K-11

W# 11

Nov-Dec
1856

NATIONAL
Made in U.S.A.

80 SHEETS – NARROW RULED – MARGIN

EYE – EASE® PAPER

NAME

SUBJECT

NO. 33–008

Karl Hukel

Fax

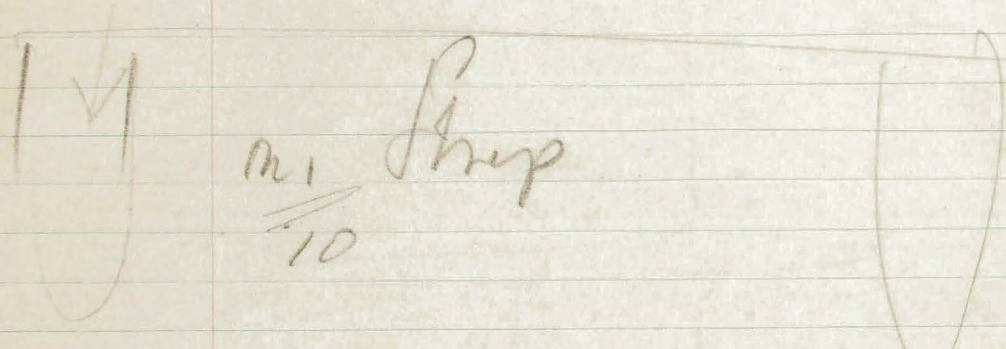
3 DNA units

100

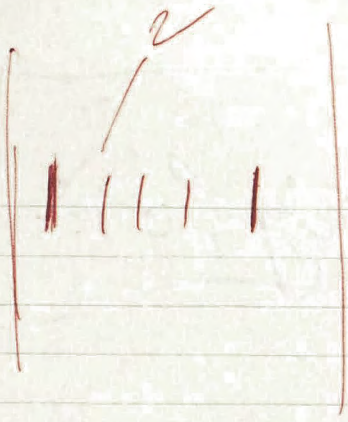
3 DNA

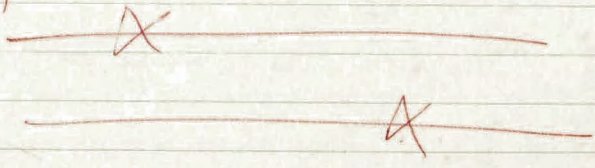
(1.)

Davidson

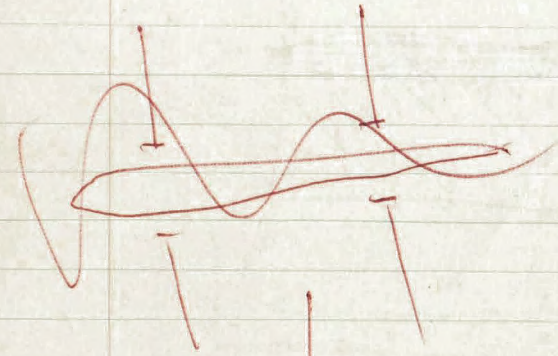


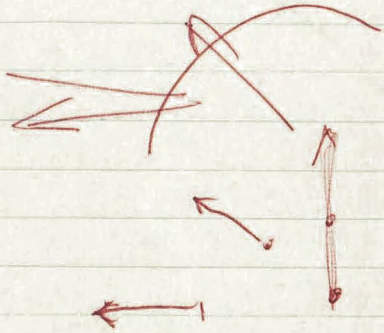
$n_2 = \frac{n_1}{10}$

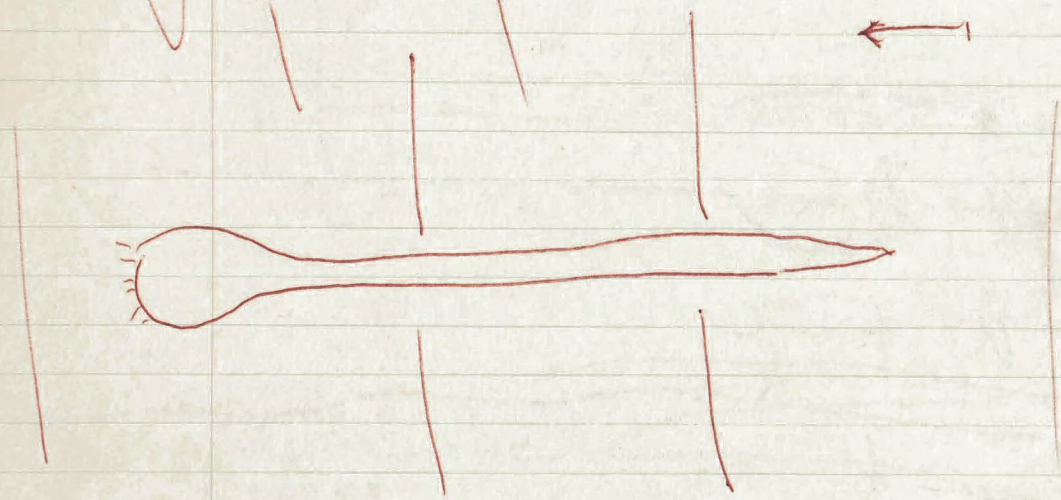




Giles
Scholz
Barberino

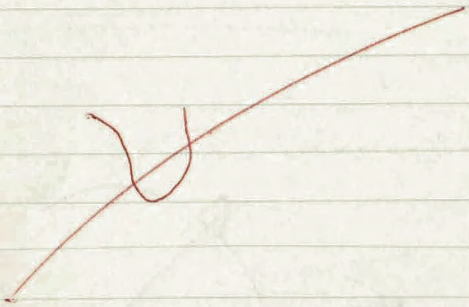


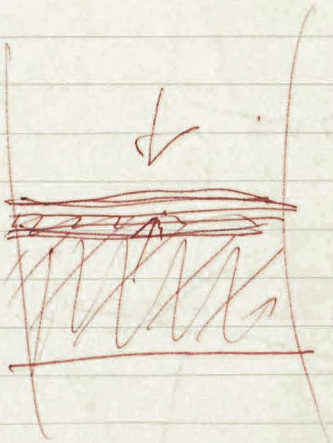


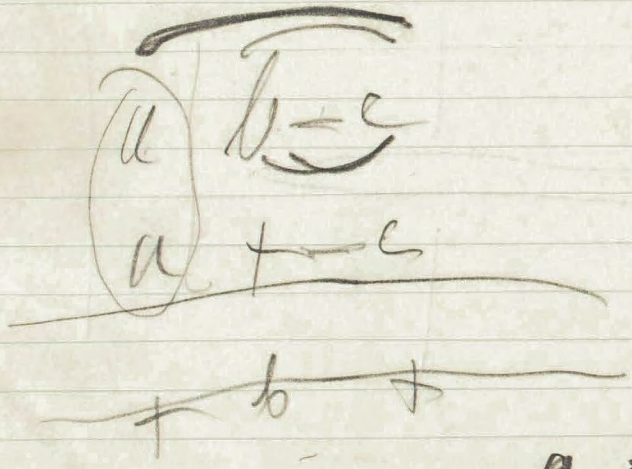


Thanks

Ted Baylor







$\frac{a\ +}{+\ c}$ — mutans

$\frac{a\ +}{+\ b}$ — mut

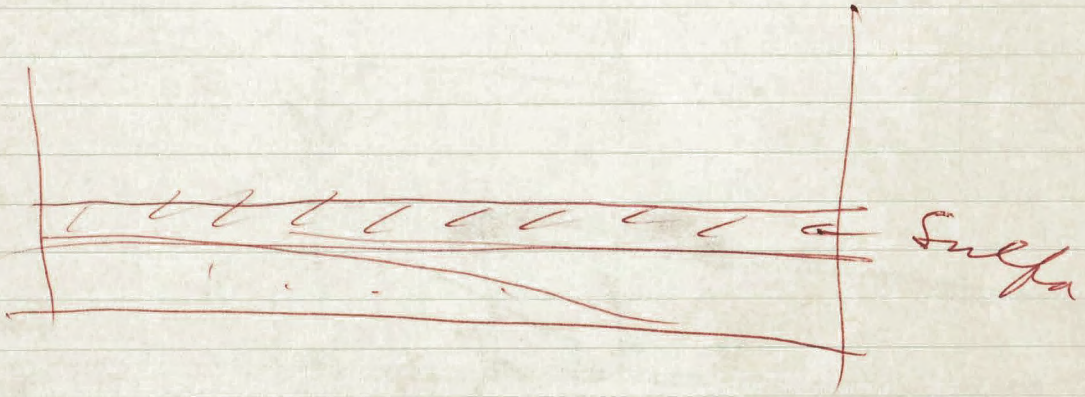
$\frac{b\ +}{+\ c}$ = mutans

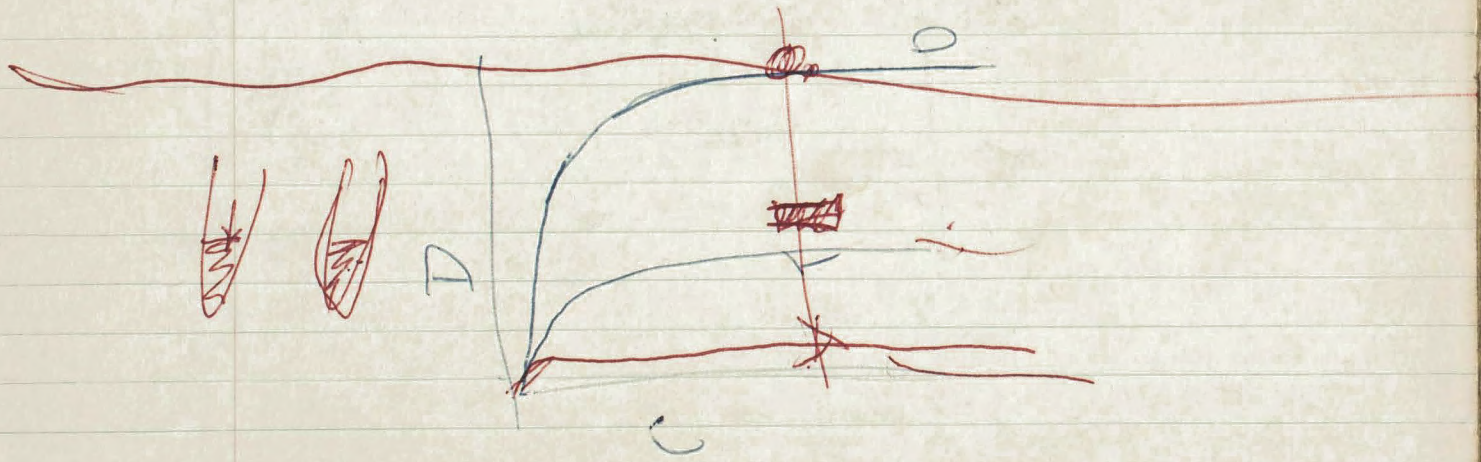
$$\frac{1.7 \quad 10^{6}}{6 \quad 10^{7}}$$

