1506

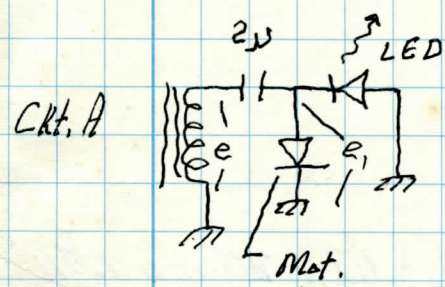


Z this ckt. LED was visible @ .24 V_{rms} & bright @ .33 V_{rms}

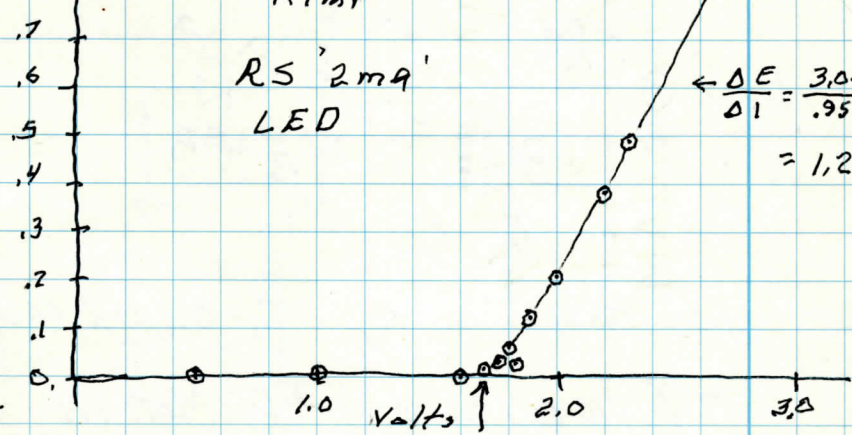
$$\frac{Z_1}{E_1} = \frac{Z_2}{E_2}$$

12.6V pri. - 110V 1,444 Gen

1385A 60Hz Xfmr



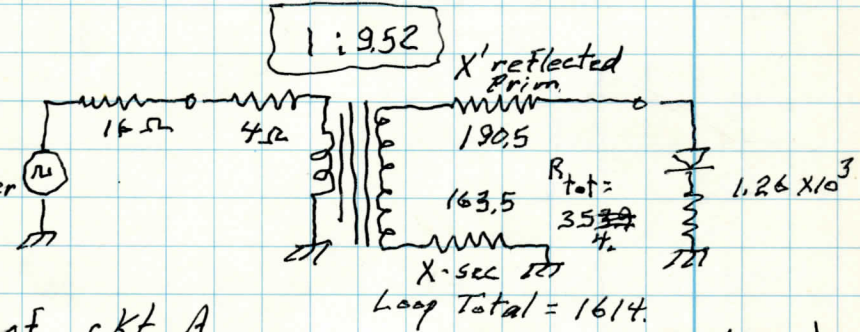
I_{ma}



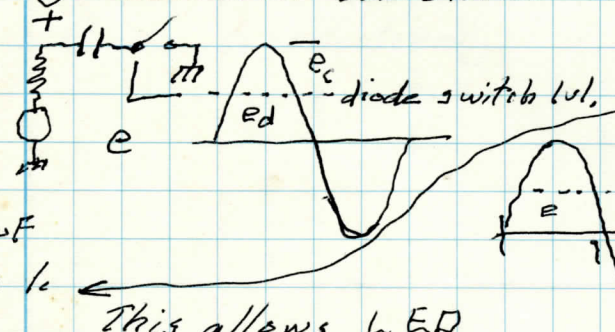
$$\frac{\Delta E}{\Delta I} = \frac{3.0 - 1.8}{.95 \times 10^{-3} - .95} = 1.26 \cdot 10^3 \Omega$$

Above ckt. works & 6
Player output into
Xfmr. Calc. Z_s of diode
'on' $R = 1.26 \cdot 10^3 \Omega$
② of Xfmr. & source.

Player out = 16 ohm
Ckt is 21.9% of total Z
N.B. little to be gained from
Optimizing Coupling.



③ Understand waveforms of ckt A.



1. Capacitor will charge to e_c which will now be in series & alternating voltage

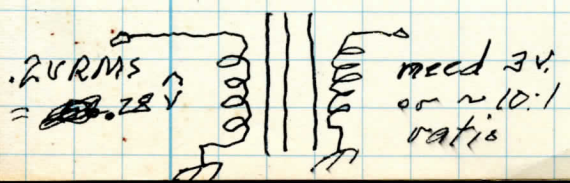
X_c of $2\mu F$
at 1 KHz

$$X_c = \frac{1}{2\pi f C} = \frac{1}{2\pi \cdot 10^3 \cdot 2 \cdot 10^{-6}} = 39.8 \Omega$$

This allows LED

- ① conduct earlier in cycle
- ② transfer charge in LED - est. this could be ~ 2x that of LED across Xfmr.

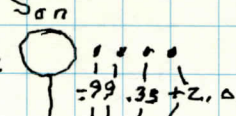
?? Capacitor value is ^{lower} higher value for earlier conduction vs larger for $> I$. ??



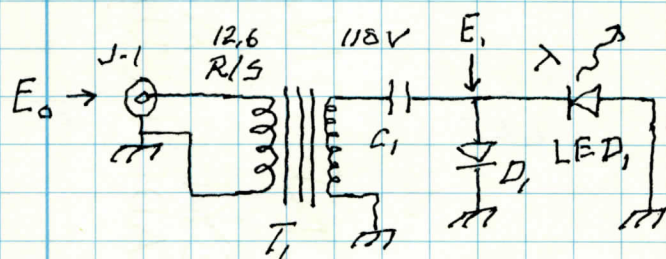
(OVER)

7 Nov.

L.E.D. timing indicators for ATA - Passive
 Promised Andries ckt. bds. of passive & active
 LEDs -

Voltage Source: 

C.D. Player has low Freq. X talk in max bass posn.



J-1 RCA Jack

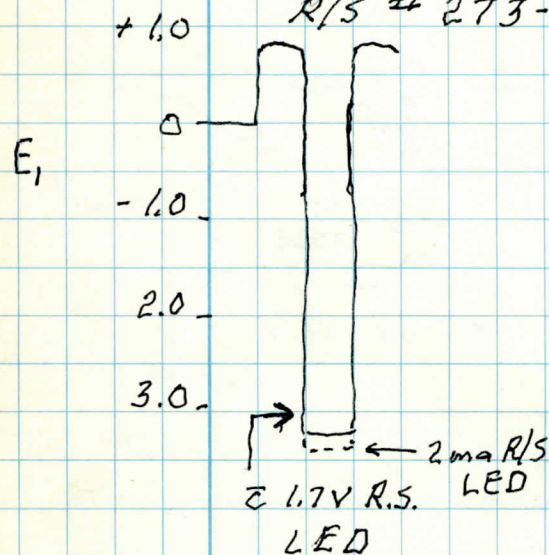
C₁ - 0.1 μ Fd 100V

LED₁ - 1.7V. 20 ma LED
 R.S. # 276-309

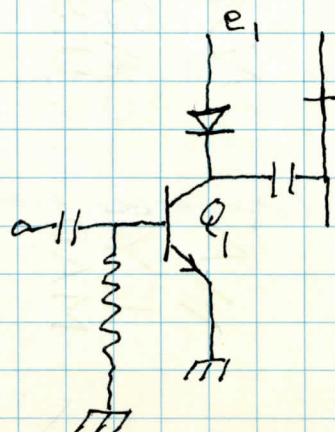
T-1 110 to 12.6V
 Pwr. Trans.

D₁ - Mot. 1N
 signal diode

R/S # 273-1385A



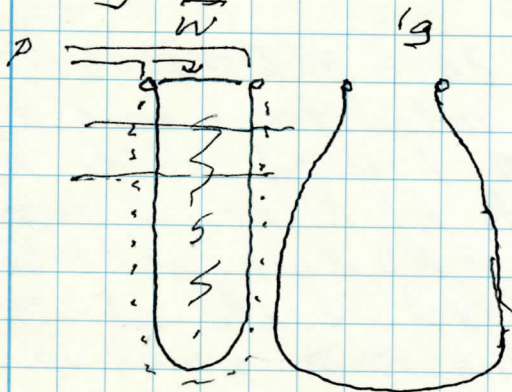
Active Ckt.



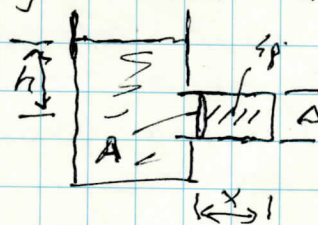
27 Oct. '98 Compliance; Earth vs. Space

There is still no obvious explanation for some of the observed phenomena of fluid shifts that one might reasonably expect on Earth eg extreme elevations, underwater, etc.

It has long been qualitatively obvious that an elastic vol. in space will contain less vol. of a heavy fluid than on Earth & I have toyed idea that compliance is increased (effectively) on Earth but was never brave enough to give it math. expression. Using my old balloon - which is too complex



In $\bar{t}_g \bar{w}$ if pressure is added a segment of the balloon will expand. This is a complex shape and since I have only 10 min. left; try a linear case -



Insert a square area A in a column of fluid $\bar{c}$ area A is a linear spring. This will have a compliance of

Compliance = $\frac{\Delta V}{\Delta P} = \frac{\Delta X A}{\Delta P}$ where $\Delta X = A \cdot \Delta P$. This is in $\bar{w}$. In $1g$ ΔP will be increased an additional pressure ρgh which produces an additional increase in pressure of $\Delta P = \rho gh$ and an additional vol. Δ but according to relation of $\frac{\Delta V}{\Delta P} = \text{Compl.}$ If one ignores the ΔP it is as if there were ΔP an increase in compliance but since this is a fiction there is little to be gained - nevertheless h, g & ρ all act to effectively $\uparrow$ Compl.

25 Dec '98 Frozen plant exudates: Fair Oaks Ranch, TX

26

	Plant Heights	Ice Heights	Base W	Thick
tree	90	51	14 cm	1-2 mm?
seed	90	40	5 dia	
grnt	40	25	10 (double)	
grn/brn	110	70		
A	90	36		

M
M/K
M
C

50

100

30

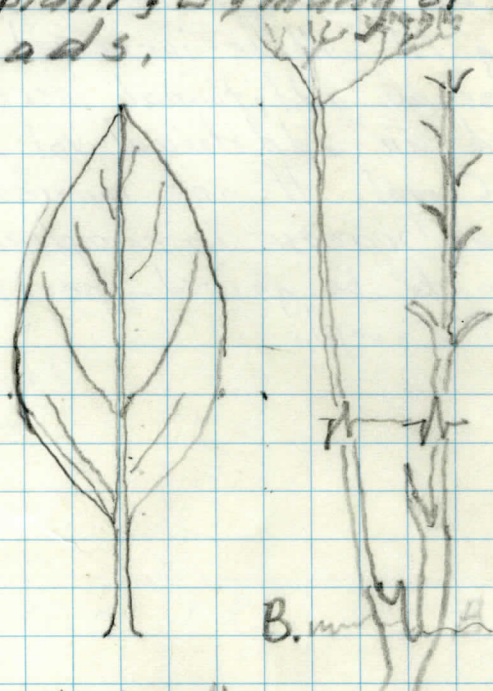
50

24 Dec.

On 21st, Mon. 1915-68°F → 2030 48°F → 2200 → 32°F

On Tues AM S.T. noted 'trash bags' around certain weeds. On Wed PM I noted white material around weeds on Hwy 46 to F.O. Ranch & temp < 32°F and freezing mist. On exam at F.O. Ranch. white matl. was found to be tapered crenellated sheets of ice. S.T. had observed it was from the stems which had split under rapid freezing.

The weeds were broad leaved, A, from a fibrous long stemmed plant, B, many of which had broad flat flower heads.



A.

B. *multicaulis*

They were typically growing in clusters along ditch & creek banks under trees (oak, hackberry), often on slopes, along fence lines and occasionally in fields. I thought they were latex plants & evidence.

Many of the plants were dry and ice didn't seem to form on these unless partially green leaves were present. Many plants were green and had formed ice.

26

Iced plants, cont'd.

All melted on 25th and reappeared on 26th
 Collecte

Plant	Ice	Plant	Ice	Ice	Total
Length	Length	Ht.	Ht.	W	
46	36	26	15	10	✓
50	40	30	24	12	✓
adj. { 94	43	94	43	15	Horiz - 10cm high 56 26 7
87	50	74	42	14	
94	48	94	48	14	

1999

Practice of Medicine - 2nd Yr. Y2K

24 Apr.

Cardiovascular and Pulmonary -
Current Schedule - T/lea. 1 hr. CV. schedules & 1 ea Pulm

N.B.
This is
introduction
not
comprehensive

Problem:

- Design and create course - incl. text -
- Obtain space and teaching support - training and standardization
- Obtain hardware for support - create what is not available

Above must include test and evaluation

Current Plan:

Syllabus; Lecture - Goals of course, Schedules, Handouts

? Overview of circulation -

1st hour - C.V. Px Dx - overview -

Evaluation -

Inspection -

Genetic Predisposition - Text ref.

Manifestation of disease - ? Text ↓, ? H.O.