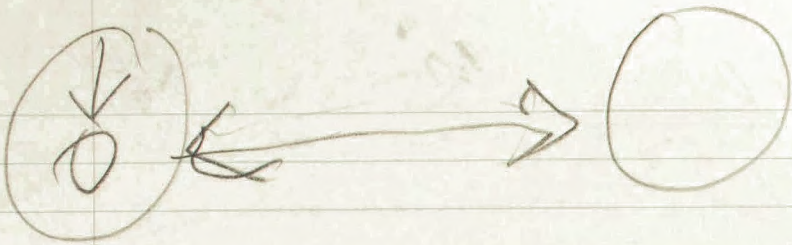
4

$$\frac{3}{100} \times \frac{3}{6} \frac{1}{100} = \frac{9}{6} 10^{-4} \times 6\,10^{7}$$

$$= 9\,10^{3} \approx 10^{4}$$



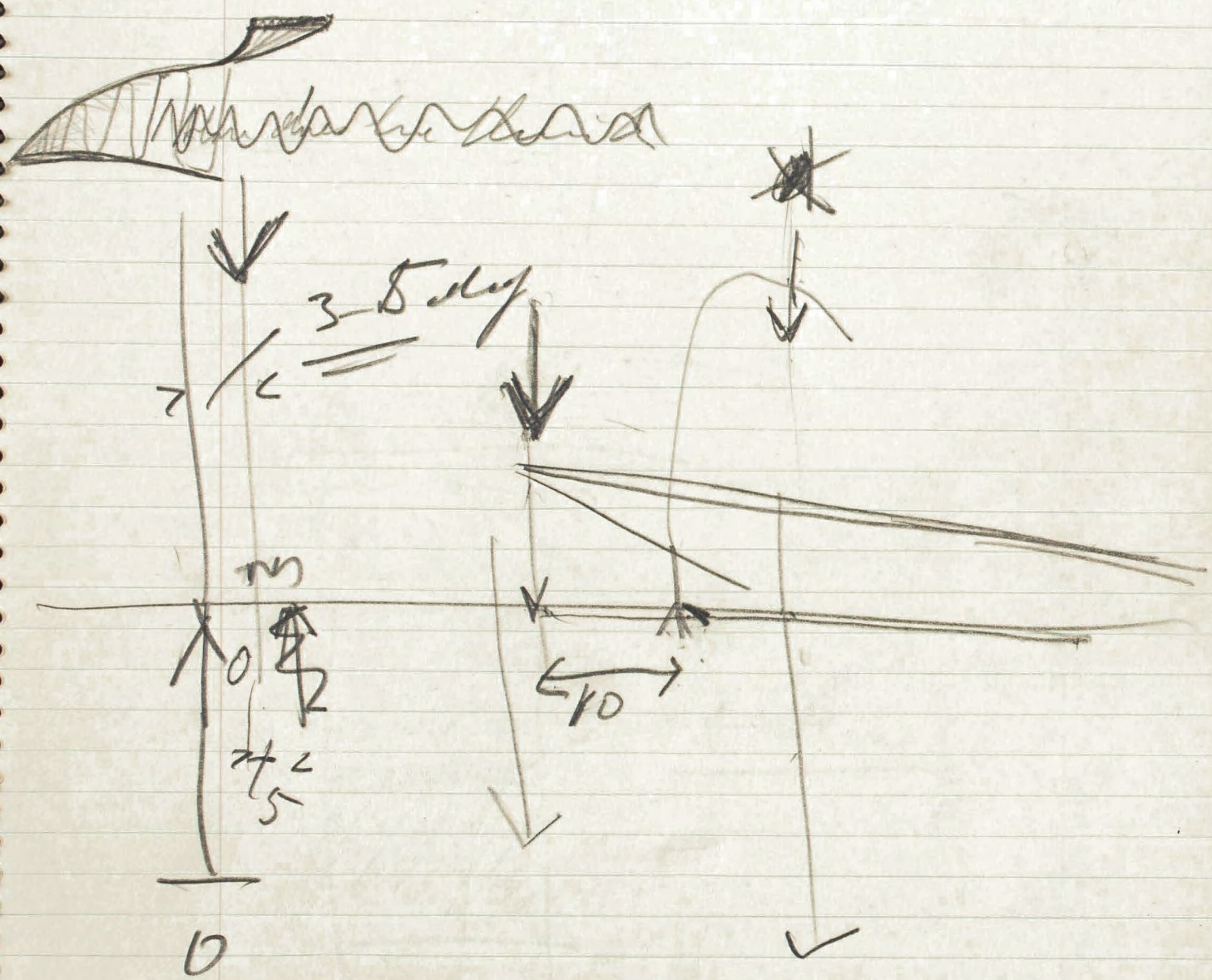


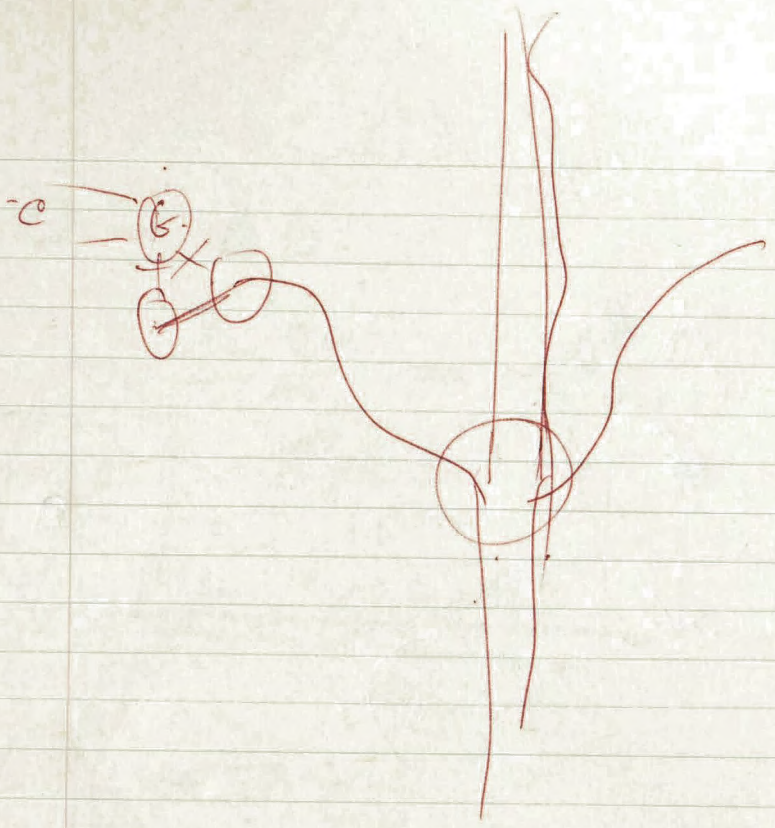


in RNA

A + C = G + U

except plant viruses

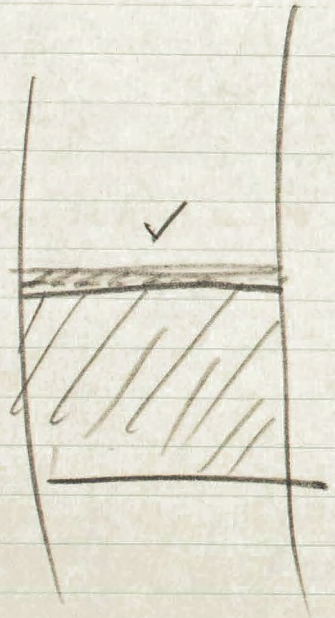




a b c
→ + +

a b+ c+
a +
a + +

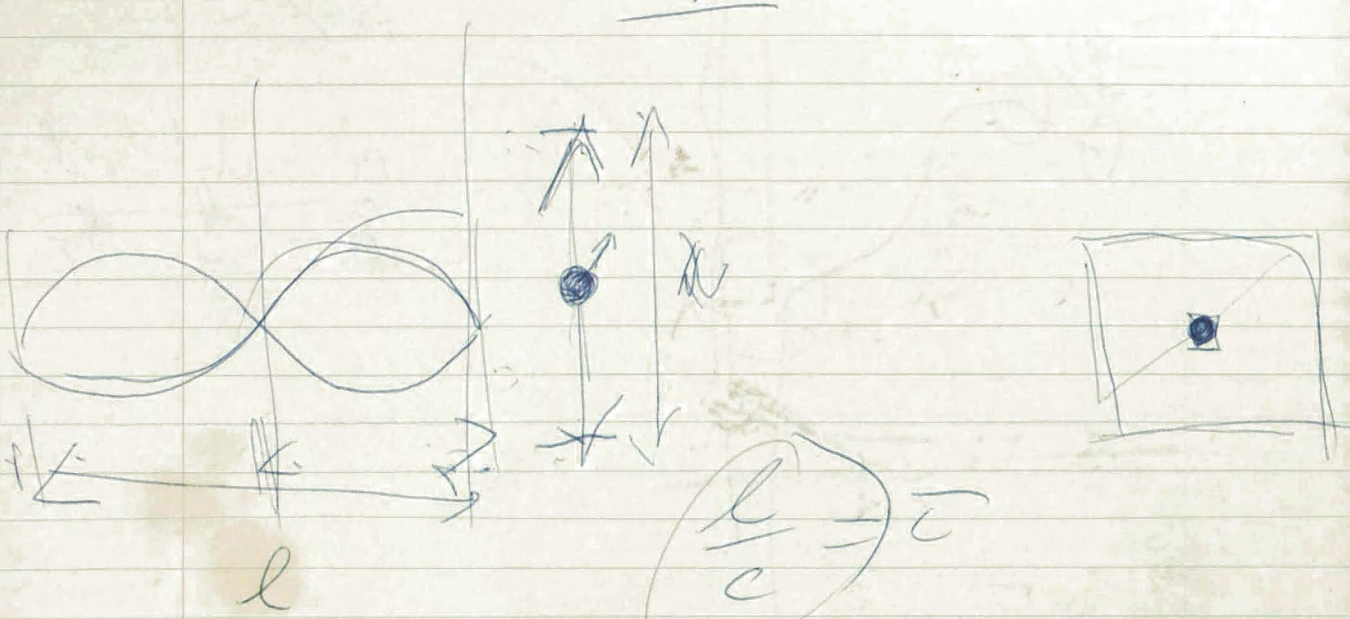
a b c
+ + +

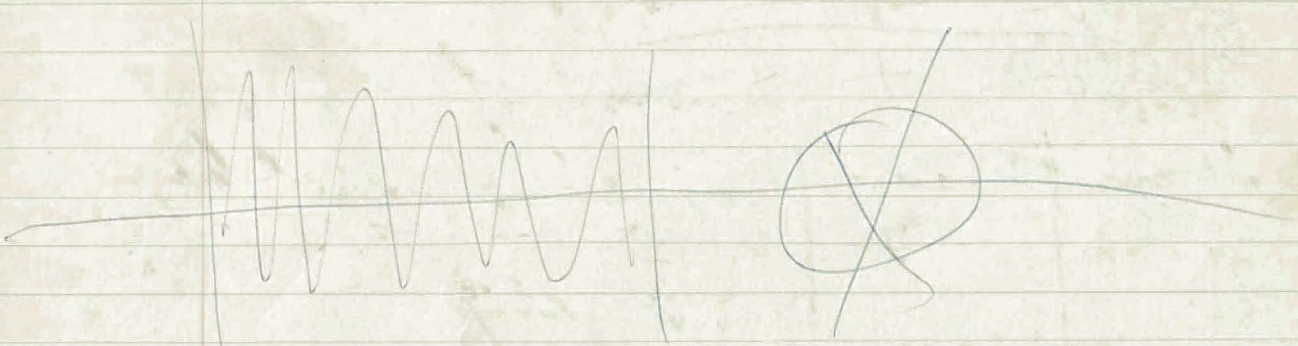


Anker

h^3

lifetime =





$h = l$

Δp

$\frac{m}{E^2}$ =

$0 - \Delta p$

$$\frac{mv^2}{2} = \frac{p^2}{2m}$$

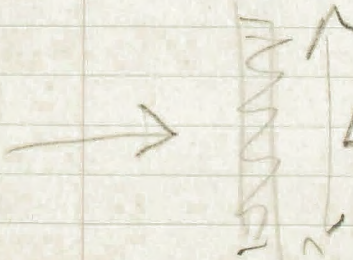
$$\Delta E = \frac{p\,dp}{m}$$

~~$\Delta E \sim \frac{\Delta p \, p}{m}$~~

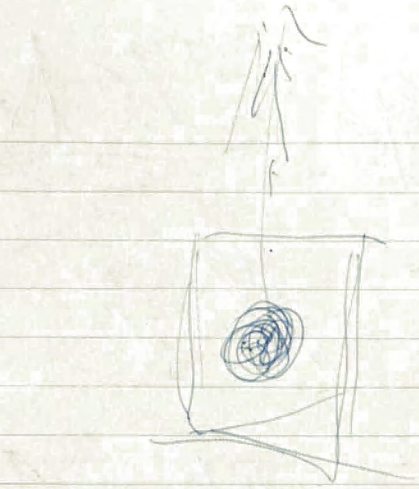
$$\frac{1}{c}\frac{h}{\Delta p} = \tau = \frac{1}{v}$$

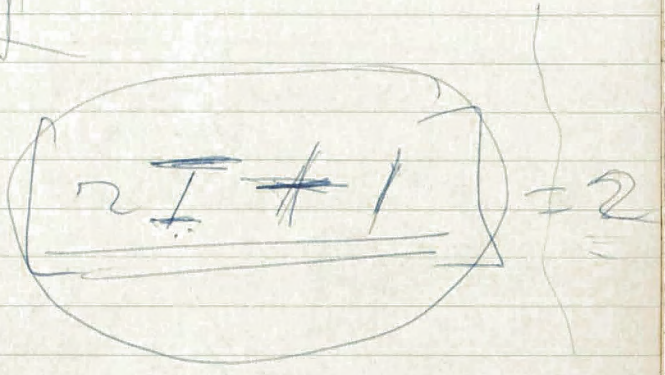
$\frac{h}{\lambda_{light}} = \Delta p$ is accuracy within which p can be measured after impact

but confinement of charged body initially is within $\Delta y = \lambda$ is light is not parallel



Kouse | Crew | Wright.




2I + 1
= 2

$$\frac{1}{N}\frac{d}{dt}(Nq_0) = kN$$

$$q\frac{dN}{dt} + N\frac{dq}{dt} = kN$$

$$\frac{q}{C} + \frac{dq}{dt} = k$$

$$\frac{dq}{dt} = k - \frac{q}{C}$$

$$q_0 = kC$$

5×10^{-4} Mol/liter

10^{-2} gm/liter 4.5 (5)

10^{-1} gm/liter

10^{-1} gm/liter (4)

10^{-4} cc

10^{-14} gm

10^{-17} cc

10^{-15} liter

01 43 90

uninduced

$\frac{dx}{dt} = kx$

$(1-x)N$ = uninduced (τ_2)

xN = Induced (τ_1)

$\tau_2 < \tau_1$

$\frac{d}{dt}$ uninduced $= \frac{1}{N}$

$\frac{d}{dt}(xN) = \frac{dx}{dt}N + x\frac{dN}{dt} =$

N_1 N_2 ind

$\frac{d}{dt}N_1 = kN_2 + \frac{1}{\tau_1}N_1$

uninduced

$\frac{d}{dt}N_2 = \frac{N_2}{\tau_2} - kN_2$

$\frac{d}{dt}(N_1+N_2) = \frac{N_1}{\tau_1} + \frac{N_2}{\tau_2}$

10^4 genes $\sim 10^4$ mnts

In Chemostat

Stationary state:

$$\alpha_1 x + k y - \frac{x}{\tau_0} = 0$$

$$\alpha_2 y - k y - \frac{y}{\tau_0} = 0$$

$$\alpha_2 x + k y - \frac{x}{\tau_0} = 0$$

$$\alpha_2 x - k y - \frac{y}{\tau_0} = 0$$

$$x + y = 1$$

$$\alpha_2 x + k(1-x) - \frac{x}{\tau_0} = 0$$

$$\alpha_2 (1-x) - k(1-x) - \frac{1-x}{\tau_0} = 0$$

$$\alpha_1 x + \alpha_2 y - \frac{1}{\tau_0} = 0$$

$$\alpha_1 x + \alpha_2 (1-x) - \frac{1}{\tau_0} = 0$$

$$\alpha_1 x + k(1-x) - \frac{x}{\tau_0} = 0$$

ind

$$\frac{1}{N_1}\frac{dN_1}{dt} = \frac{1}{N_2}\frac{dN_2}{dt}$$

$$\frac{1}{N_1}(\alpha_1 N_1 + K N_2) = \frac{1}{N_2}(\alpha_2 N_2 - K N_2)$$

$$\alpha_1 + K\frac{N_2}{N_1} = \alpha_2 - K$$

$\beta\alpha_1$

$$1 + K\bar{\tau}_1\frac{N_2}{N_1} = \beta - K\bar{\tau}_1$$

$\beta \geq 1$

$\beta = 1 + \delta$

$$\frac{N_2}{N_1} = \frac{[\beta - 1]}{K\bar{\tau}_1}$$

Certing.

$$\frac{N_2}{N_1} = \beta - 1 - K\bar{\tau}_1$$

δ

$$K_0\bar{\tau}_1 = (\beta - 1) = \delta$$

$\frac{N_2}{N_1+N_2}$

$\frac{N_1}{N_1+N_2}$

X is fraction induced

$$\frac{1-x}{x} = \delta - K\bar{\tau}_1$$

or

$$1 - x = (\delta - K\bar{\tau})x$$

$$1 = (\beta - K\bar{\tau})x$$

$$\boxed{X = \frac{1}{\beta - K\bar{\tau}}}$$

$$\frac{d}{dt} N_1 = kN_2 + \frac{1}{\tau_1} N_1$$

$$\frac{d}{dt} N_2 = -kN_2 + \frac{1}{\tau_2} N_2$$

$$\frac{d}{dt} N_1 = k N_2' + \frac{1}{\tau_1} N_1'$$

$$N_1' = kN_2 + \frac{1}{\tau_1} N_1$$

$$N_2' = -kN_2 + \frac{1}{\tau_2} N_2$$

$$N_1'' = kN_2' + \frac{1}{\tau_1} N_1'$$

$$N_2'' = -kN_2' + \frac{1}{\tau_2} N_2'$$

$$\frac{d}{dt} \frac{N_1}{N_1+N_2} = \frac{N_1' - \quad}{(N_1+N_2)^2}$$

$$\frac{v}{v} = \frac{v'}{v^2} - \frac{vv'}{v}$$

$$\frac{d}{dt} f \frac{N_1}{N_1+N_2} = \frac{N_1'(N_1+N_2) - N_1(N_1'+N_2')}{(N_1+N_2)^2}$$

$$\left(kN_2 + \frac{1}{\tau_1} N_1\right)(N_1+N_2) = N_1 \left(\frac{N_1}{\tau_1} + \frac{N_2}{\tau_2}\right.$$

$$\frac{1-X}{X} = \frac{S - K\tau_1}{K\tau_1}$$

$$1 - X = (S - K\tau_1) X$$

$$1 = (1 + S - K\tau_1) X$$

$$\boxed{X = \frac{1}{1 + S - K\tau_1}}$$

~~check~~

$$1 - X = \frac{S - K\tau_1}{K\tau_1} X = \left(\frac{S}{K\tau_1} - 1\right) X$$

$$1 = \frac{S}{K\tau_1} X$$

$$X =$$

H

$$X = \frac{1}{1 + \nu - k\tau_1}$$

$$k\tau_1 < \delta$$

$$\nu = \frac{\alpha_2 (\text{mono cycl})}{\alpha_1 \; (\text{bicycl})} - 1$$

From scratch

$$\frac{1}{N_1}\frac{d}{dt}N_1 = \frac{1}{N_1}\left[\alpha_1 N_1 + \frac{K}{\alpha_1}N_2\right] =$$

$$= \frac{1}{N_2}\frac{d}{dt}N_2 = \frac{1}{N_2}\left[\alpha_1\beta N_2 - \frac{K}{\alpha_1}N_2\right]$$

$$1 + k\tau_1 \frac{N_2}{N_1} = \beta - k\tau_1 \qquad \frac{N_2}{N_1} = \frac{\beta - 1 - k\tau_1}{k\tau_1}$$

$$\frac{N_2}{N_1} = \frac{\beta - 1 - k\tau_1}{k\tau_1} \qquad \frac{N_2}{N_1} = \frac{\beta - 1}{k\tau} - 1$$

$$\frac{\frac{N_2}{N_1 + N_2}}{\frac{N_1}{N_1 + N_2}} = \frac{\beta - 1 - k\tau_1}{k\tau_1}$$

$\frac{dx}{dt}$ for $k=0$ x

$\frac{d}{dt}\left(\frac{N_1}{N_1+N_2}\right) =$

$\frac{dN_1}{dt}\ \frac{1}{N_1+N_2} + N_1 \frac{N_1'+N_2'}{(N_1+N_2)^2}$ $e^{\alpha_1 t}$

$\frac{d \log x}{dt} = \frac{d}{dt}\log N_1 - \frac{1}{dt}\log(N_1+N_2$

$|A| \; |\alpha_1 - \alpha_2|$

make $z = \frac{N_1}{N_2} = \frac{x}{1-x}$

$\frac{d}{dt}\log z = \alpha_1 - \alpha_2$

$\frac{dz}{dt}$ for kt small

z small for small z

$\frac{dz}{dt} = \left(\frac{dN_1}{dt} N_2 - \frac{dN_2}{dt} N_1\right) \frac{1}{N_2^2}$ $z \approx x$

~~$1 + K\bar{c}_1 \frac{1-x}{x} = \beta = K\bar{c}_1$~~

$$\frac{N_2}{N_1} = \frac{\beta - 1}{K\bar{c}_1} - 1 \leq$$

$$\frac{1-x}{x} = \frac{\beta - 1}{K\bar{c}_1} - 1$$

$$1 - x = \left[\frac{\beta - 1}{K\bar{c}_1} - 1\right] x$$

$$1 = \frac{\beta - 1}{K\bar{c}} x$$

$$\boxed{X = \frac{\alpha_2 K\bar{c}_1}{\delta} \text{ (ind)}}$$

$$\boxed{\delta = \frac{\alpha_2}{\alpha_1} - 1}$$

$$K\bar{c} \leq \delta$$

O.K.

or $\frac{X_{(sat)}}{K\bar{c}_1} = \frac{1}{\delta}$

Is there a threshold
for rise at two ones?

At level 50 (ceiling 400) ~~ff~~

in one gen. only ~~[illegible]~~ 1/80 of

pumps produced

<u>Turnover No</u> 10^{-14} gm per cell in 100 sec

10^{-16} mol. or say in 100 sec

or $6\ 10^{23} \times 10^{-16} = \frac{6\ 10^7}{100} = 6\ 10^5$/sec

Stosszahl

(~~[illegible]~~) 10^{-14} cm² $\times 2 \times 10^4$ cm 10^{-8} Mol/l /sec

or in 100 sec 2×10^{-16} mol

enters

ratio of inside/outside conc

~~does~~ need <u>not</u> depend on number of

pumps?

$6 10^{-6}$ M/liter

$6 10^{-9} \times 200$ gm/cc $= 1.2\ 10^{-6}$ gm/cc

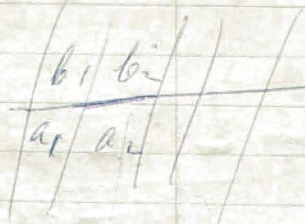
in milk $1.2\ 10^{-4}$ gm/cc

$1.2\ 10^{-4} \times 10^{-4}$ gm/cc

k number of generations
for ~~[illegible]~~ ~~more [illegible]~~
more probable
mass?

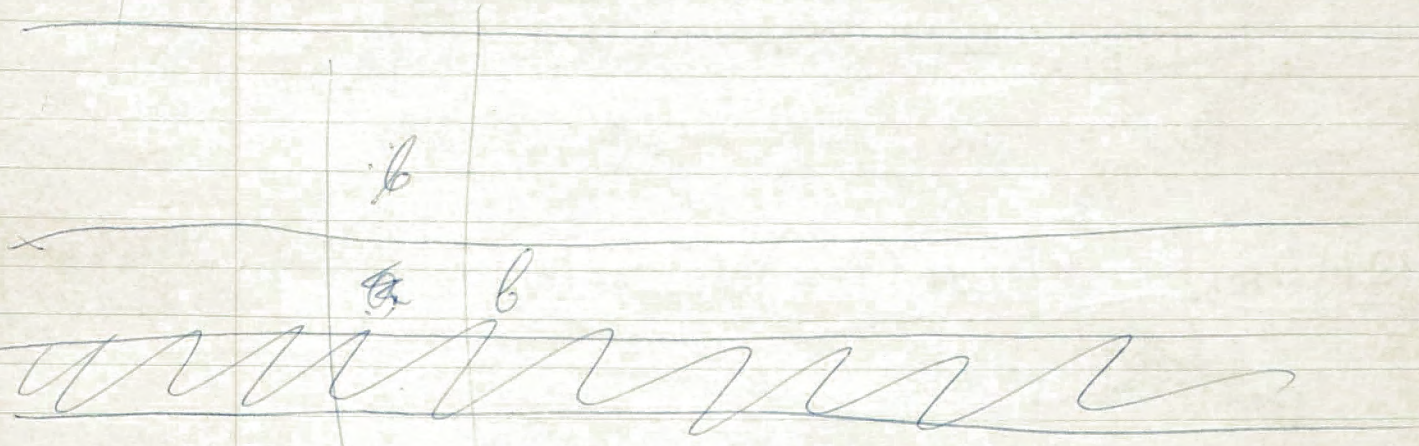
W

m



$a \to b = p$

$b \to a = q$ $\quad q >> p$



10^4 genes $\times$ 10^4 elements

of changes $\frac{1}{A}$ is bad

A mutations per procaryote permissible

p is ratio of toward to backward.