Examination - Insp. & Palp. + perc. Check List

Peripheral -

Vital signs - H. Subj

Pulses -

Pedal Subj.?

Eye grounds *

Carotid/Jug. H

J.V.P. Subj.

Bruits * (A)

Aortic Insuff. Subj.

Venous Insuff.

Lymphedema -

H = Harvey
* new items

Cont'd.

Δ revised item -

POM - C.V.P Px Exam Contd-

24 Apr. 99

24

2^o Hour - Precordium
Insp. + Palp. - H

chk. List Δ

H.O. Δ

N.B. might
be better
to move
JVP to this
time -Chest -
Insp -
Palp -
Aus -
Abdomen -3^o Hour Introduction to Auscultation

- Evaluation - Review
- Background - H. Sounds, Murmurs + Vibration
Stethoscope and its use -

H/O - Δ

Thrills
& H.Procedures -
H Sounds

chk. List Δ

Murmurs

Palpation + Auscultation

ATA's

Basic H Sounds

Lib?

? Lungs - S₃ & S₄

POM - C.V.P. Pk Exam. Y-2K

24 Apr '99

4^o Hour -
Evaluation ?

- Splits and Opening Sounds
- Systolic (M)

5^o Hour

Diastolic Murmurs

Bruits

Rubs

Pulm. Sounds

? Lungs

6^o Hour

Percussion

Edema

Ascites

Thrills

Models -

Edema

Pulse - $\begin{matrix} \uparrow \\ \downarrow \end{matrix}$ bifid

Thrill

Percuss -

Apical Impulse

Decibel Level	Example
30	Quiet library, soft whispers
40	Living room, refrigerator, bedroom away from traffic
50	Light traffic, normal conversation, quiet office
60	Air conditioner at 20 feet, sewing machine
70	Vacuum cleaner, hair dryer, noisy restaurant
80	Average city traffic, garbage disposals, alarm clock at two feet
THE FOLLOWING NOISES CAN BE DANGEROUS UNDER CONSTANT EXPOSURE	
90	Subway, motorcycle, truck traffic, lawn mower
100	Garbage truck, chain saw, pneumatic drill
120	Rock band concert in front of speakers, thunderclap
140	Gunshot blast, jet plane
180	Rocket launching pad

Information courtesy of the Deafness Research Foundation.

SONY



25 May 99 1 CVPE - POM

Meeting @ Runge, Bungo, Jacobs, McCreery
Described Course

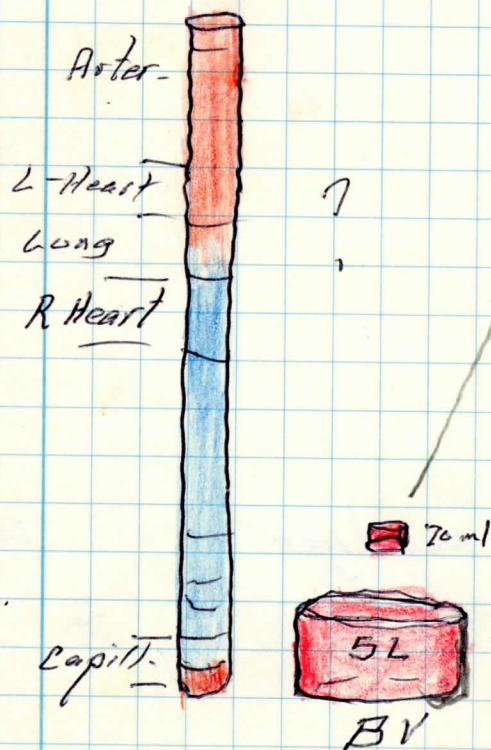
Discussed Sched. desirability of continuity

Angela will sched.

- Promised syllabus next wk - Glenda Rossin 20390
- " Real Sched. ASAP - Scty Jen. Ladwick 22967
- " to call later - Steven Conner. 21677

26 May 99 Went to old Shriner's Hosp @ S. Conner who
showed me a huge empty room @ cubicles of departed.
Much too large - wrong shape - Can't wall off ~~it~~
? Time - ?? Money

Models for B.V. + C.O.



Size(s) - Vol. = $A \cdot H = r^2 \pi$

$$70 = (\frac{3.14}{4} \cdot 2.54^2) \cdot H$$

$$= (3.14)^2 \cdot H$$

$$1452 \cdot$$

$$(1.54)^2$$

3 m

$$71 = 6.25 \cdot \pi = 20.56 \text{ cm}^2$$

$$= 3.95 \text{ cm Height}$$

$$5 \times 10^3 \text{ ml}$$

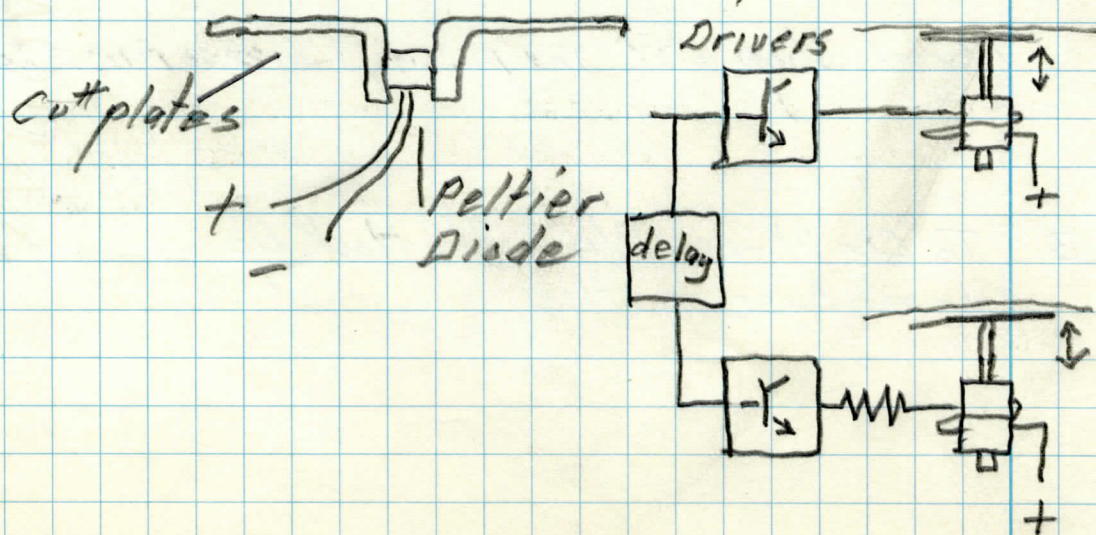
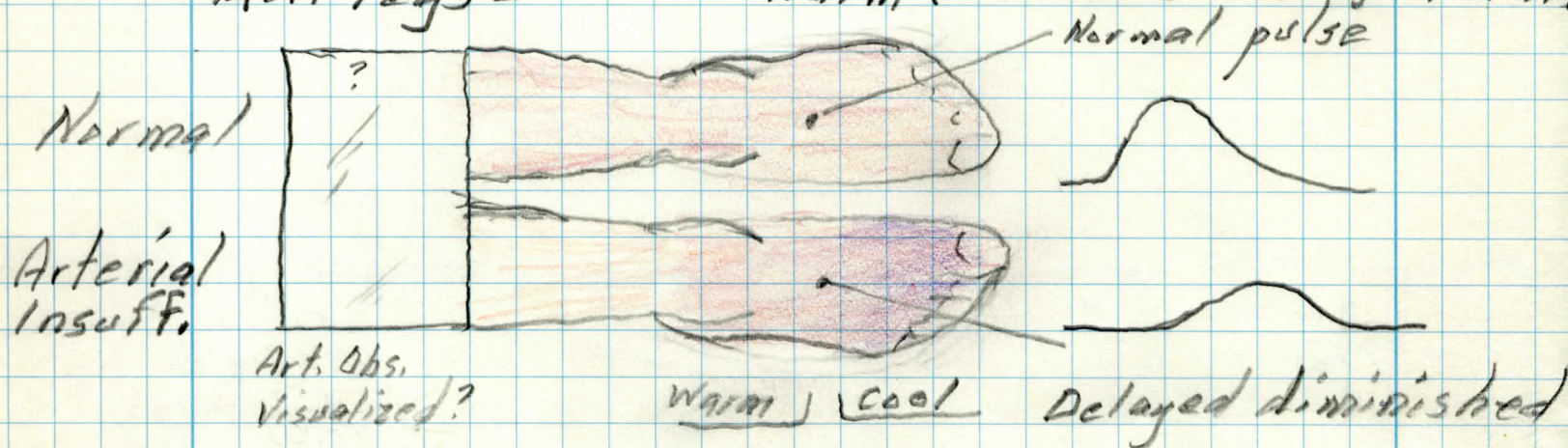
2 Jun 99 P.V.C. pipe sizes available:

Dia, Ins.	0.57	.82	1.07	1.32	1.57	2.07	6.0	7
Area in^2	.255	.53						
Dia, cm	1.45	2.08	2.72	3.35	3.99	5.26	15.24	17.78
Area cm^2	1.65	3.4	5.8	8.8	12.5	21.7	182.4	248.3
H for $70 \text{ cm}^3 \text{-cm}$					5.6	3.22		
$5000 \text{ cm}^3 \text{-cm}$					400	230.4	27.4	20.1

4 June '99 Edema Simulation
 Foam Fabricators, San Antonio had samples of an
 EAR foam C 3000 series that had excellent
 feel and memory properties. F.F. promised to get some
 and claims.

8 July '99 Teaching hdw. development - Went to MPL
 30 Jun & met various staff incl. Jimmy Glover Ch. R+D
 They have an interesting and unique line of models but few
 which fit. I brought back a foot & leg & art. insuff
 & varicosities. They are loaning us a B.P. arm.
 Talked to Jimmy & broadly outlined the items below.
 Venous Insufficient leg
 Arterial " "
 Pulse in arm -
 Mod. B.P. arm -

9 July '99 MPL B.P. arm came in, evaluated and memo to
 Jimmy & proposed additions sent. Can be a useful
 pressure-pulse trainer.
 A.I. legs - Warm (Resistance Heating - T-stat.)



Models, contd.

Venous Insufficiency

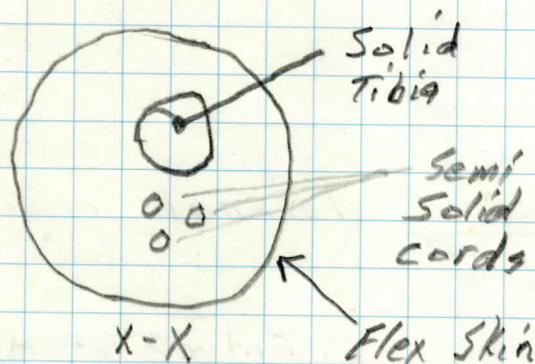
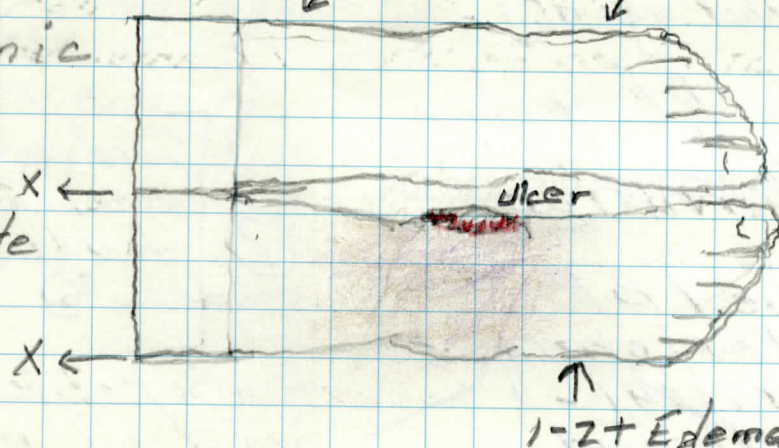
Two Legs -

Cords

3-4 + Edema

Chronic

Acute

Same but
3 Cords

Chronic

Acute

Chest - Percussion
? Sounds

Pulses: See OSCE exam next pg. By using the existing tone modulated solenoid pulse system it may be possible to generate the pulses we need plus programming them on a C.D, or MD or R10. This would give us two channels plus possibility of coding shifts. Andries should be able to handle this. 17 July → Andries has increased force by simply raising voltage and has generated sample of pulses/impulses Pg 104,5 which he claims feels good and will bring to DTMB next Mon.

13 July OSCE exam - CVPEx
Should validate what has been taught.
Hx - other agents.

Px - CVPEx only.