$\frac{d}{dt}(N_2+M_2) = -LM_2 - KN_2 + \alpha_2(N_2+M_2)$

1.) $\alpha_2 - \frac{d}{dt}[LM_2+KN_2] = \alpha_1 + \frac{LM_2+KN_2}{N_1+M_1}$

$$Q\frac{M_1}{N_1} + \alpha_1 - \rho + K\frac{N_2}{N_1} =$$

$$= Q\frac{M_2}{N_2} + \alpha_2 - \rho - K$$

$$(QM_1+\alpha_1N_1-\rho N_1+KN_2)N_2 = N_1(QM_2+\alpha_2N_2-\rho N_2-KN_2)$$

$$\rho = -Q\frac{M_1}{N_1} + L\frac{M_2}{N_1} + \alpha$$

$$\rho\frac{N_1}{M_1} - Q + L\frac{M_2}{M_1} + \alpha_1 =$$

$$= \rho\frac{N_2}{M_2} - Q - L + \alpha_2$$

Two species of bacteria
$N \rightarrow M$, $M \rightarrow N$ 50% 50% mixture. —

$$\frac{dM_1}{dt} = G N_1 - Q M_1 + L M_2 + \alpha_1 M_1$$

$$\frac{M}{N} = \frac{g}{l} = 1$$

$$\frac{dM_2}{dt} = G N_2 + K M_2 - Q M_2 - L M_2 + \alpha_2 M_2$$

$$\frac{dN_1}{dt} = Q M_1 - g N_1 + K N_2 + \alpha_1 N_1$$

$$\frac{dN_2}{dt} = Q M_2 - g N_2 - K N_2 + \alpha_2 N_2$$

$$\boxed{Q = g}$$

$$\frac{1}{M_1}\frac{dM_1}{dt} = \frac{1}{N_2}\frac{dN_2}{dt}$$

$$\frac{Q M_1}{N_1} - g + K\frac{N_2}{N_1} + \alpha_1 = Q\frac{M_2}{N_2} - g - K + \alpha_2$$

(M_1, M_2)

$$g\frac{N_1}{M_1} - Q + L\frac{M_2}{M_1} + \alpha_1 = G\frac{N_2}{M_2} - Q - L + \alpha_2$$

$$\frac{d}{dt}(N_1 + N_2) = Q(M_1 + M_2) - g(N_1 + N_2) + \alpha_1 N_1 + \alpha_2 N_2$$

$$\frac{d}{dt}(N_1 + M_1) = L M_2 + K N_2 + \alpha_1 (M_1 + N_1)$$

rare mutant lacks $\overline{III}$-gen.
frequent mutant IV gen.

ratio q_i

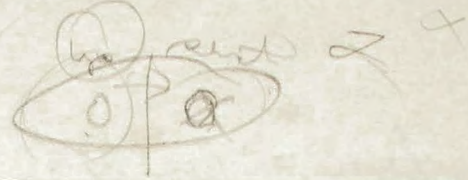
there is a spectrum for
N_i and one for q_i

---

rare mutant lacks τ_i^*
and frequent mutant lacks τ_i
there is a spectrum ($\tau_i > \tau_i^*$)
for $q_i = \frac{\tau_i}{\tau_i^*}$

Erik Mayer

Zinder



A B

P22 (Salmonella)

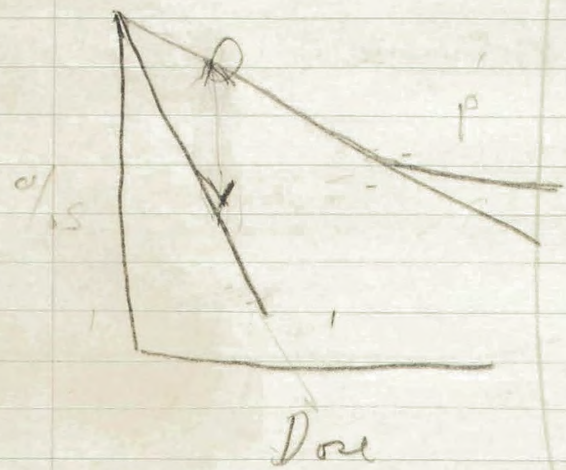
the presence on B makes it incapable of growing on A

but it can be rescued

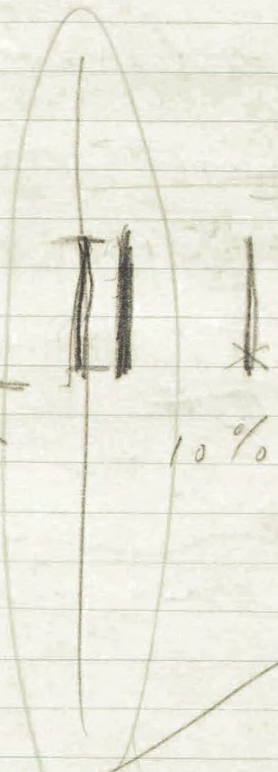
(but very little appearing) all this in broth

r, a'

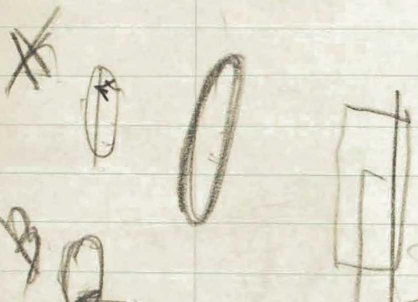
lysogen b'



Dose



10%



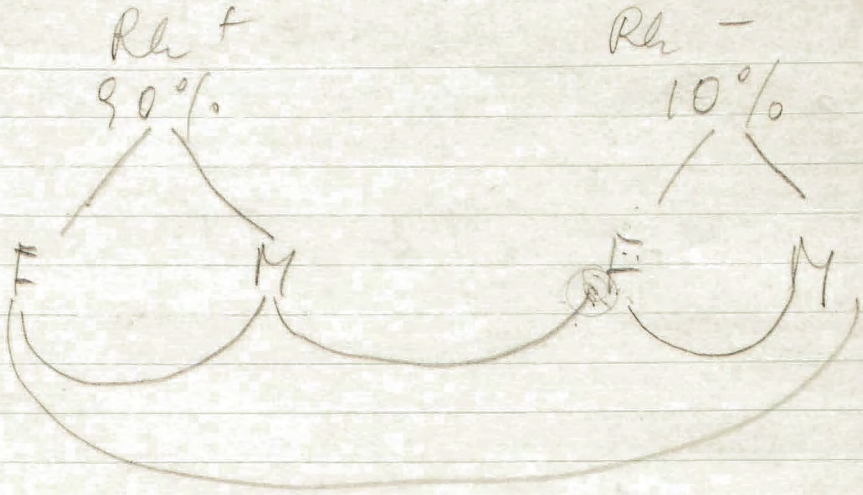
a b

a' b'

a/b a'/b'

a' a

Phage	a, a'	a, b'	b, a'	b, b'
LT2	1	1	0	0
LT2 (a^x, b')	1	0	1	0
B (b, a')	1	0	1	0
→ LT2 (a b'x)	1	1	0	0
B (b, b'x)	1	1	1	1



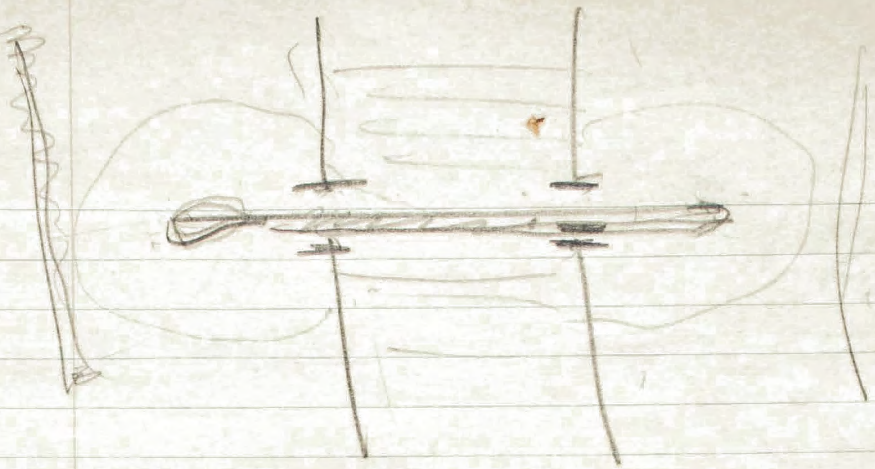
90% & 10% 9%

Ke 6-8067 Piero

3-4 p.m.

Lancet

Apr. 28/56



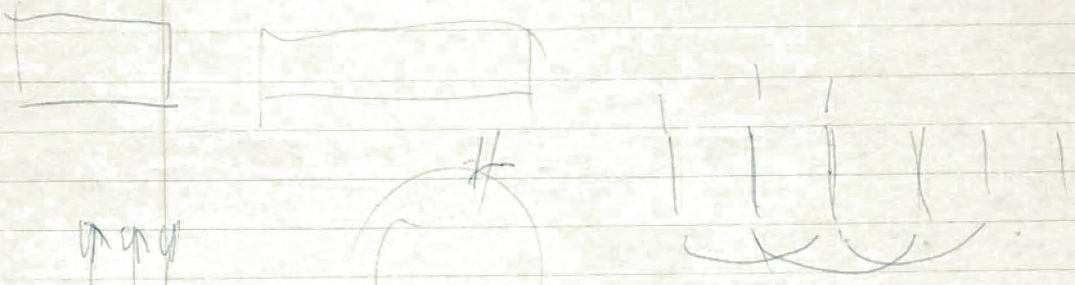
20 20
4000

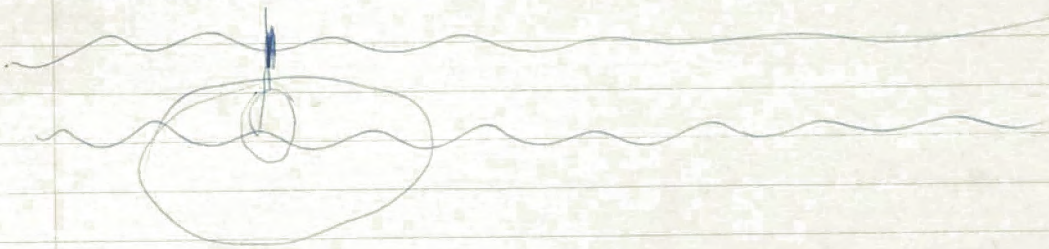
Merrill Chase

5 hours/week [915]

Dole

15





A B 0 | 30,000,000

$1:10^6$

10^6

AA

AB

A 0 | 0 0

$-\frac{dT}{dt} = \frac{A}{C} v^{0.8} (T - T_0)$

$\int \frac{dT}{T - T_0} = -\frac{A}{C} v^{0.8} \int dt$

$\ln(T - T_0) = -\frac{A}{C} v^{0.8} t + \ln(T_1 - T_0)$

$T = f' + T_0$

$C\,dT = dQ$

$Q = C \int_0^{\tau} (T_1 - T_0) e^{-\alpha t}\, dt = \frac{1 - e^{-\frac{A}{C} v^{0.8} \tau}}{A v^{0.8}} \times (T_1 - T_0)$

$e^{-\alpha t}$

$-\alpha e^{-\alpha t} \cdot \left[-\frac{1}{\alpha} e^{-\alpha t} \right]_0^{\tau}$

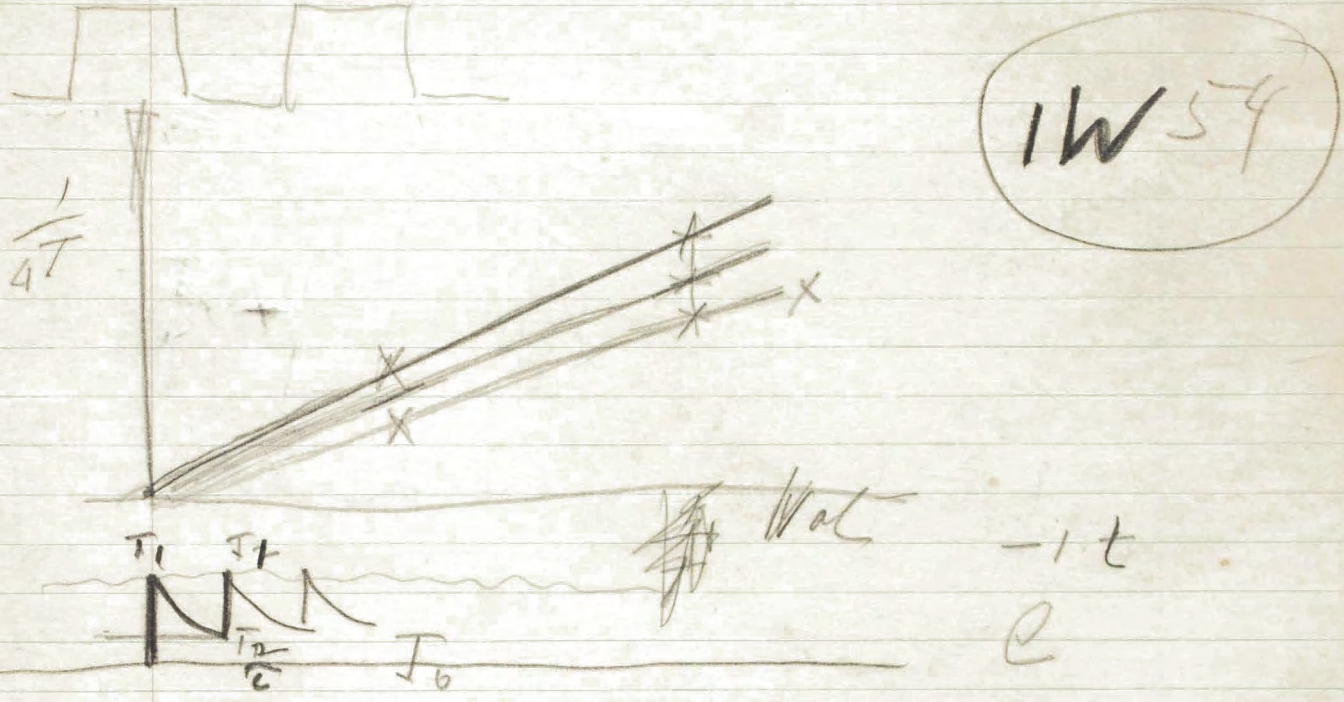
3000 W/C°/hr cm²

$\frac{3000 \cdot 10^3}{10^4 \times 3600} = \frac{1}{10}$ cal/cm² sec C° $\approx$ 1/2 Watt

— $\frac{1}{100}$ cc for $\frac{1}{10}$ mg per thick

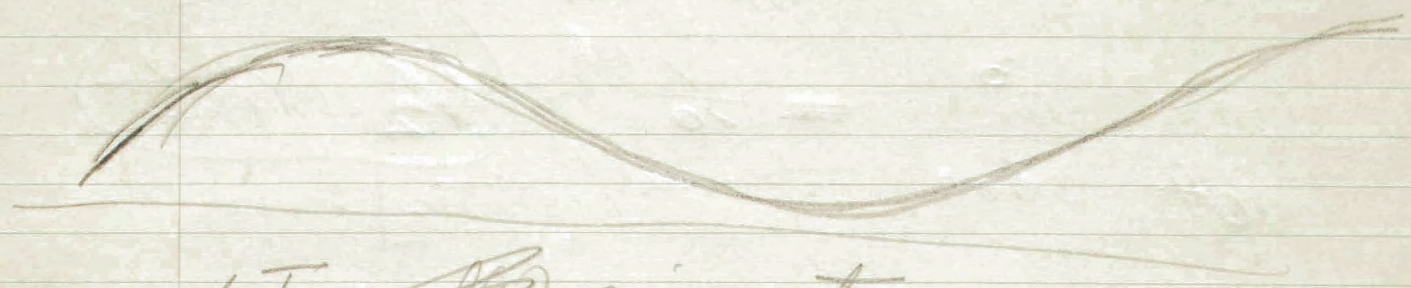
$\frac{6}{1000}$ gr. atom gold

$\frac{1}{200}$ cal per cm²



$Q = \int_0$

$\frac{A}{v}(T_1 - T_0)\, v^{0.8}$



$$\frac{dJ}{dt} = \sin \omega t$$

$$\dot{I} + \sin \omega t = \frac{dJ}{dt} C + A(J - J_0)$$

$$J = J_2 + a \sin(\omega t + \phi) + b \cos \omega t$$

$$C_{ans} + \sin \omega t = C[a\omega \cos \omega t - b\omega \sin \omega t]$$

$$+ A[J_2 - J_0] + A$$

$$+ A[a\omega \sin \omega t + b\omega \cos \omega t]$$

$$A\,a$$

$(T - T_0)$

$$\int_0^{\tau} e^{-\alpha t}\, dt = \left| \frac{1}{\alpha} e^{-\alpha t} \right|_0^{\tau}$$

H

$$\alpha = \frac{h\, v^{\infty}}{c}$$

$$\rho = (T_1 - T_0)\, e^{-\alpha t}$$

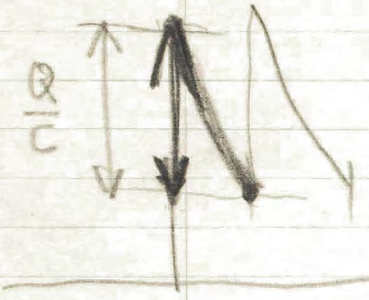
$$\frac{1}{\alpha}(1 - e^{-\alpha \tau})$$

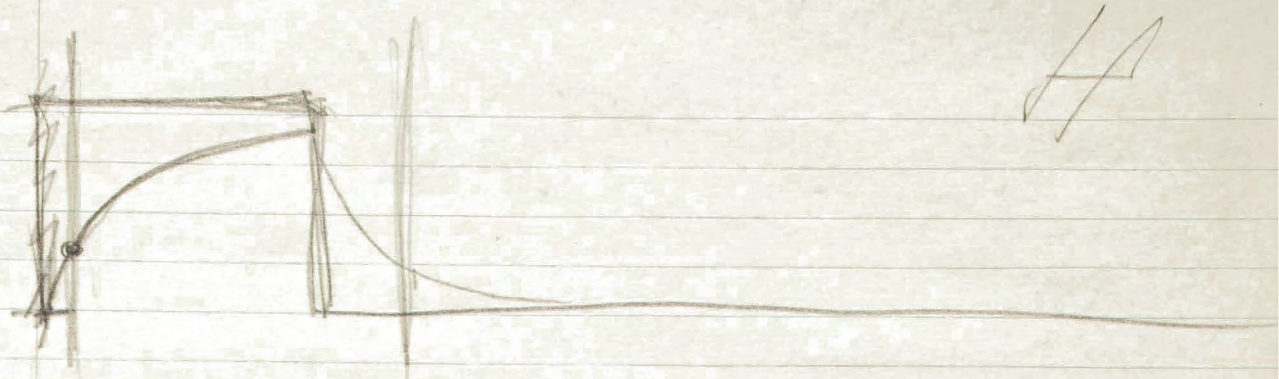
$$c(T_1 - T_0)\left[1 - e^{-\alpha \tau}\right] = Q$$

$$c(T_1 - T_0) - c(T_1 - T_2) = Q$$

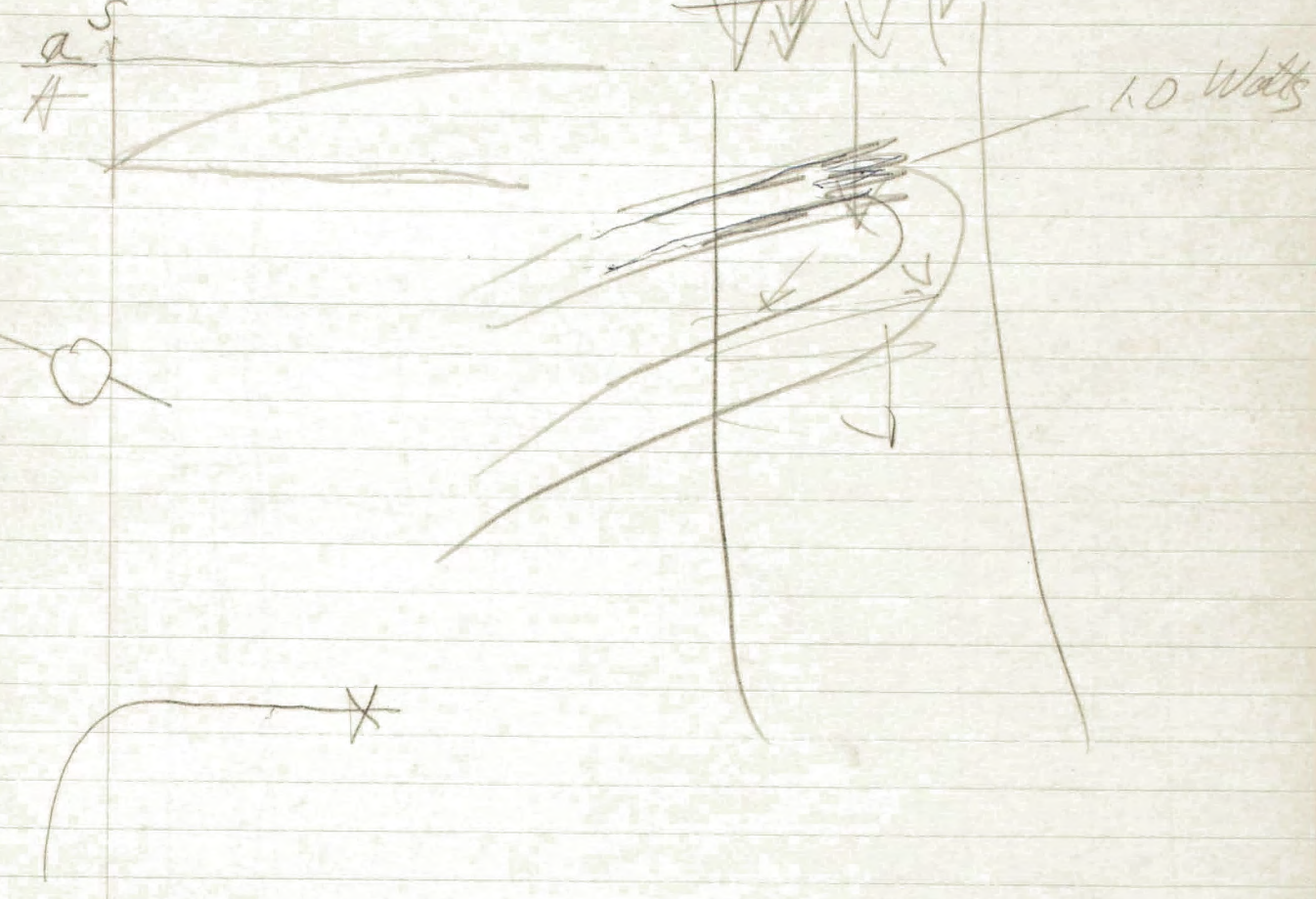
$$c T_1 - c T_2 = Q$$

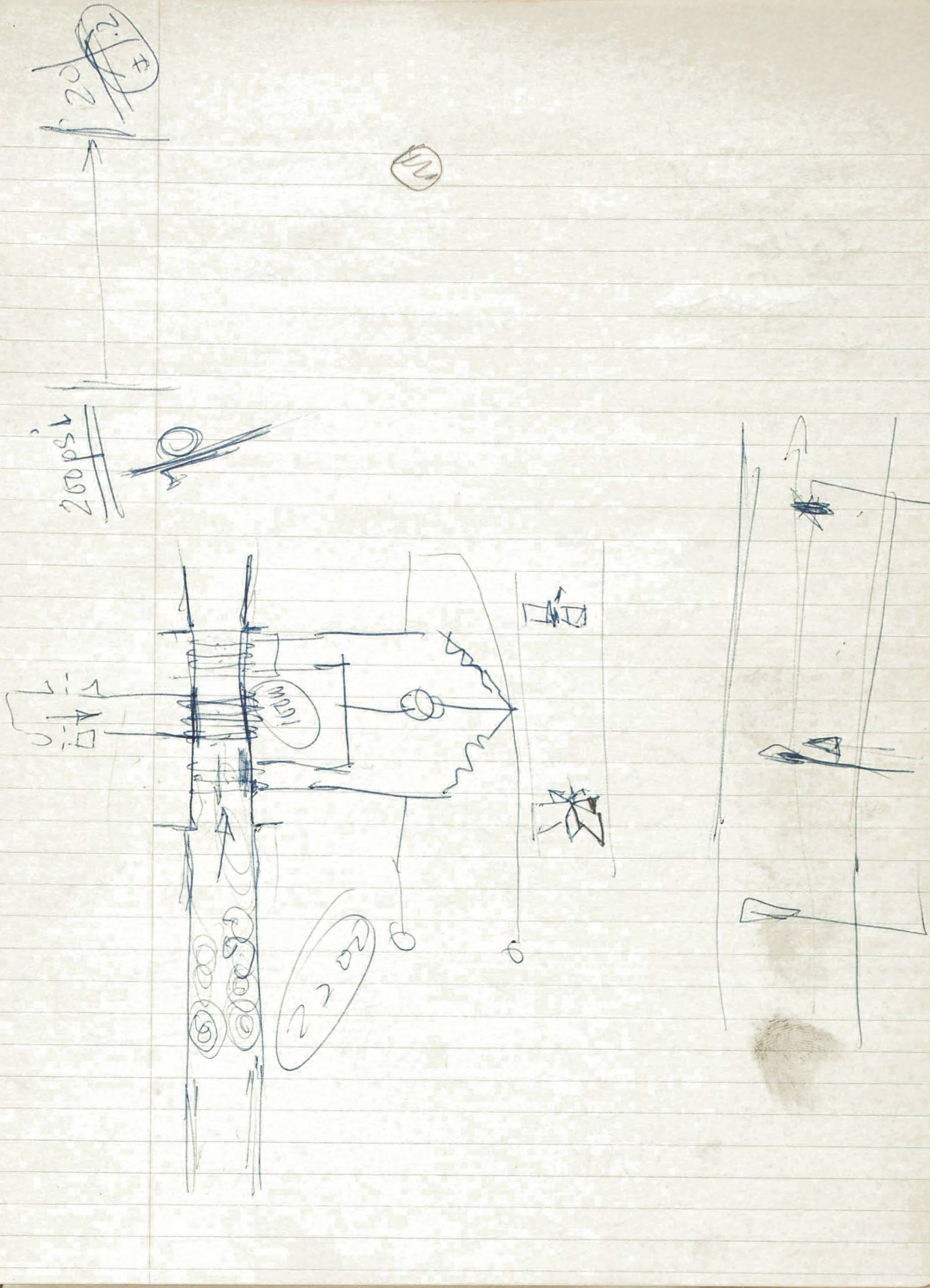
$$[T_1 - T_0] \Rightarrow$$





$$a = C \frac{dT}{dt} + (T - T_0) A$$




2.2
200psi

Mrs. Leonard
Herschel
Weaver Warren
Loeb
~~Thomas~~
~~[illegible] Thomas~~

Kendall
Haldane
Sherman

de Vigneaud

Deering

M. S. Bradley

Mrs. Cass Canfield
Fifield Vorkum.
[Mrs. Campbell]