CARDIOVASCULAR PHYSICAL EXAM

- **Appearance:** habitus, posture, activity, color, temperature, sweat
Signs of genetic or acquired disease
- Blood pressure, heart rate, and rhythm

Peripheral Exam

- **Limbs**—color, temperature, skin consistency, edema, ulceration, varicosities, clubbing
Pulse—radial and pedal (other pulses if indicated); bilateral equality, normal propagation
Elevate upper and lower limbs for color change, venous filling
- **Head and neck**—fundoscopy; AV nicking and ratios, exudates, etc.
Thyroid—size, configuration
Carotid and jugular pulse; jugular pressure
Auscultation

Central Exam

- **Precordium**—left ventricular apical impulse; location, size, profile
Ectopic area for left ventricular dyskinesis
L.L.S.B. for right ventricular impulse
Pulmonic area, pulse
Auscultation
- **Chest**—inspect for signs of genetic or acquired disease; COPD, emphysema, respiratory difficulty
Palpate for thrills
Percuss for areas of dullness, fluid, liver size and location
Auscultation of lungs
- **Abdomen**—inspect, percuss and palpate for ascites, aorta
Auscultation

Cardio Pulmonary

(2) Auscultation (2)

Palpation

(5)

Percussion

(2)

Renal

Pulmonary -

5

11

HR + Reg & Irr. Pulse -
72, 48, 112, random (60-80), dropped beats -
Respir variation, added beats

↑ BP 160/110 NBP 120/80

↓ BP 90/60

NBP & Auscultatory Gap (5) 15
" & Muffling

Pulse - Nil ↓ - (2) 6

X2

Impulse - Nil, Sustained,
bifid, Sustained C 3,4 (4) 12

Edema Model (2) 3

(1) Vital Signs

(3) Palpation

16

*1

13

13

8 June '99 B's Meeting -

Review -

Teaching Space
Teachers
Uniformity
Syllabus

- Use of student's bodies - 1 male class
- List of names
- Copies of Bates
- Delivery of:

Syllabus - JOYCE x23181 or x23605

TUES

Assignments

- Grading Pass/Fail -

~~• Lecture~~

11 June Runge + POM teachers 1030 -

Open item list

Schedule ✓

Sign In ✓

Grades

Syllabus + book?

Protocol ✓

Check List ✓

Room ✓

Harvey ✓

Graphics ✓

? lighting ✓

16 June Bois, Holden, Cecile, Barney, & spack, 2* 42 stud./groups 168
Ophthalmologist - Ochsner 42 x 4

*ILT *Glenda Rassin - 3-9232 20390

Agreed to do 4 cardio pulmonary stations of 30 mins each
13 July as an opp. pg. Aus. will include Boyer's pulmonary sounds
How many sets can we accommodate?

15 July Mtg. E Ann Fry - Discussed OSCE: agreed that it was appropriate but scheduling probs. She suggested that it be broken into a skills and procedures sections - and will try to work sched. before Tues. ^{content?}

2^o Yr. POM - C.V. Px. Ex.22nd June 1^o Hr. Periphery21st See memos to Jayce & Teachers22nd 3 extras turned away
Only 2 for 1^o hour2nd hr. 1 BP cuff3rd " No " " - Shekari may have taken 3rd & 4th together

Bois. mtg.

Students were not told to have BP cuffs - 5 cuffs found
in Gail Borden & taken to Shekari23rd Scheduling up to Jayce and will brief students -
Need to finish Ch. 4 & 5

Notify class of next assignments

Have them come to class & fast markers -

It is becoming obvious that Chest & Adamson will have
to be deferred til Hour 6 and various illustrations etc.
should be available thenNB. Powell wants model for national testing -
July

13. Mtg. @ Gene B. wants to mix symptoms in student pt.

Had p. mtg. conf @ Glenda and tried to sort out OSCE

educators - see P-101

July 15, 16 Ann Fry -

After extens. discussions we agreed to split loc. &
time of CVPE in a procedures (Px Ex using sham
pt.) and skills (using models). The skills exam
using processes on Pp 184, 5, 6 rpd. T $\frac{1}{2}$ half
days @ 4 parallel series of stations.
This won't fly (we think) so I have reduced
it to a bare min. by combining pulse & palp

Aug. 3 - POM

Block-5 More Diversity - Glenda

6 Bob Beach - didn't coordinate

B. asked about hardware totally ignored answer

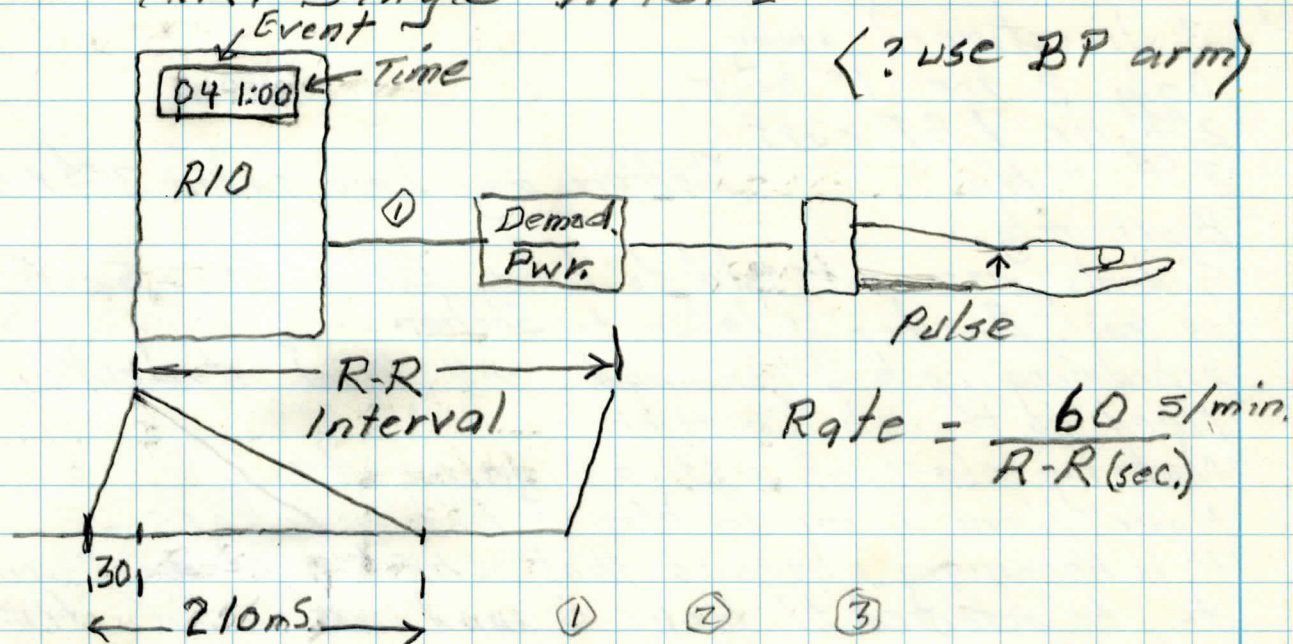
Thurs - P.M. - Glenda launched into complaints
over 3 BP meas. on OSCE - They then denied
prev. agreements & B. promised in 48 hrs.
No More! Will get what I can from POM
experience.Yesterday Francis called & many complaints - probably
from his manual pulse inputs. or Tried to find pulse
gen. at Cardionics but

14 July

OSCE - See Pg - 100

Vital Signs -

H.R. Single Wrist -



Pulse Rates - 48, 72, 120 / min regular

Totally irregular - with max. rate 120 min. and minimum rate 30 min.

Dropped beats - 80 BPM with up to 15 beats/min. missing

Added beats - 70 BPM ± up to 10 BPM added

BP Manual or Programmed Arm -

① N/-

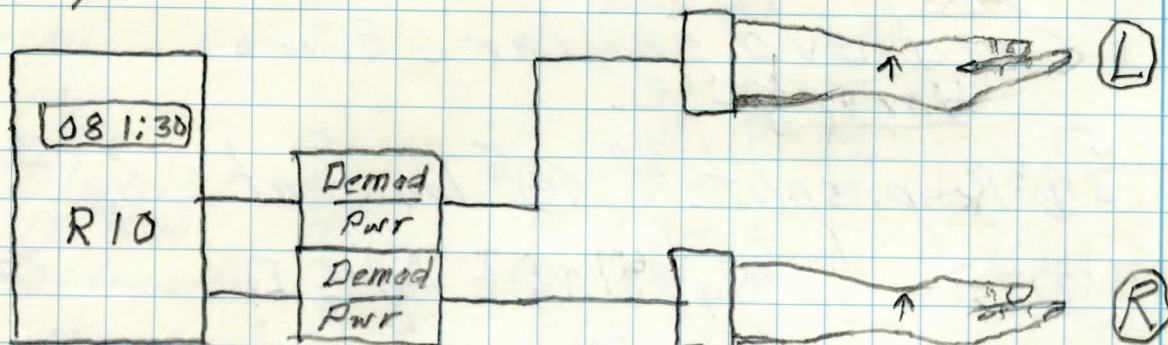
② ↑ BP.

③ ↓ BP.

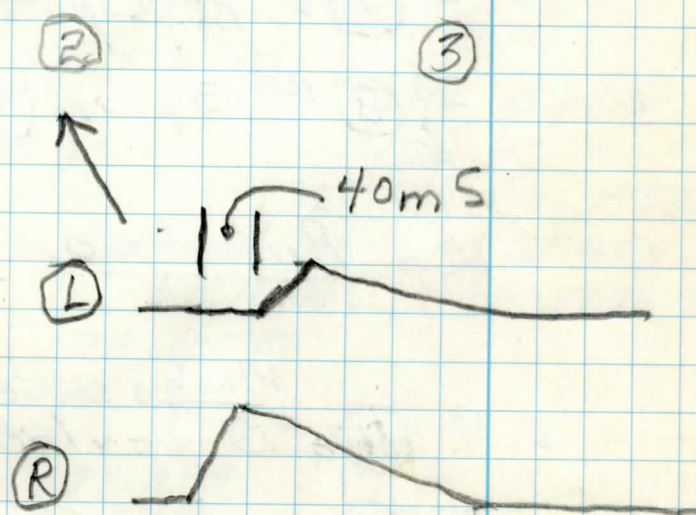
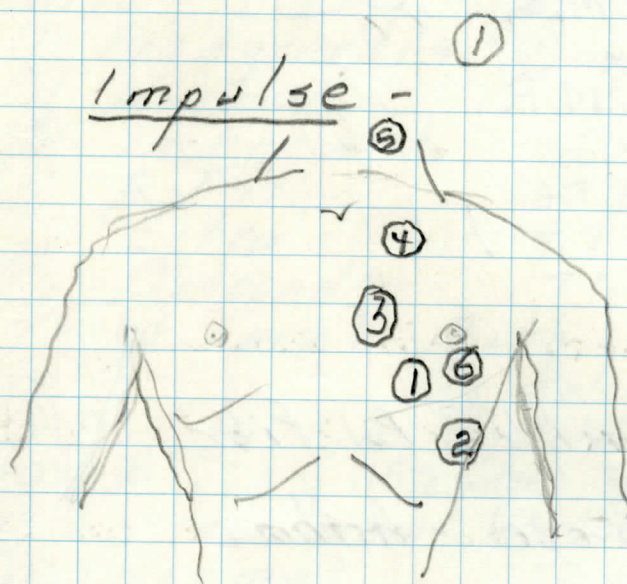
④ $\frac{185}{95}$ Gap

14 July

OSCE Contd. Palpation - pulse



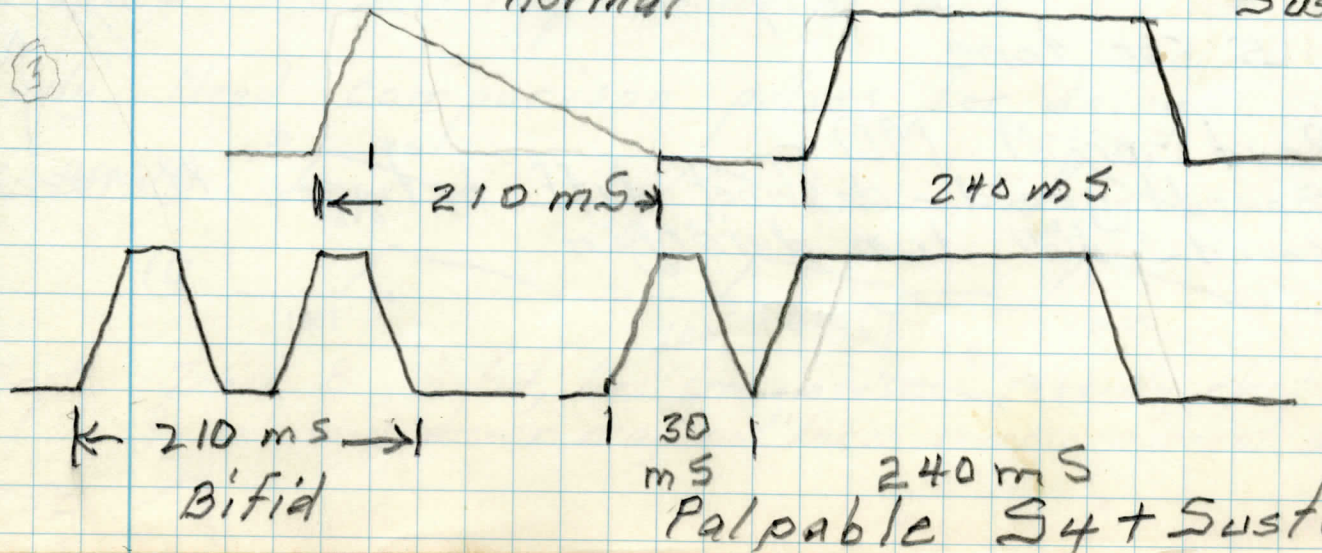
Pulse ①	<u>Equal</u> normal	<u>Stenosis</u> delayed 40ms, decreased	<u>Obstructed</u> normal
Pulse ②	normal	normal	absent



Impulses -

normal

Sustained



OSCE

Auscultation

25 min.
2 min/

Cardiovascular - 5 or 6
Harvey -

12 sounds
Total

- 3 ① Resp. split. ^{46P} ⑤ 5 Innocent E ^{22P} _{pl} ₂
4 ② ^{36M} S₃ or S₄ ⑥ 2 VSD ^{25T}
6 ③ Mitral Sten. ^{4M}
1 ④ A.S. ^{13A}

5 ea
Done

5 ea -
Resp
Done

Patient -

- 10 ⑦ ^{27M} ₂ Resp. Spl. ⑨ M.S. ^{2 or 3}
9 ⑧ ^{10M} S₄ ⑩ ^{30M} M.R.