150 ⑥ 60

Frank Adler (Rucker)

1/3 r / week

15 year

50/3 r

160 /

220 r

15/0

~~10 years~~
3 year

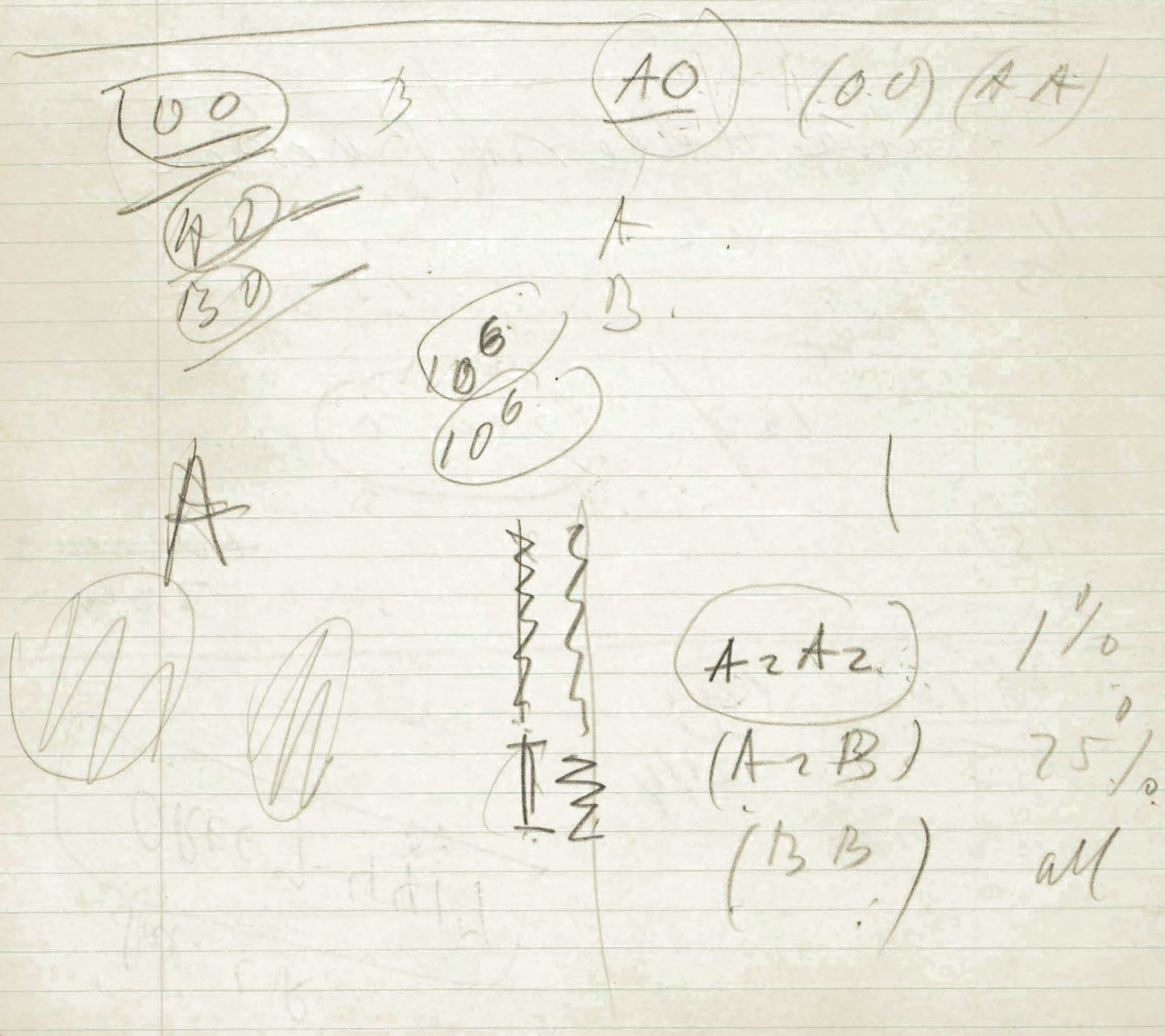
25/0

④
2 1/4

Stock. E.R.
ORE 7-4417

Fauci Racker

Rich's Whip Topping
Rich Products Co
1145 Niagara St
Buffalo N.Y.



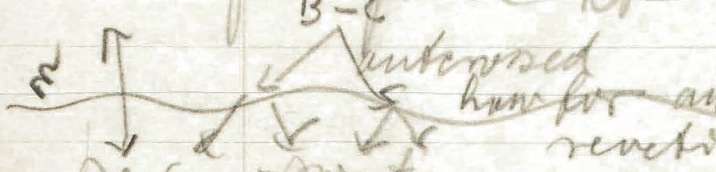
Medawar 4

p. 361 / last q. does it

"mem. cancer" has been produced in host - cell

Phil. Trans.
Royal Soc. of London
Series B
No 666 Vol 239 pp 357-414 / 1956
P.B. Medawar

Homster experiment to propose to theirs.



Number of alleles per gene locus:
How many strangers need to be used as "first" transplant until transplants show ~~rejects~~ accelerated rejection??

10^6 : $1 : 10^6$

10^{12} $5 \cdot 10^3 \; 5 \cdot 10^9$

$2.5 \cdot 10^{13}$

~~$5 \cdot 10^2$~~

10^9 Anti N

MN

10^9 MM AA

10^6

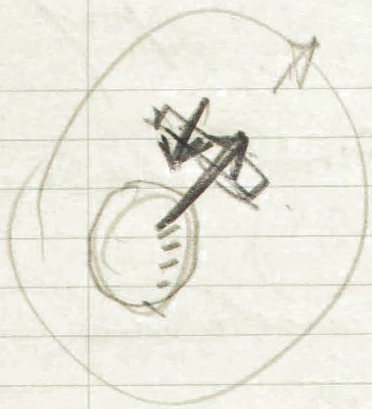
coagulum or curd
natural ripening or addition
of rennet

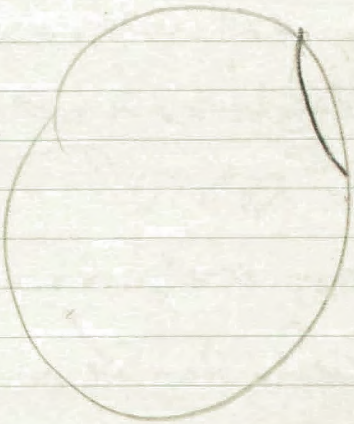
moving or dipping curd
up moulds or hoops.—
Cheddar Pagnetort and Swiss

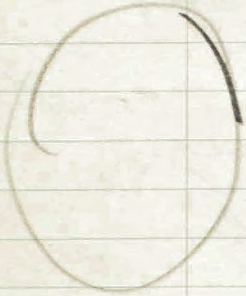
Soft with rennet with lactic acid
and eat within few days.
Hard rennet, cook and
press curd when with moulds
or hoops for several months
or years
Semi hard pull between these
two.—

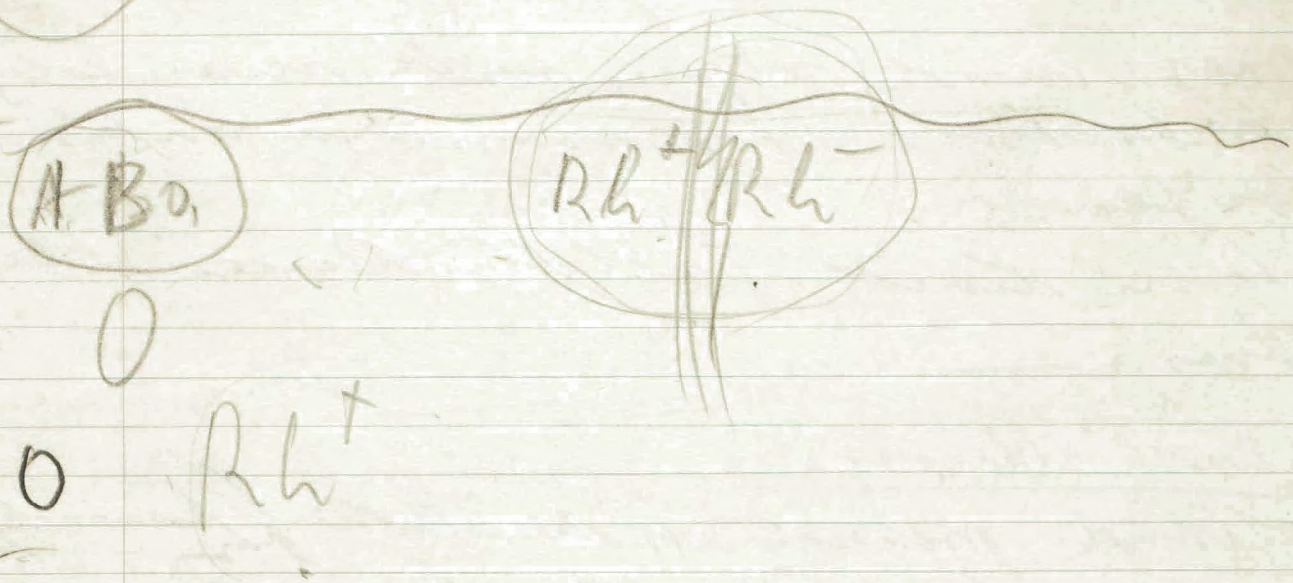
Brick Cheese
Curd pressed in moulds for
24 hours, then salted and
used for several months.