Pulmonary - 4

- c 13 ⑪ ^{Masby} a ^{#9} late crackles - Pul. Fibr.
b 14 ⑫ d 10 Expir. Wheeze - Asthma
a 11 ⑬ c 13 Pleural Friction Rub
d 12 ⑭ b 14 Insp. & Exp. Stridor
5 sec tone

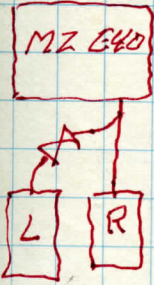
Reviewed
(listened
to by
Dr. Bayless
30 July
- ATA
+
approved

30 July Rcvd. proof MD -
Sounds good - distinct diff between H+ record.
sound - will trim duration

Jesse DeLee

19 July / 7 Sept. review of MD pulse

Requested Harvey Recordings



- | | | |
|---------------------|----|---|
| 1- 48 BPM | 3 | P |
| 2- 72 ↓ | 1 | P |
| 3- 120 ↓ | 2 | P |
| 4- irreg | 6 | P |
| 5- extra | 5 | |
| 6- dropped | 4 | |
| 7- 72 BPM | 7 | |
| 8- Has triple imp. | 9 | |
| 9- Sustained 72 BPM | 9 | |
| 10- 72 BPM | 10 | * |
| 11 " | 12 | * |
| 12 " | 11 | * |
- (R) Ch. (L) Ch.

- | |
|------------|
| 46- P.T.M. |
| 22- P. |
| 36- M |
| 9- M |
| 4- P M. |
| 7- M |
| 13- A |
| 17- P |
| 23- T |
| 25- T |
| 28- P M |
| 11- P |
| 30- T |

* No obv. diff.

Mandatory

Submit Proposal - prototest pulses (MD) - done

Vital Sign Pulse - MD -

- | | | | |
|---------------|------------------------------|----------------------------------|--------------|
| ① Bradycardia | 48 BPM | ② audio track is prim. | 218 |
| ② Normal | 72 BPM | | 210 ms pulse |
| ③ Tachycard. | 120 BPM | | 210 " " |
| ④ A. Fib. | 93 BPM | | 68 BPM |
| ⑤ Extra | 77 ↓ | 3 intervals 800 ms, 2 int 480 ms | 125 BPM |
| ⑥ Dropped | 71 ↓ | 4 ↓ 760 ms, ↓ 1200 ↓ | |
| ⑦ Normal | 72 BPM | | |
| ⑧ | ↓ | ① delayed 50 ms, ↓ | |
| ⑨ | ↓ | ② delayed ↓ | |
| ⑩ BiFid | .155 pulses sp. by 1, 72 BPM | | |
| ⑪ Sustained | (.30 sec) 72 BPM | | |
| ⑫ Normal | 72 BPM | | |

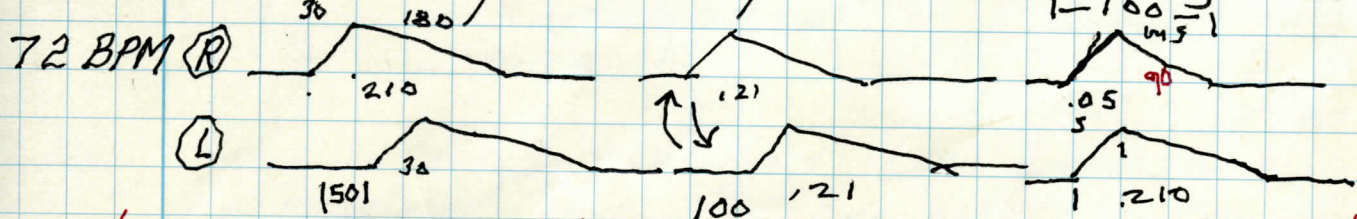
Comparison

Shape

5 sec break between tracks (silence)

20 sec. loops in each track

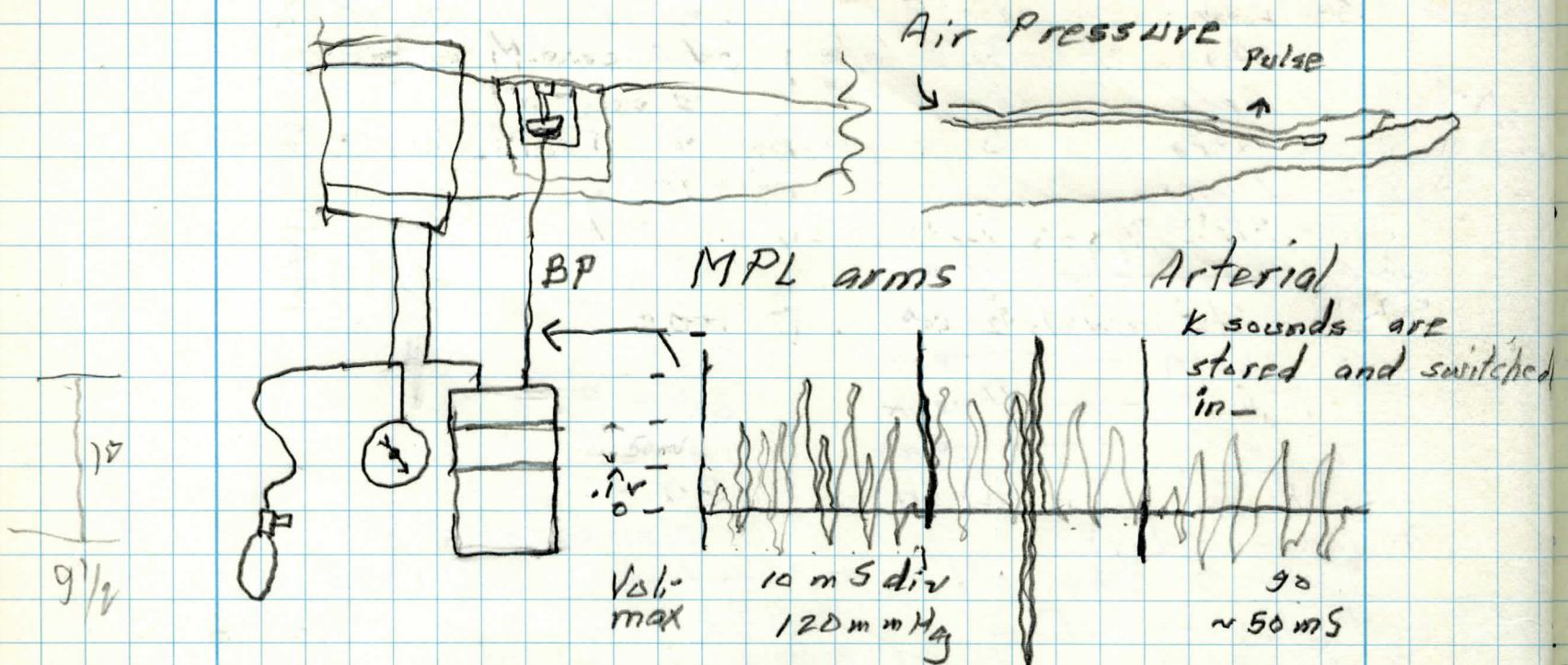
20 July Need comparison pulses for delay -



9 Sept. Track 8, bifid, has three impulses - Possibly electrical? Solenoid driver may not have reverse current diode

Δ - 3 min Δ - 100 ms

19 July Comparison of Models for POM OSCE 19
MPL - BP Arm - Built by Wolff Industries, Toledo



B.P. arm has a programmable controller plus a 'pulse' which is the aortic arterial transducer driven at max. vol. (above) when programmed (99). This controller needs several programs in memory.

19 July '99 Fall back plan for OSC

It is now obvious that my technical resources have reached the vanishing point.

Andries is not interested in anything new

Cater (phone) ??? spooks??

Whitmore can do anything - under direction

Cardianics is all promises

MPL is only interested in P.O.'s

The last possible plan follows:

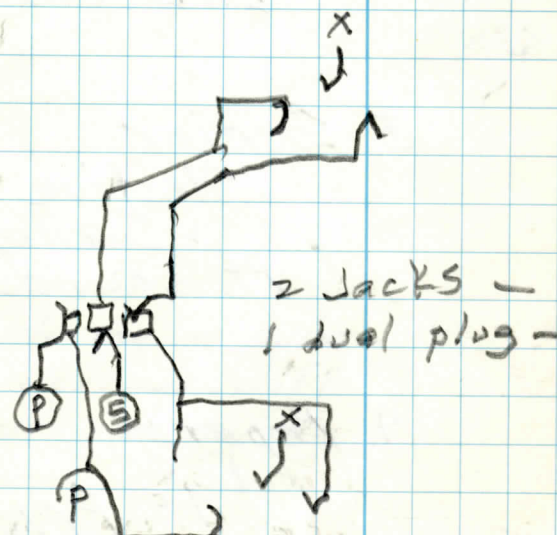
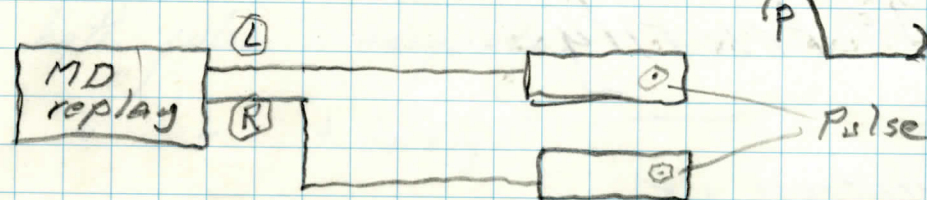
1. A 'patient' (sham)

A. A venous pressure exercise

2. Sections on -

Palpation -

Use two ATA transducers



Peripheral pulse for:

④ Rate - bradyc., tachyc. and nl. ③
④ ch. { Rhythm - A fib, dropped + added beats. ③

Equality - Equal -

R & L Delay R ③
" L

? Shape - Bifid ③
- Sustained -
- Normal -

22 July

Henry is finally convinced that pneumatic valving will be required and also has electrician who can do electric. I need yet another plan:

- 1) Use above scheme - O.K. by M. Creary
- 2) Complete demo of proper arms -

$$12 \times 3 = 36 \text{ (25)}$$

22 July Mtg. E Runge

1. Thornton's Future

6-9 mos. ✓
Consulting ✓

2. P O M

Lee Co.
860 390
6281

10 19/89
RLFAA 120310 H -

WNN. THELEECOG

LHD X 0502750 B - 5.43.50

Buck (210-624-3249)

WMFax

Get estimate of price -

3. Senior

Elective

✓ Sordahl - Runge
Pt. sounds -

4. Papers

1st Priority

5. Application ✓
Board

6. Powell's ATA ✓

Quality of pulse -

Real Pulse has diffuse

22 July Hdnr. -

BP + Pulse Arm - *Purch 2 and borrow 2*

Pulse + pulseless arm - *Use ATA's*

Carotid -

Percussion - Pulm - sounds.

Edema -

Abdomen -

30 July Eval. of ATA Pulse transducers.

#20 Stronger pulse - some variation in force during a pulse - N.B.
Andries claims no diff. in mfg. + no obvious diff.
Has realistic dropped/added beats + sustained pulse

#1 $\bar{c}$ Fresh batt. pulse is adequate.

12 ↓ ↓ ↓ ↓ ↓ barely ↓

16 ↓ ↓ ↓ ↓ ↓ inadequate

9 ↓ ↓ ↓ ↓ ↓ barely adequate

13 ↓ ↓ ↓ ↓ ↓ inadequate

5 ↓ ↓ ↓ ↓ ↓ barely adequate *OK $\bar{c}$ new batt.*

14 ↓ ↓ ↓ ↓ ↓ ↓ ↓

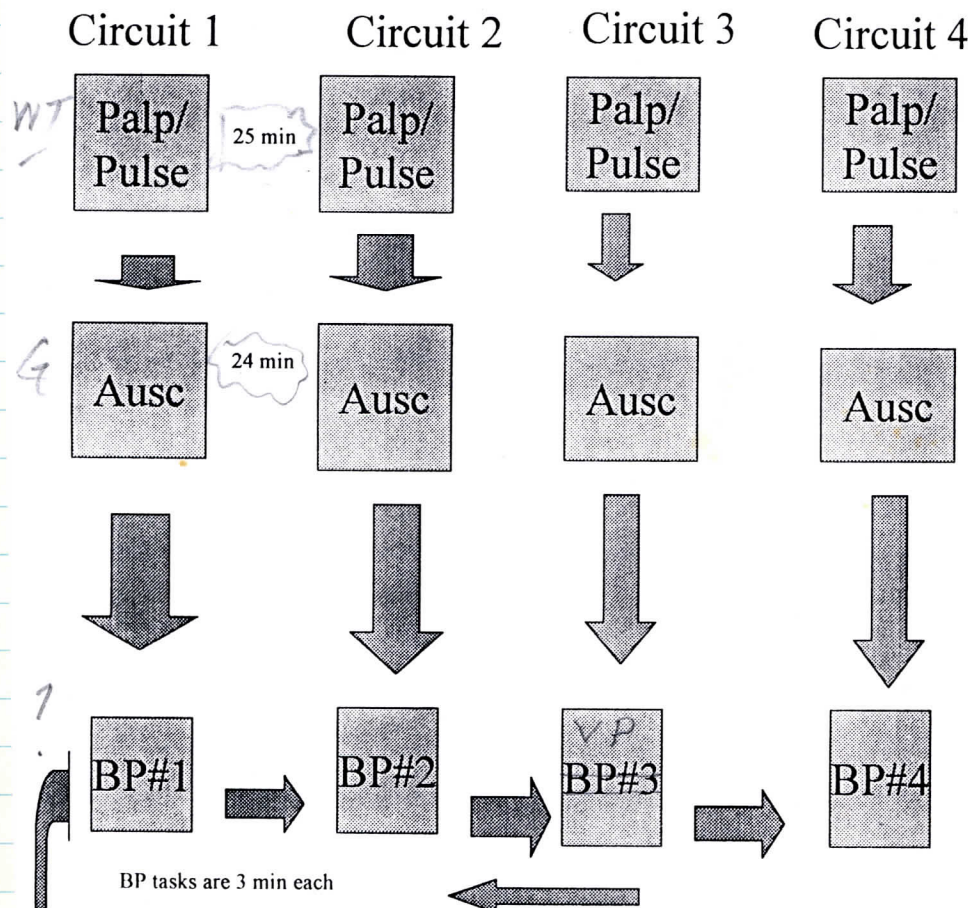
7 Sept

1999

22 July

2nd Yr. OSCE Plan

Student Rotation Plan Through CV OSCE



$$4 \times 7 = 16.2$$

$$32 \times 8 = 256$$

4 identical circuits

Students begin at beginning and progress through a circuit in order. After first 2 tasks, they enter the BP set beginning with the BP set numbered the same as their circuit. They rotate through the four BP tasks and leave.

Times (off by 1 minute)

Start	Finish	Student #
8:00	9:00	1
8:25	9:25	2
8:50	9:50	3
9:15	10:15	4
9:40	10:40	5
10:05	11:05	6
10:30	11:30	7
10:55	11:55	8

8 students per day
per circuit = 32 per day

For 184 students,
need 6 testing days
(8-12 pm)

On 6th day, could
stop at 11:05.

Need a remediation
day

Palp/Pulse	See P. 109	Rate ^(R)	Rhythm
IA	1) Vital Signs	BPM	
NI (2) ← 1)	Bradycard	48	Reg ✓
Tcg (3) ← 2)	Normal	72	Reg
Bcg (4) ← 3)	Tachycardia	115	Reg
Drop. (5) ← 4)	Fibrillation	See Pg. 114	Random ✓
Xtra. (5) ← 5)	Extra beats	See Pg. 115	✓
Fi.b. (4) ← 6)	Dropped beats	See Pg. 115	✓
NI (7) 7)	Wave form (profile or shape)		
	Normal		
Sust (9) 8)	Bifid		Car-
Bif (8) 9)	Sustained		Ap-

OSCE Plan, Cont'd.

Palp./Pulse Cont'd.

Comparison (bilat)

(10) + (10)

Equal + normal

11) (R) normal (L) ↓ & delayed

12) (L) ↓ & delayed (R) normal

Will Use ATA Transducers ?? pair of Hands & pneumatic pulse -

Plan to buy 2 B.P. arms, 1 P.O. in, 2" in Sept.
& borrow 2

Need discs for ATAs for Palp.

5 Aug -
W.T.

Mtg. & B.K. for "Patients" -
Get Exams

Straw Hx - Exam Sheets

Bernard Made another schedule and we agreed on the following OSCE.

Procedures

1 hr - History and focused C.P.Px of synthetic Pts.

They will write Hx Protocol & grade results -

- We will write a common med Hx for individual for chest pain & neg. findings

- We need to examine all patients prior to or after px.

- We 1 will grade papers

Process " be video recorded

~ 1 hr Skills

Pulse/Palp -

5 min - 1

Auscultation -

5 min

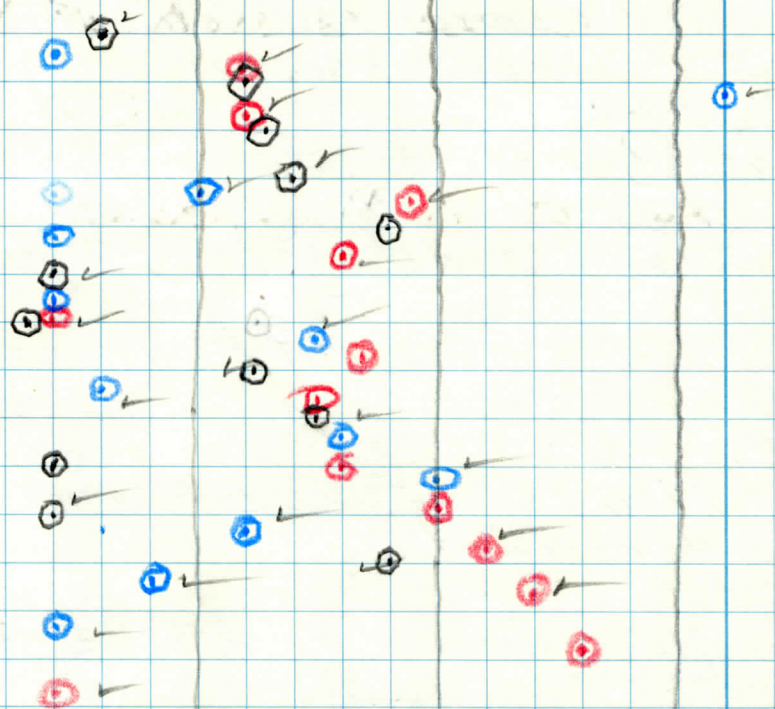
B.P. x 4

- 1 will grade papers

23 July R-R intervals for pulse in A-Fib.

EKG K-K-
WA

23



S.V.P. H.M.

m Sec

	200	400	600	800	1000	
25 beats -	4920	7460	10000	12500	15000	
520	720	800	480			
640	480	480	480			
1040	480	640	800			
650	700	840	700			
680	640	760	rr=			
600	520	560	646			
780	720	880	93 BPM			

23 July

Intervals, contd.

UTMB

Supra Ventric. premature extrapol. From EKG 194360170
 H.M. Use 3 beats of 880 msec followed by 1 of 480

'Dropped beats' - Use 4 beats of 760 msec followed
 by 1 of 1200 msec -

13 Aug.

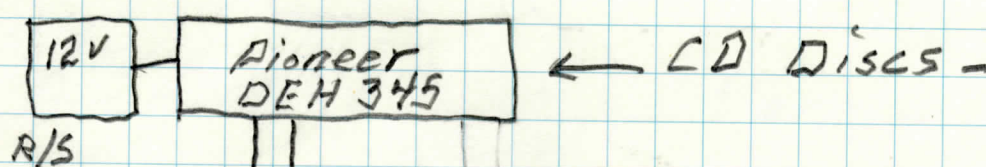
Review of P.O.s - F.A. OK As Is -

26 Aug.

Using individual ATA for test + teaching takes time.
 Need -



or -



$$W = \frac{E^2}{R}$$

$$\sqrt{WR} = E = \sqrt{17.8}$$

$$= 11.71V$$

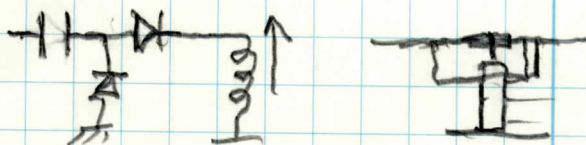
R L X4 17W
 12 136 ~10A

Can Drive any # of
 units. for sounds +
 pulse

For Pulse only -



Pulse



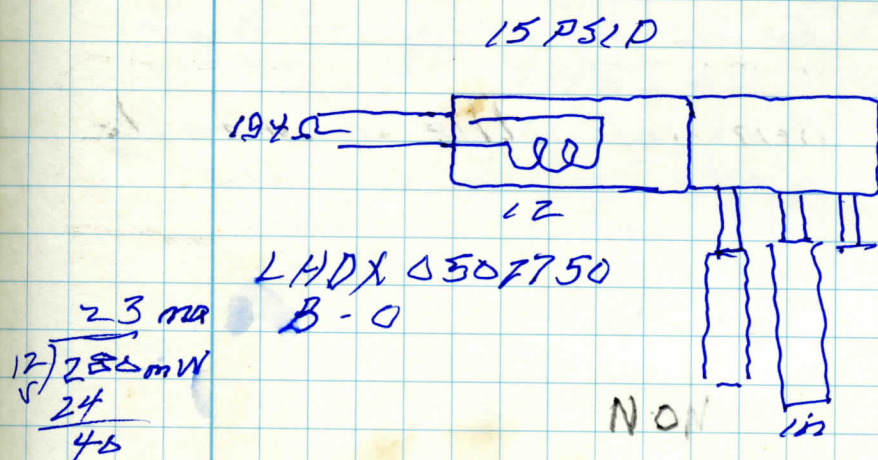
$$W = \frac{EI}{t} = \frac{E^2}{R}$$

$$t = \frac{E}{R}$$

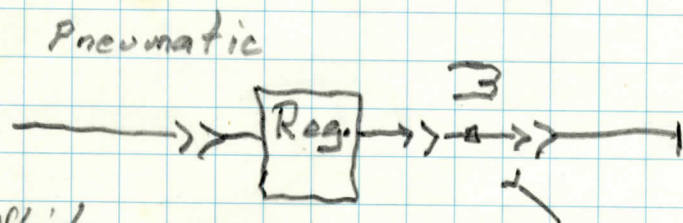
26 July Whitmore - Pulse generation

1430

Leggo valves arrived U. small bore, ckt. used in ATA



Conn. to small arm -
A pulse was barely perceptible at 7 PSI but reasonable at 15 PSI. There is an initial shock & larger arm pulse barely perceptible.
We then went to a larger valve & improved performance esp. w



Whitmore

Air Bottle - O₂

Reg.

Sand ckt -

Sand Replay 12th

— 1 arm —

then - BP arm

then 2 arm -

9 Aug - Visit to W/M:

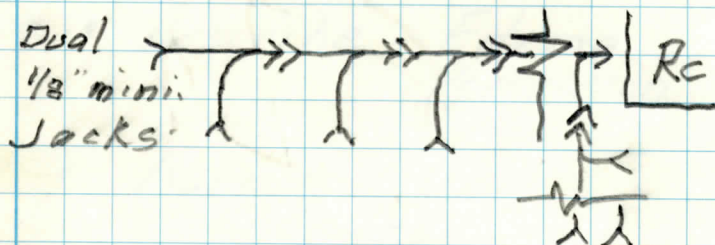
27 Aug Call to W/M - Hold everything

Wimalaw Wansa, Sunil

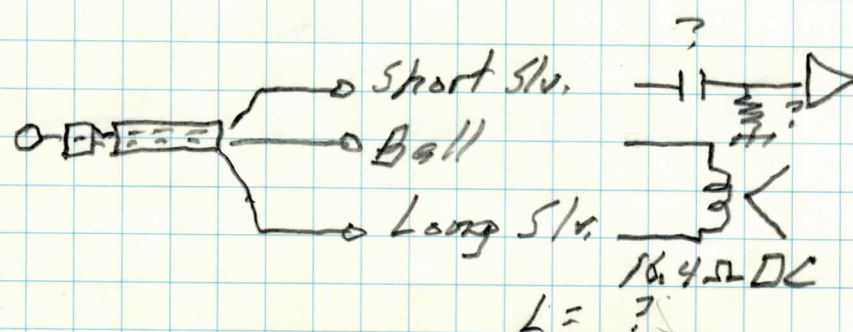
31 Aug - Hardware

Multiple ATA's are time consuming and noted on P.115 attempts are in work to use a single source -

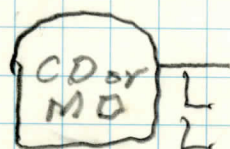
A harness of 12 dual conductor jacks using RS 42-2463 A Y conns was made per Andrie's suggestion. He also felt



that a CD player would drive several units (Obviously doesn't have a clue on specs. of units he's using)



• Addition of ATA transducers to Reproducers



n	Pulse	Sound
1	No Diff	Barely percep
2	No D.	tible 4
3		? no decr.
4		?
5	No Diff	

Transd. Res
#20 - 16.3
#9 - 15.2
19 - 16.5
25 - 15.6

Removal of 4 units
 ↑ sound level ~3db.
 6 - No Diff. No Diff

Transducers are relatively Hi Z + use little pwr - so can parallel 3 difficulty - Drives 12 units = trouble. Units / 2 per pulse -