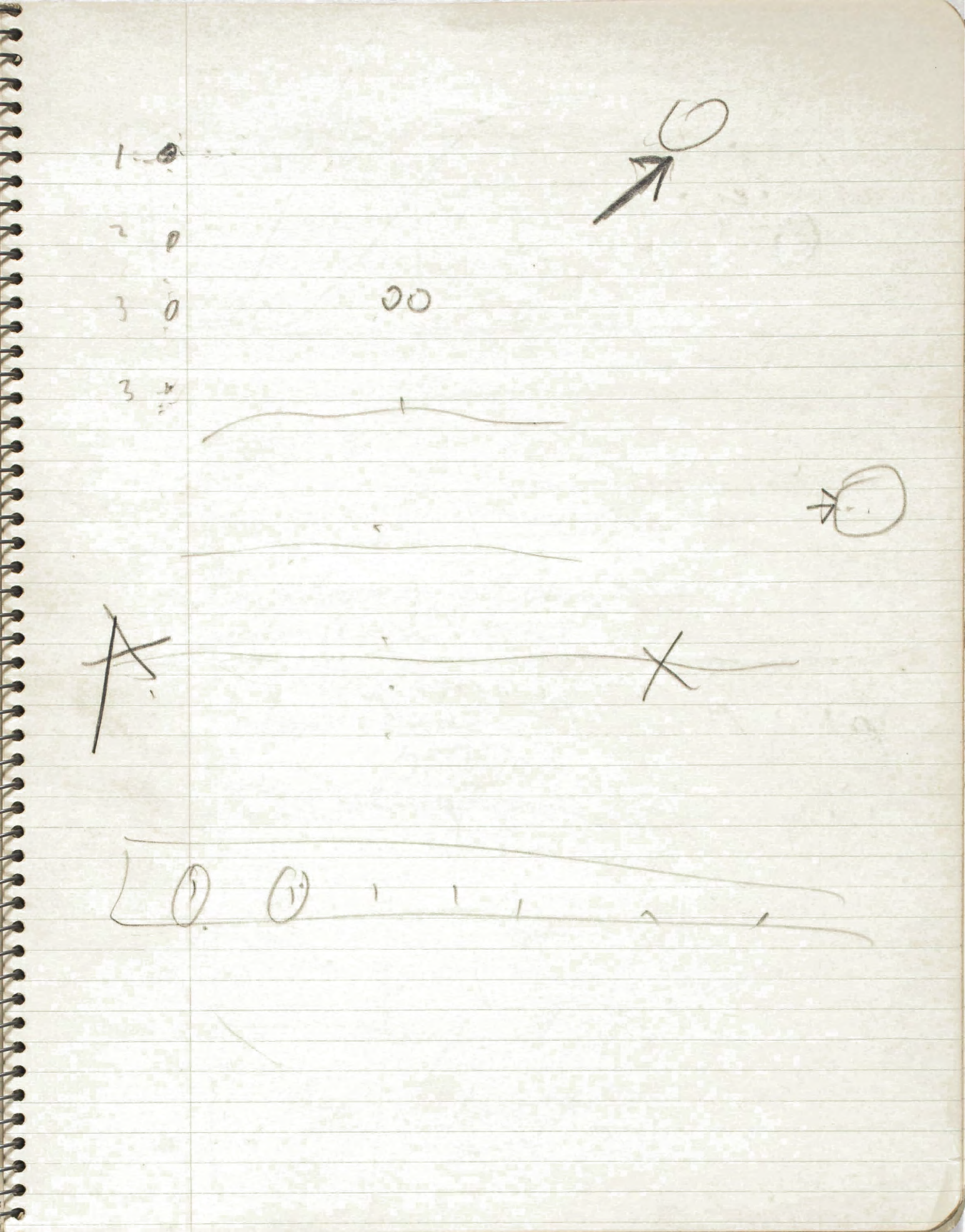
335

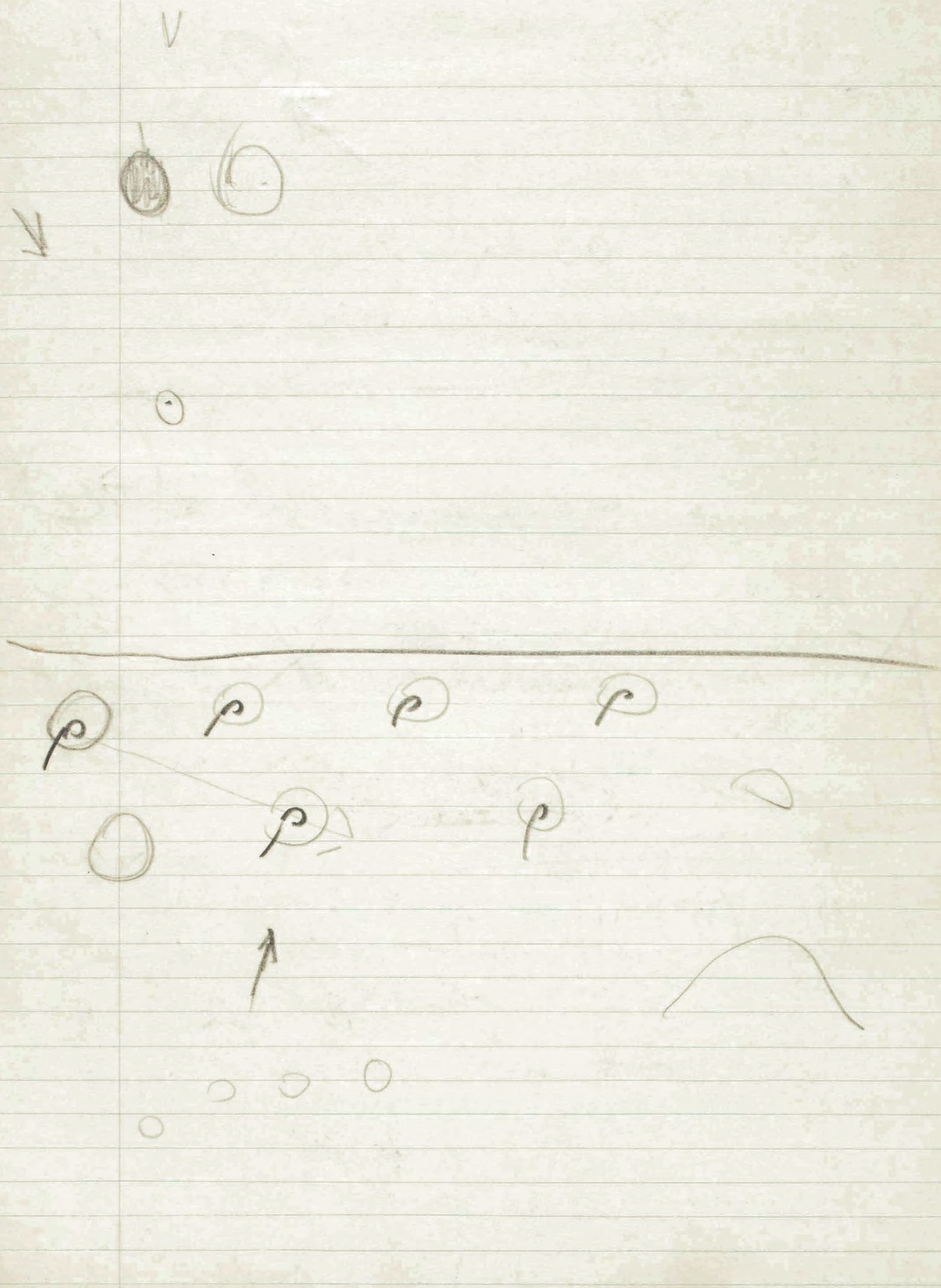


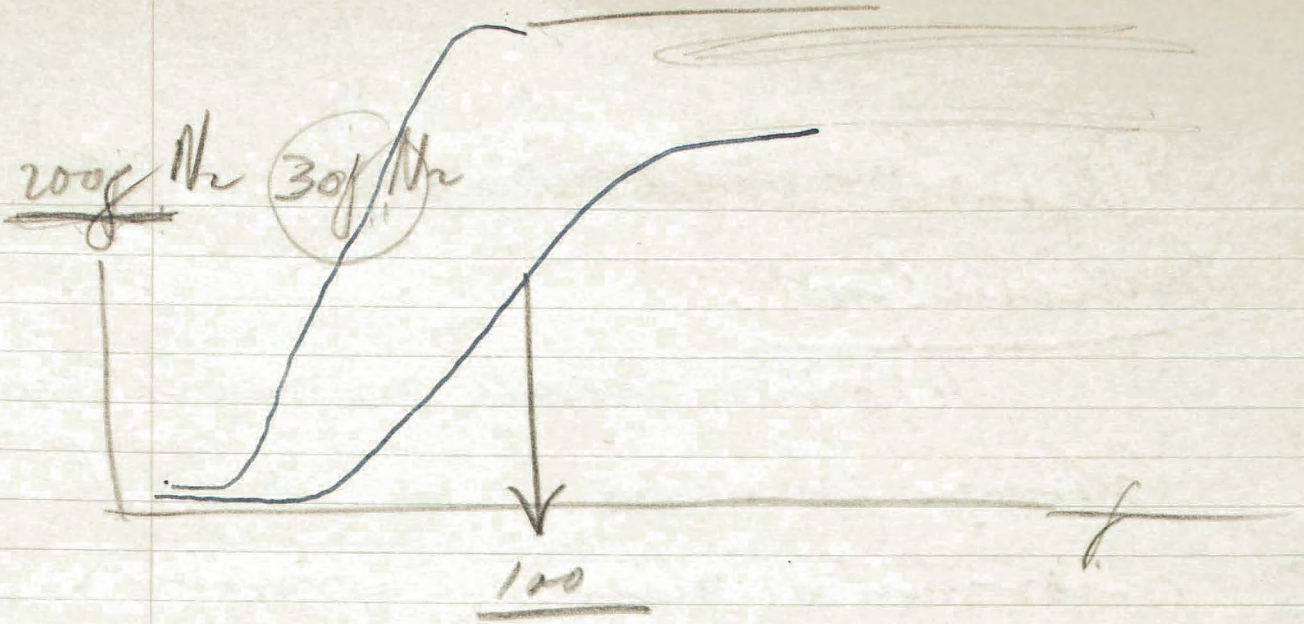





A B O
Rh+ Rh-
O
Rh+
O

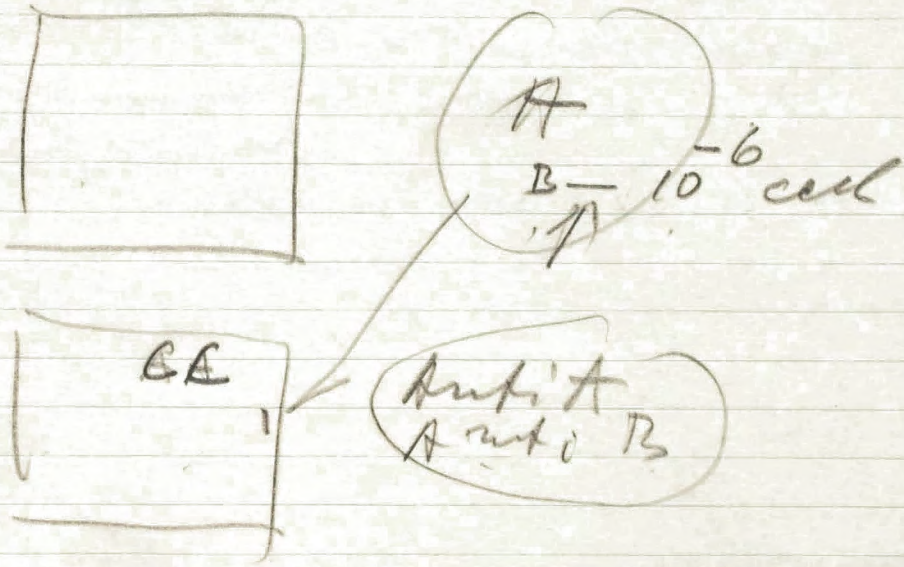






rats

Neuronal phenomena
new born rat
Transplantation Bulletin
Sept 1962
Kabat p. 278.



Cheese - continued

Camembert

4 to six weeks ripening

Cottage cheese

sour-milk cheese from skim milk with or without addition of rennet

Cream cheese

with cream thickened by souring or from mixt cream thickened with rennet & salted - 3 to 10 days.

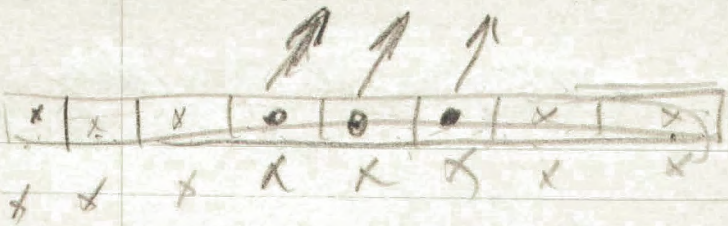
Consumption 1935

U.S. 5 lbs

Switzerland ~ 20 lbs

1 oz 000 gm/year
~ 250 gm/day

min in U.S. 300 gm/day



Transplantation Bulletin
Vol 3 No 4 1956 p. 145
R.T. Smith, R.A. Bridges

1 mgm B.St.A gives
30% metamorphosis
in newborn rabbits. —
Lo Camp. 10^6 mll sheep cells
≈ abt 10^3 10^6 10^{-12} gm = 1 mgm cells