1 Sept,

OSCE Px -

- Observation (Appearance) -
 - Genetic Disease
 - Existing
 - Activity

Cotts

- Vital Signs -

- BP
- HR + Rhythm

- Peripheral Exam

limbs

- color, temp., etc.
- Pulse; radial, pedal
- bilat symm.
- propagation

- Head and Neck

- ophthalmoscopy
- Thyroid pulse
- Carotid - equality, profile
- auscultation -

- Central Exam -

Precordium

- Impulses
- Auscultation

Chest-

percussion

- Abdomen -

palpation
percussion

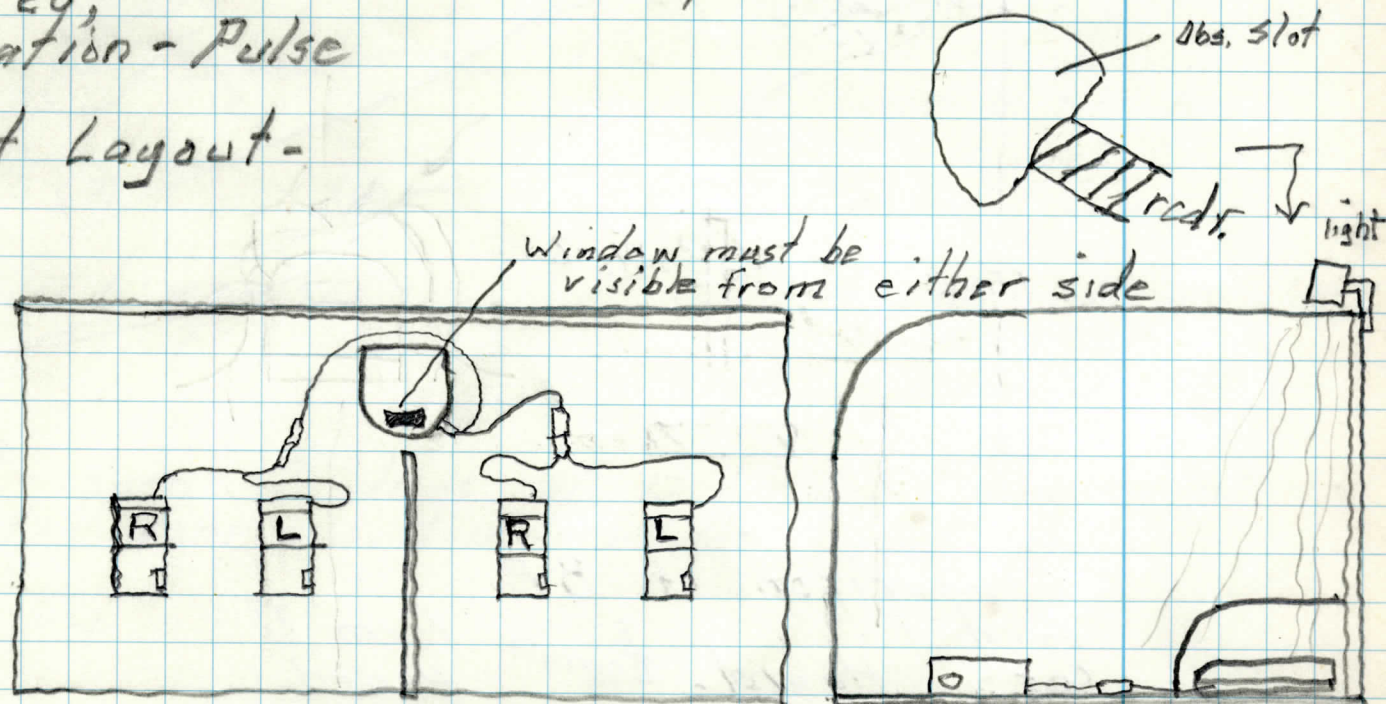
auscultation -

1 Sept. O SCE - Hardware Status -

Test MD for pulses will be in tomorrow -
Will send Transducers for optimization - Sent: 4 units
incl. #20,

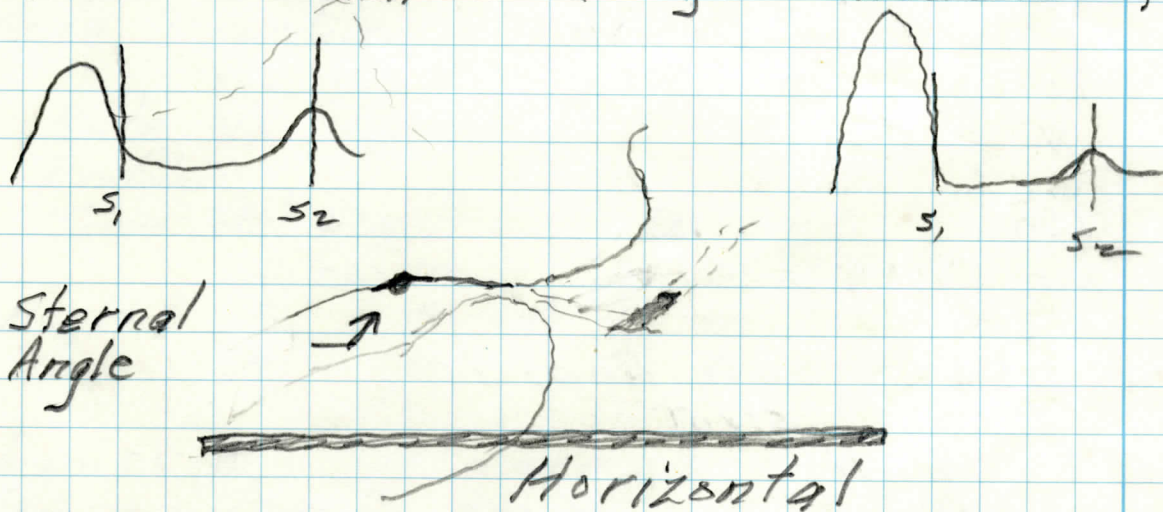
Palpation - Pulse

Test Layout -



2 ea. for Pulse-Impulse

2 ea. for Auscultation - (single Transducer -)



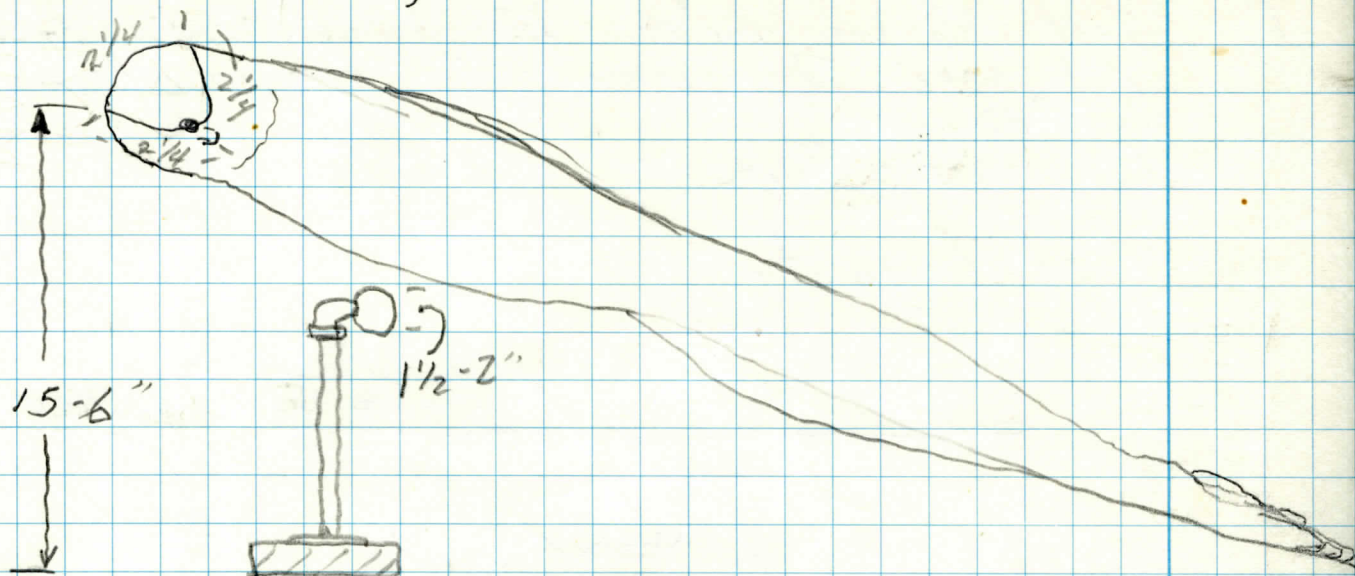
1. a. Measure and Record Jugular Venous Pressure in correct units -

b. Is this normal?

2. Describe the Jugular Venous Pulse.

Go to P-125

2 Sept. OSCE Hdwe., B.P. Arm



Comparison of BP				
Arm I		Arm II		
Sys.	Set.	Heard	Heard	
	120	120	125	125
Gap	N Y	N		110
				103
Dias.	80	78	84	103
	200	200	204	205
	N			N
				185
				175
	150	190	153	158
	100			105

2 ea 12x24" base boards
 1 ea 1x1 strut
 2 ea 2" ball
 Screws

Home Depot

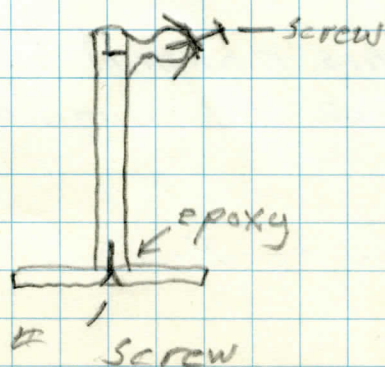
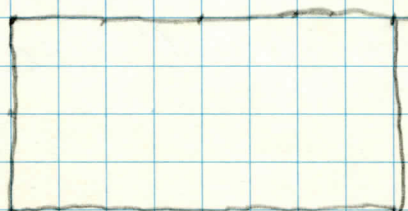
Σ 18.95

Trip to CLC-

Wal Mart Screws & Drills

11.68

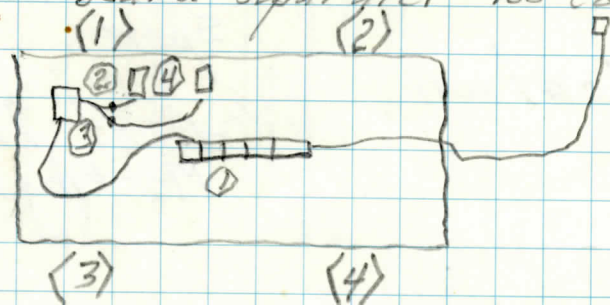
.90



1999

7 Sept. OSCE Test arrangement

Fibre board separator too complex - Revert to individual unit



Pulse / Impulse

① Plug strip & pwr. supplies

② Player on tilt stand

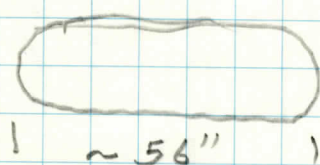
③ Reversed Y conn.

④ two transducers - (8)

⑤ 4 conn. line

8 Sept. JVP² - Spent 2 days at U.T.M.B. trying to get plates done - J. didn't understand.

Rm - 2.244



22 Sept. Grade Structure - OSC

Palp. I. Rate ① Rhythm ① $\times 6 = 12$
 Profile ② $\times 3 = 6$
 Time ③ Ques. ①.2 $\Sigma = 5$

Ausc. II. H. H.S. 5 10 10 10 23
 Pts. 4 4 2 2

Mechanics 8
 Accuracy 7

Diagrams

Press. III. SBP DBP Units
 2 2 1 $\times 2 = 10$
 JVP_r Units
 2 1 $\times 2 = 6$
 JVP_u Ques.
 2 1 $\times 2 = 6$

PX 35 + 10 = 45

Exam Impr.

Pulm 3 pts $\times$ 4 ques = 12 $\Sigma = 45$

16 Sept.

OSCE List

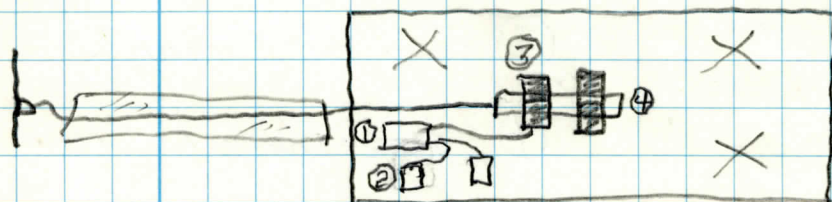
Patient: Signs ?

Station I Palpation

Kathy 72007

B.K. 59831

Spares

Duct Tape
Masking Tape10
7 P.S.

① 4 ea MD Player

1 player

② 8 ea Pulse Transducer

2 Tds

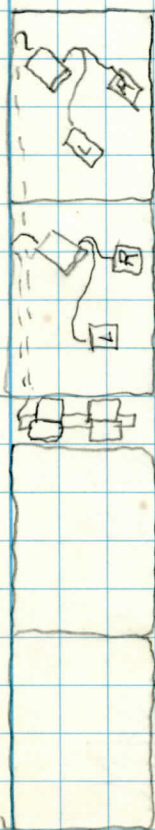
③ 4 ea Sony P/S

1 dual outlet

④ Tea strip

1 Xplug

N.B. will Use Individual Tables
against Walls. Incredible Flail through lack of planning
on part of committee. Finally moved into exam room -



16 Sept. OSCE List

Auscultation Test 3 and 3A

3A 3 4 OSCE - STATION II Auscultation

Questions 1-10: Listen to the sound and palpate the pulse and identify sounds.

1)
 Extra Heart Sounds, Identify sp/s2
 Murmurs, Identify _____
 Systolic _____
 Diastolic _____

2)
 Extra Heart Sounds, Identify _____
 Murmurs, Identify _____
 Systolic _____
 Diastolic _____

3)
 Extra Heart Sounds, Identify _____
 Murmurs, Identify _____
 Systolic _____
 Diastolic _____

4)
 Extra Heart Sounds, Identify _____
 Murmurs, Identify _____
 Systolic _____
 Diastolic _____

Station II (cont'd) 5)

6)
 Extra Heart Sounds, Identify _____
 Murmurs, Identify _____
 Systolic _____
 Diastolic _____

7)
 Extra Heart Sounds, Identify _____
 Murmurs, Identify _____
 Systolic _____
 Diastolic _____

8)
 Extra Heart Sounds, Identify _____
 Murmurs, Identify _____
 Systolic _____
 Diastolic _____

Station II (cont'd) 9)

10)
 Extra Heart Sounds, Identify _____
 Murmurs, Identify _____
 Systolic _____
 Diastolic _____

11)
 Extra Heart Sounds, Identify _____
 Murmurs, Identify _____
 Systolic _____
 Diastolic _____

12)
 Extra Heart Sounds, Identify _____
 Murmurs, Identify _____
 Systolic _____
 Diastolic _____

13)
 Extra Heart Sounds, Identify _____
 Murmurs, Identify _____
 Systolic _____
 Diastolic _____

Questions 11-14: Breath sounds, palpate the trachea as usual. There is a reference impulse at the start of inspiration. The breath sounds heard are most likely to be heard in a patient with:

- 11. a) pulmonary fibrosis
- 12. b) laryngeal edema
- 13. c) pleurisy
- 14. d) asthma

Harvey 5 4 - 1-6 on 3
 6H - 5 4 - 1-6 on 3
 4PT - 4 2 - 7-10 on 3
 9 6 4

D-15
 ID-15
 Dia-15

H pt.
 H.S. 4 2 6
 5 4 9
 15

MRAS 5
 APRMS 0

OSCE POM- *Account*

Palp. Test- MD

Track Description

BPM-

1 72 regular

2 120 ↓

3 48 ↓

4 71 dropped beats

5 77 extra "

6 93 random

7 normal impulse

8 sustained ↓

9 bifid 2:2 ↓

10 equal

11 Ⓡ delayed

12 Ⓛ ↓

28 Sept. Machine failure is current cry of students - Stu. curric. rep. c claims 17 e-mail complaints on hardware failures. Currently writing memo on procedures/ experience & will document every case. Today it centered on BP arms. Made rule that I would rapidly check operation (15 sec) & if normal would proceed until end of class & if changing anything would listen - if no sound reset & repeat otherwise let student hear it & that's it.

Stud. Compl. I - Martin Boyd Ⓛ trans. not working - Sw. had been turned off

Lulu Nygen - Started at wrong # - reset to 1

II - Door open - Theresa - Door had been closed - no lock

Kim B A. Bachar

Nyguen

Denis

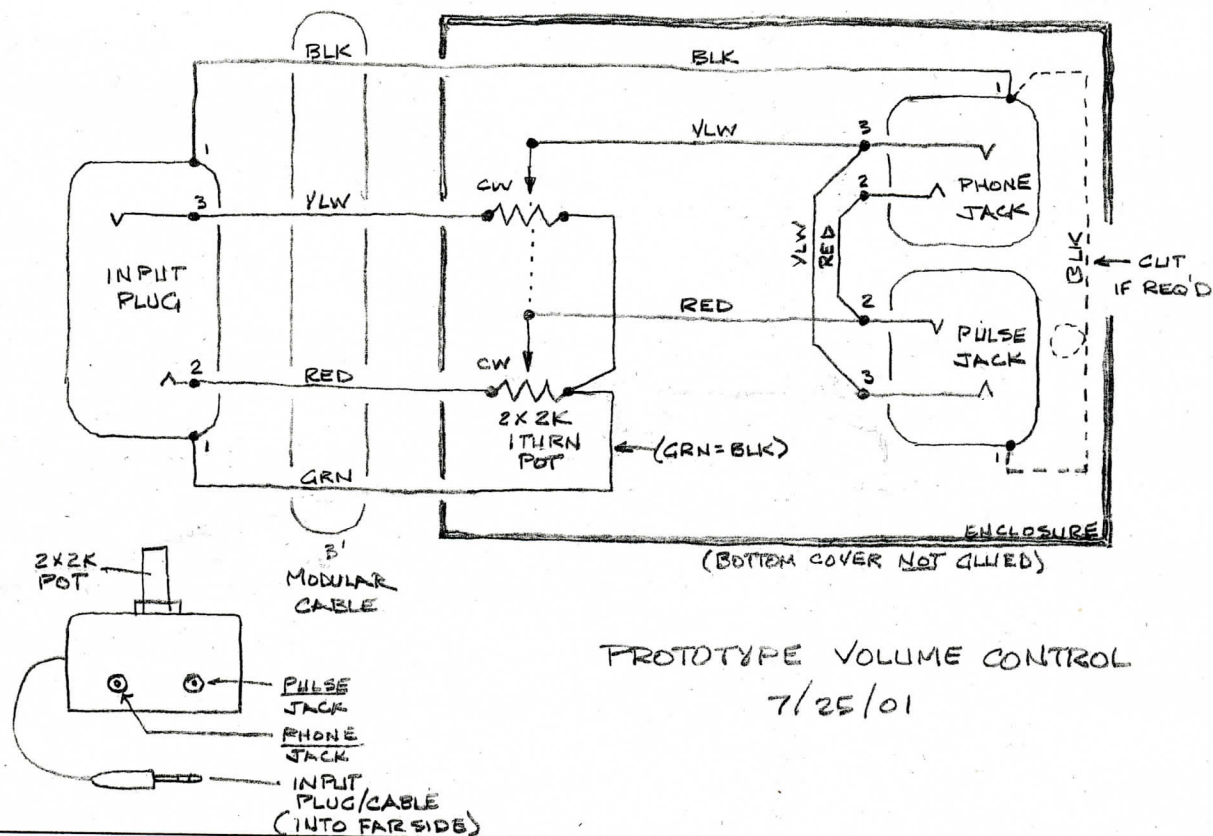
B ? Arce

29 Sept.

Jack Hammering was present intermittently yesterday and overheard today - Could do only Sta. I. Notified alt and sundry - Promised none tomorrow - Claims contract or refuse to stop -

30 Sept. Hammering increased. Testing impossible. No response to requests to P.O.M. Finally went to contractor super. & explanation he delayed 4 hrs allowing uneventful completion of day 8 testing - Glenda incident

1 Oct. POM insisted that make up be given Wed. P.M. in our dept. Shifted scheds. reserved Conf. & class rooms and today was told it had to be Wed A.M. Shifted again - NEVER AGAIN -

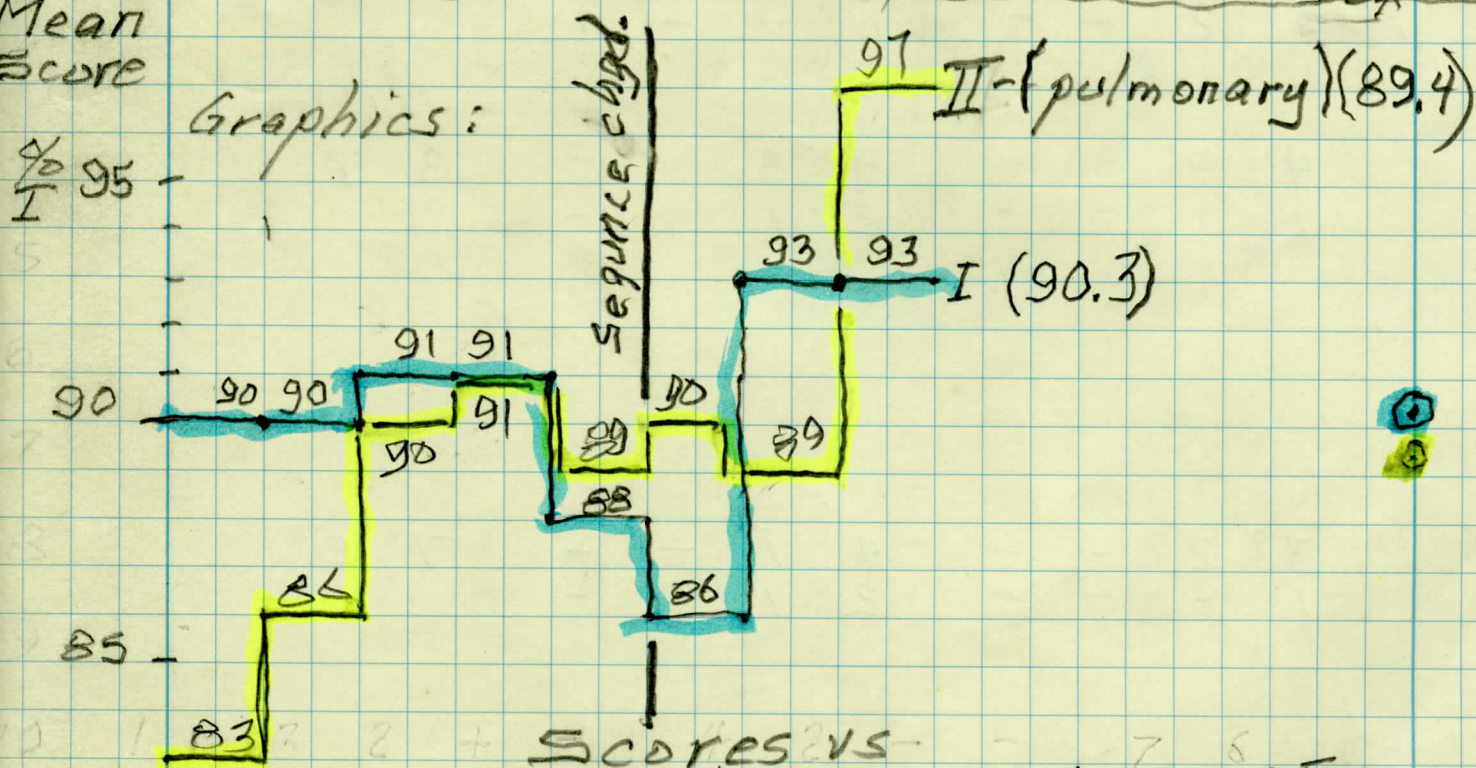


12 Oct. POM OSCS Final Scoring - Dia.
Per Karnatak Agreement -
60% Hx + Px ? Hx + ? Px

40% Stations x/102 Ats - x .4 + (Mean)

Mean
Score

Graphics:

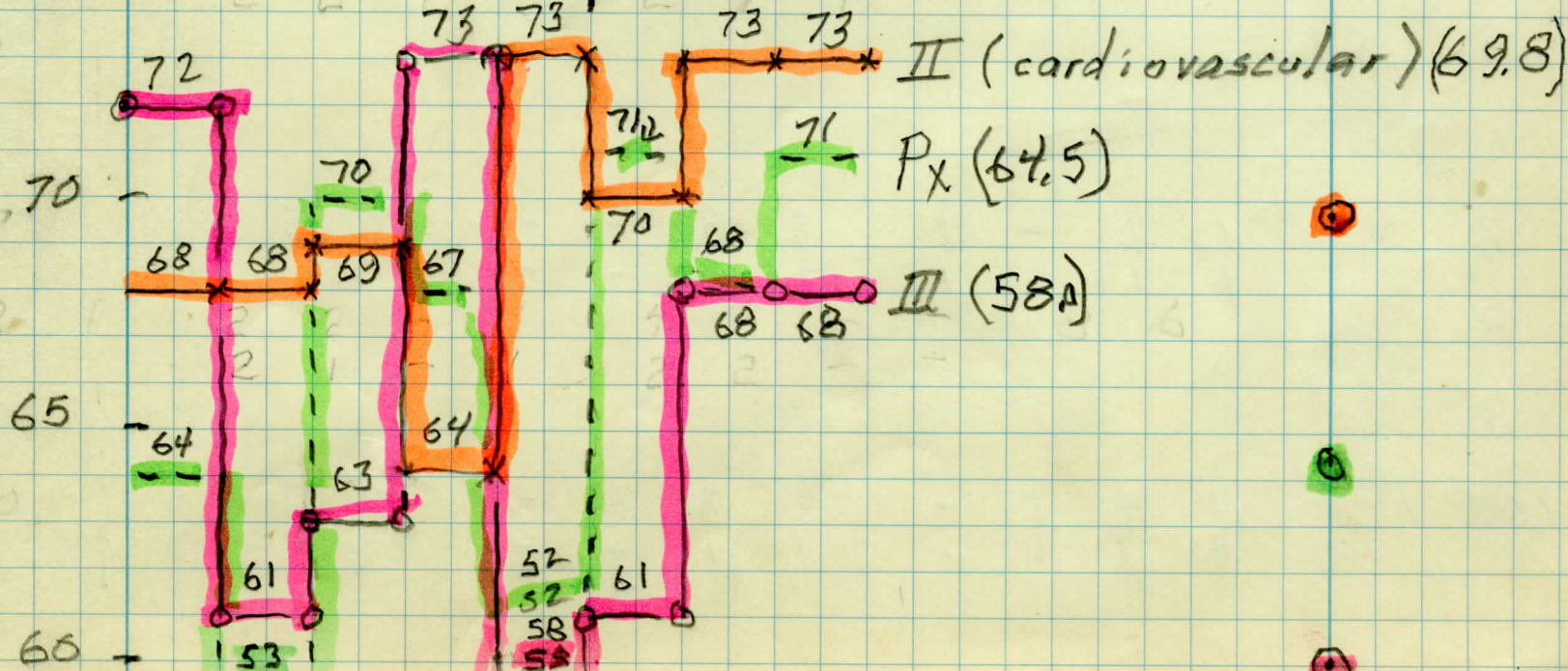


Scores vs
Test Day 2^o Yr OSCE -

Test
Day

80 -
75 -
70 -
65 -
60 -

1 2 3 4 5 6 7 8



No.	Day	Sounds				Murmurs				Dia.		No.
		<u>D</u>	<u>ID</u>	<u>+</u>	<u>SD</u>					<u>M</u>	<u>F</u>	
81	1	2	1	1	1	4	3	-	-	6	5	101
		3	2	-	-	2	2	-	-			
2	1	1	1	-	-	3	-	-	1	8	5	2
		2	2	-	-	1	-	-	1			
3												3
4	1	4	4	-	-	4	3	-	-	8	7	4
		1	1	-	-	2	1	4	-			
5												5
6												6
7												7
8	1	3	2	-	-	4	1	2	-	7	5	8
		1	-	-	-	2	1	2	-			
9												9
90												10
1												11
2		2	1	-	-	4	4	-	-			12
		2	-	-	-	2	2	-	-			
3	1	2	1	-	-	4	4	-	-	8	6	13
		2	-	-	-	2	2	-	-			
4												14
5												15
6												16
7		1	1	-	1	3	3	-	-	7	5	17
		1	1	1	1	2	2	-	-			
8												18
9												19
100	1	4	4	1	-	3	3	-	-	8	7	120
		4	3	-	-	1	1	-	-			

OSCE 2nd Yr CVX

27 Sept. Summary - Station III

Blood Pressures/HR				(Ex. Dy 1 all vals. 1st 7)		
Day	Ref.	Programmed	Meas.	Ref.	Press.	Pulse
1	A-1	140/95 85 N	138/92	B	4 cmH ₂ O	Normal
	B-	180/60 60 Y	185/65	D	11 "	↑ V
2	A-	170/50 60 Y	170/45	A	1 cm	Normal
	B-	130/90 70 N	135/95	C	~10 cm (9 1/2)	No A
3	A-	170/50 60 Y	175/45	A		
	B-	130/90 70 N	135/95	C		
4	A	120/80 50 N	118/75	A	1	norm
	B	200/100 60 Y		E	~14 (3 1/2)	Giant A
5	A	210/90 60 Y	208/95	B	4	Normal
		190/60 60 Y				
	B	90/60 50 N	95/60	C	10	No A
		80/40 50 Y(?)				
6	A	210/100 70 Y		E	14	Giant A
		190/110 70 Y	190 [61-146] 107			
	B	90/60 115 A		A	1	Normal
		90/50 120 N	89 [70-60] 50			
7	A	110/70 50 N	107 68	N.D. } A-nl 1 cm H ₂	E ₄ ↑ A 14 "	6 oct
	B	200/90 90 Y	109 68 ← 6 oct			
			203 [143 135] 95	sched. }		
			209 [163 142] 90			
B	A	110/70 50 N	107 68	D ₄	11	↑ V
	B	200/90 90 Y	203 [163/35] 95	E ₃	14 cm H ₂	Giant A

27th

- 6/10 + Repl all batts in sta. I + III and confirmed n.b. ops.
- Students found filling out S₁, S₂ before listening - E mail repeat
 - Student complained about hole in diaphragm & bare armature

29 Sept OSCE

Intermittant jack hammer operation o/r E noise
in voice range to est 85-90 db - much

30 Sept.

See memo - Nguyen Thang claimed no sounds on
tracks 345. CK sound adequate but gave benefit of
doubt + allowed to rep. but on restart found vol. had
be set to zero - Still allowed repeat -

6 Oct.

Completed make up session from 29 Sept. 3 incident ex-
one stud. late - G.B. allowed make up - 2 studs. couldn't
hear K sounds which were loud! Tear down + set up
for OSCE tomorrow -

9 Nov 99 Y 2K teaching -

1. There are no pts. for teaching
2. There are very few instructors for teaching -
3. 1. can be overcome by simulators, etc.
4. 2. canned teaching can go a long way toward 2 -
 - a. Interactive video or improved video & sound haptics
 - b. Expanded live instruction & audio, video, haptics, 'desks'

Dave R. is making quotes on sketches #600.

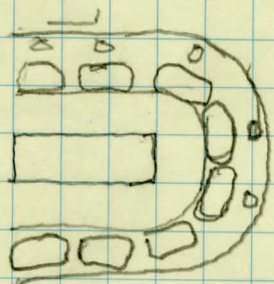
10 Nov.

This was run by Sordahl and students - Sr. Elective

Students thought that live instruction was essential & weren't sure that separation from source would work.

Impression try 2-3 prototype desks -

Sordahl was enthusiastic -



18 Nov. Runge Issues:

- W.T.'s tenure Open -
- Senior Course - handover
 - Lou Sordahl ??
 - Class room ??
- POM.
 - agreement If hours count
 - schedule -
 - money no

23 Nov.

Mtg. & Andries, Vasquez (Tech mgmt.) and W.T. apropos license

V. - Invention; Provis. patent is being done

Copyright is prop. of person but Univ. will file for it.

A. - Objected to ~~that~~ ownership interpretation esp. his being classed as artisan

He wants exclusive - no front money - 15% gross

Univ. won't pursue infringers & will send confidentiality agreement

25 x 10
27 x 10²
5 x 10³

cm Jr crk-

Σ X 5

(M)

Σ

SD

SD

SD

SD

SD

Student #	D	10	+	SD	D	10	+	SD	Σ	X 5	Final
101	1	5	0	1	1	5	0	1	3	5	5
2	5	5	50	1	1	5	50	1	1	46	95
3	4	2	30	1	2	2	30	1	1	40	70
5	4	5	45	1	5	5	45	1	1	45	90
6	1	4	5	0	1	4	5	0	1	30	35
7	4	4	40	1	3	3	40	1	1	15	55
9	3	2	25	1	3	2	25	1	1	30	55
10	3	2	25	1	3	2	25	1	1	30	55
11	5	4	45	1	4	4	45	1	0	40	85
12	3	2	25	1	3	2	25	1	0	35	60
13	4	2	30	0	2	2	30	0	0	25	55
15	4	2	30	0	2	2	30	0	0	20	50
16	3	4	25	0	3	4	25	0	0	35	60
17	4	3	35	0	4	3	35	0	1	15	50
19	2	4	30	0	2	4	30	0	0	30	60
20	4	2	15	1	4	2	15	1	0	40	55
1	2	4	30	0	2	4	30	0	0	35	65
2	2	2	20	1	2	2	20	1	0	35	55
3	2	2	25	3	2	2	25	3	0	30	55
5	1	0	10	1	1	0	10	1	0	40	50
6	0	2	0	1	0	2	0	1	3	10	10
7	2	2	10	1	2	2	10	1	1	5	15
9	2	2	15	1	2	2	15	1	1	25	40
30	2	2	15	1	2	2	15	1	1	25	40
1	3	4	25	1	3	4	25	1	1	40	65
3	4	5	35	1	4	5	35	1	1	50	85
4	2	1	0	1	2	1	0	1	1	30	45
5	2	1	15	1	2	1	15	1	1	25	45
7	3	1	20	1	3	1	20	1	1	30	45
8	4	3	35	1	4	3	35	1	1	25	45
9	4	3	35	1	4	3	35	1	1	25	45
40	4	5	50	1	4	5	50	1	1	30	45

32

160

Σ 38 101 63% 51% 3% 8%

Σ 38 101 56% 38% 14% 5%

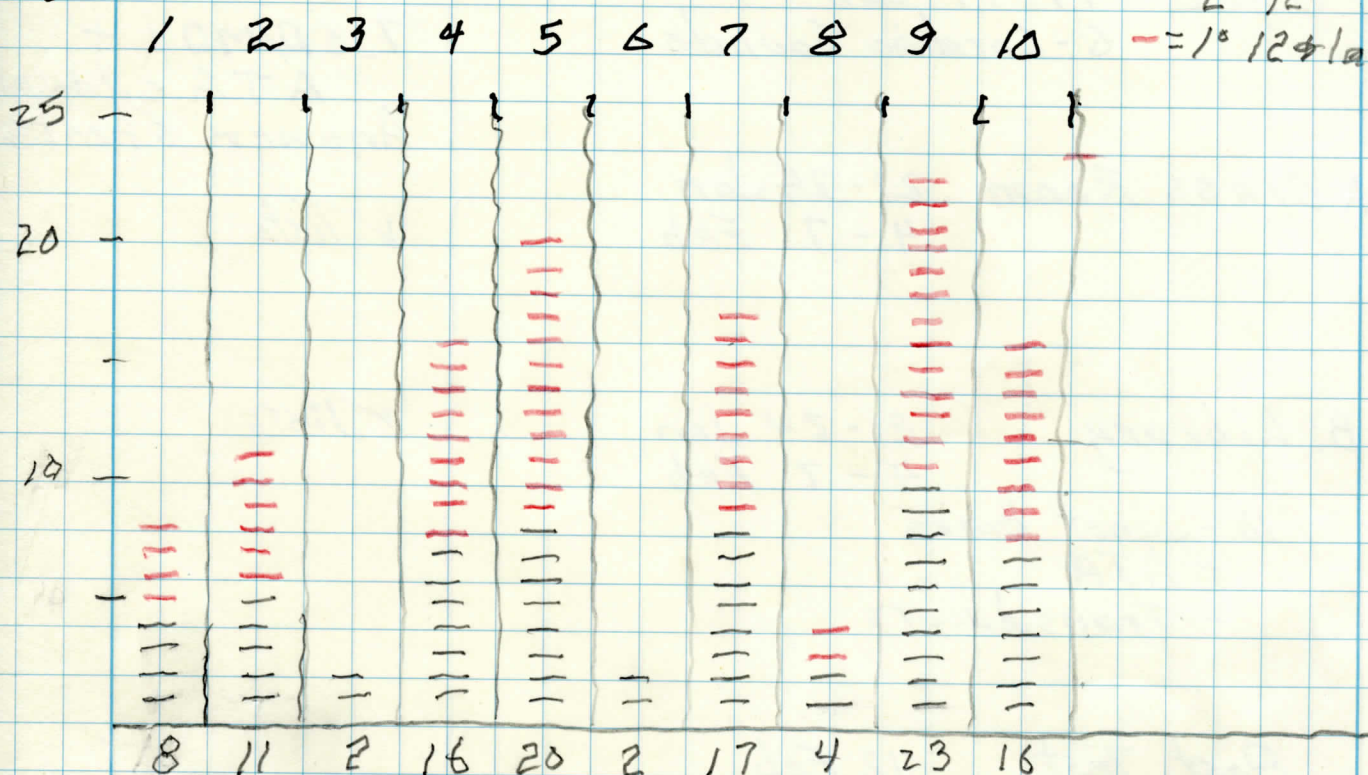
21st
 And -
 Admin -
 3rd F)
3,218
 1st P.M.

12 Nov 01 Written - No space for BP Arm results

POM-2

- = 2nd 12

- = 1st 12 + last 4



2002

- 4 Jan Support for POM-1 STS Ausc. 1 - Pre test.
1. Pretest 10 Jan
 - 200+ quizzes
 - Briefing - W.T.
 - Syllabus - Cc. to Beach, B.K.
 - Print Shop -
 2. OSCE - 14-17 Jan
 - 6 - Cardiac Sounds
 3. A Class Room 21-24 Jan
 - 4 - 7 Feb
 - B. Library 21-24 Jan
 - 4 - 7 Feb
 - 10 - Junct Boxes
 - ATA
 - Transducers
 4. Post Test 12 Feb
 - 200+ quizzes
 - [Critiques] - done during STS

Grade notice - email
 200+ quizzes
 200+ syllabus
 200+ Aus Exam. Sheets.

Due Wed. AM.

7 CD/MDs +
 ATA's, Xducers, K
 Answer sheets

✓ lists

✓ lists

Post test - Critique Data Reduction
 Knowledge - {Written}:

Enter -	Grades +	Pre	Post	p
	SD			
	? Questions; individual			
	Critiques -	n -		
	Scores, 4 categories			
	Classes; n of responses			