$20 \times 5000 = \frac{10^4}{400}$ gm $= 25$ gm cheese/day in Sutherland

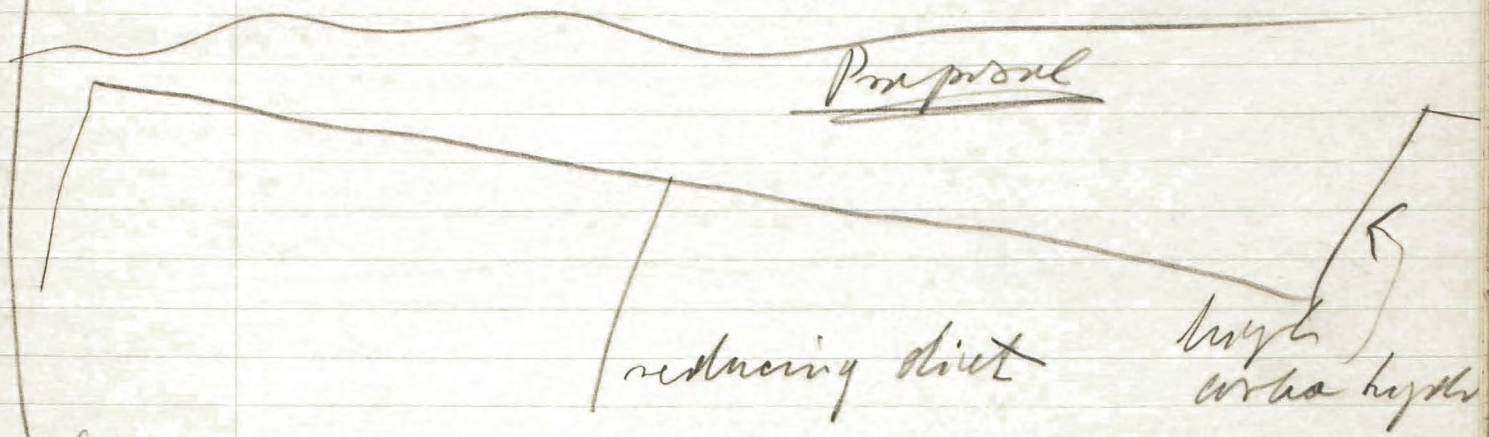
Ancel Keys

Journal of Chronic Dis. Vol 4 (1956) No 4
p. 364 — October

J. M. R Beneridge et al.
P. 441 Vol 34 (May) 1956

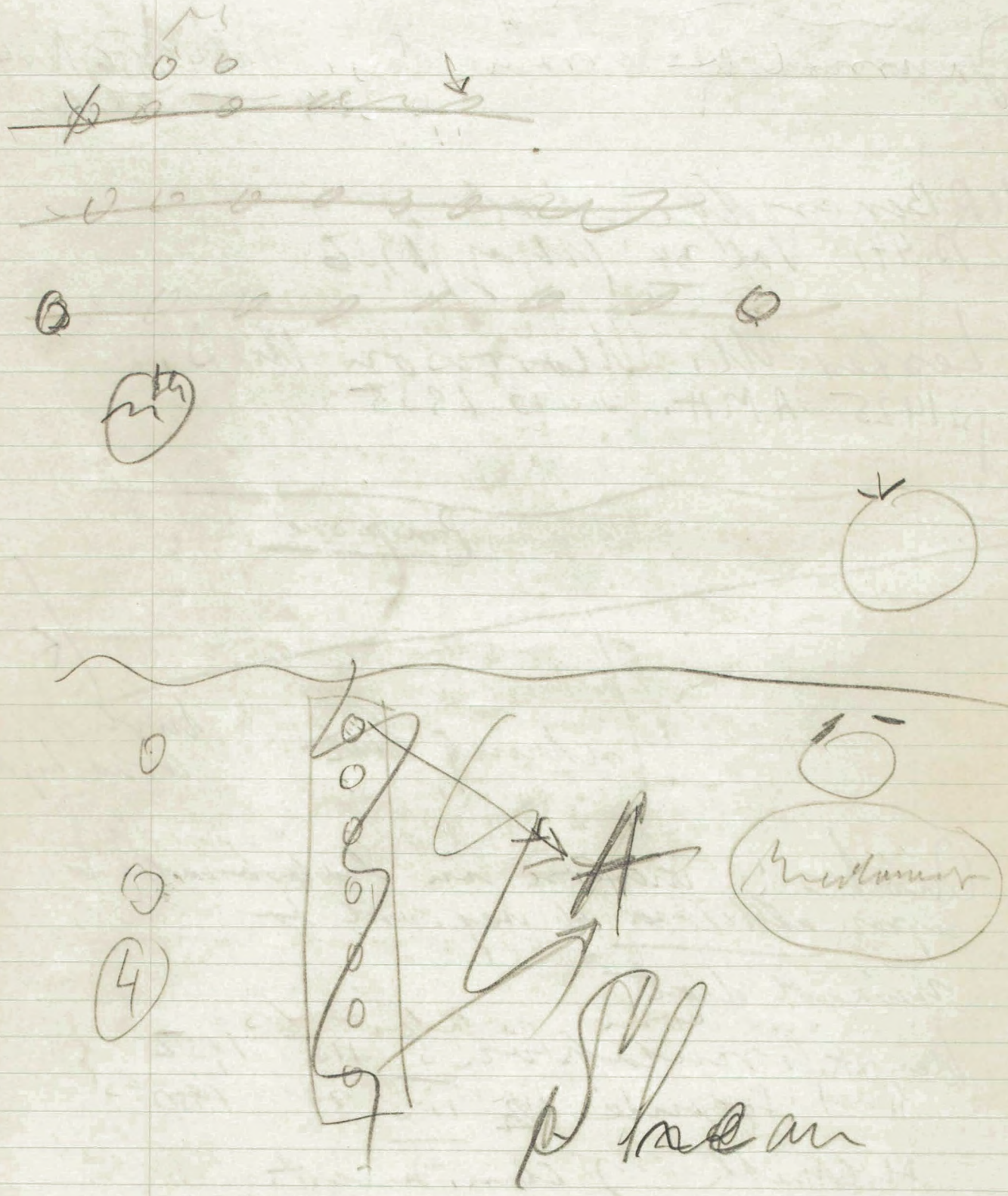
Lester M. Morrison M. D.
p. 1425 AMA. Dec 10 1955

Proposal



Quotes: increase in ~~cholesterol~~ lipoids upon addition of neg. cal to mixed diet

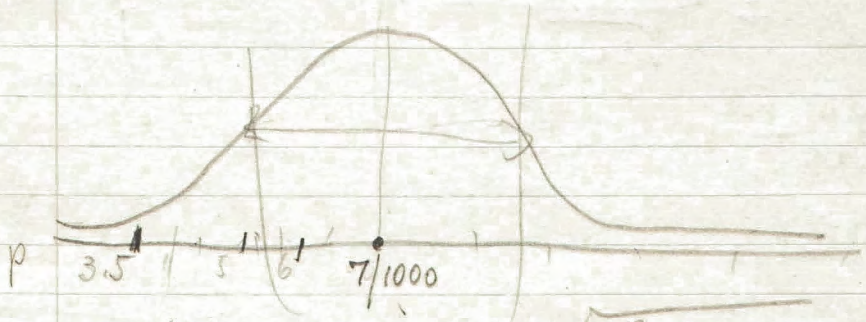
Keys A. Circulation 5 115 1952
" Science 116 112 79 1950
Hildreth J. Clin. Invest.
30 649 1951
" Circulation ~~53~~ 3 641 1951
Mayer J.A.
J. Clin. Nutrition 2 316, 1954


4
5
Stream

Benardolye (Atlantic City) M

β sitosterol fraction

(B6)



$\sqrt{\frac{pq}{n}}$ $\quad SE = \sqrt{\frac{pq}{n}} =$

$\frac{\sqrt{\frac{Npq}{N}}}{N} = \sqrt{\frac{p}{N}}$

$1 - \frac{\cancel{3}}{\cancel{1000}}$ $\quad 7000 = N$ $\quad 50$

$\frac{7 \pm 1}{1000}$

$\frac{7}{N} = \frac{7}{7000} = \frac{1}{1000}$

7 ± 3.5

4
3.5

$\frac{49 \pm 7}{7000} = \frac{7 \pm 1}{1000}$

$SE = \sqrt{\frac{pq}{n}}$

$\sqrt{pq} = \sqrt{\frac{7}{1000}} \sqrt{\left(\frac{70}{10000}\right)\left(1 - \frac{7}{1000}\right)} = \sqrt{\frac{7}{1000} - \frac{\cancel{70}}{15 \times 10^5}}$

$\frac{8.5}{100}$

$SE = \sqrt{\frac{p \cdot q}{n}} = \frac{\frac{85}{1000}}{\sqrt{n}}$

for 100 : $\frac{85}{1000 \cdot 10} = \frac{8.5}{1000}$

for 8100 : $\frac{85 \cdot 1}{1000 \cdot 90}$

8100

50

7 35

3.5 | 35

5 ; 10 ± 3

50 ± 7

$\frac{p_1 - p_2}{\sqrt{\frac{p_1 + p_2}{x}}} = 3$

$\frac{(p_1 - p_2)^2}{\frac{p_1 + p_2}{x}} = 9$

$\frac{(3.5)^2}{10^6} \quad \frac{1000}{10.5} = 9x$

$\frac{1}{9}(3.5)^2 =$

$x \frac{1}{(100)^2} = 1$

$\frac{1}{100}$

$\frac{p_1 - p_2}{\sqrt{\frac{p_1 + p_2}{x}}} = 3$

$p_1 - p_2 = 9\left(\frac{p_1 + p_2}{x}\right)$

$x = \frac{9(p_1 + p_2)}{(p_1 - p_2)^2}$

$X = 10000$

$\frac{(p_1 - p_2)^2 x}{p_1 + p_2} = 9$

$x = \frac{9(p_1 + p_2)}{(p_1 - p_2)^2}$

$x = 9 \frac{10^3 \; 10.5}{(3.5)^2}$

Rasber

Lancet Vol 260 p. 126/1951

Strom & Jensen

Schettler Deutsche Med. Wochenschrift
Vol 78 p. 989/1951

Mannweth
Acta Medica Scand.
Supplement 246 p. 137/1950

Immunity: how much lymphoid tissue
re-immired must one inject to
abolish tolerance

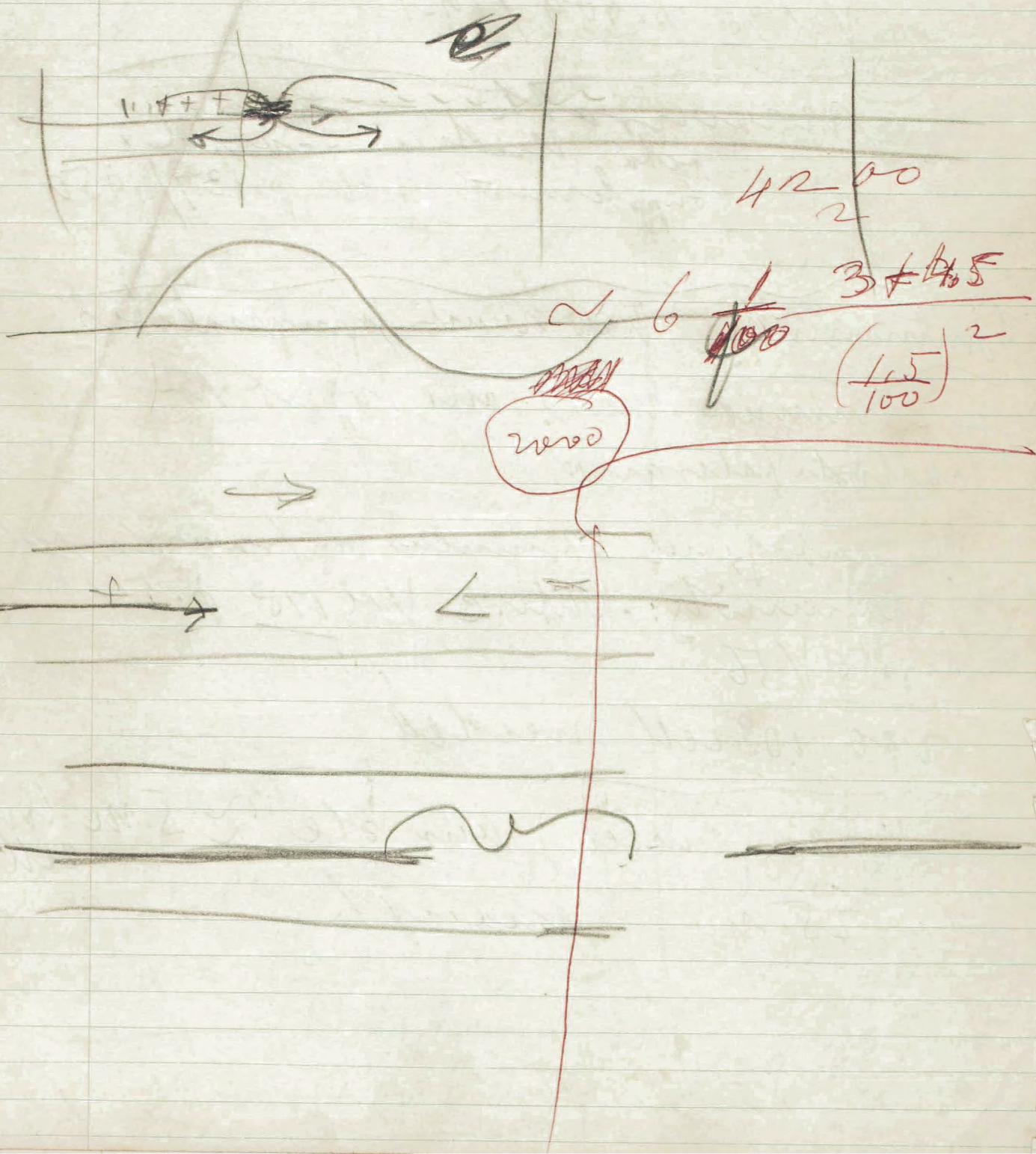
The antigenic stimulus in transplantation
immunity. Nature Vol 178 p. 514
(Sept 8)/56
200 10^6 cell needed

100 m (nuclei) ample ≈ 5 m living cell
25 m enough

152 E 38 St.

8.144
32
32
11.52

11.52



$$\frac{X}{3^2}\frac{(p_1-p_2)^2}{p_1+p_2}=1$$

$$X=(3)^2 \text{ or } (2)^2\left\{\frac{p_1+p_2}{(p_1-p_2)^2}\right\}$$

$$X=(2.5)^2\,\frac{6}{100}\left(\frac{3}{100}\;\frac{1.25}{100}\right)^2$$

$$=\frac{100}{6}\left(\frac{1}{\frac{7.5}{100}}\right)^2 \quad \frac{6.25\times4}{50}$$

$p_1 = 0.7$ and $p_2 = 0.85$

$\frac{1.25}{100}$ — $\frac{1.5}{1000}$

$1.25 \times \frac{2.25}{(100)^2}$

$9/4 \times \frac{1.25}{2.25}\;10^4$

$\frac{1}{12}\;\frac{25\;10^6}{36\;300}\;\frac{39}{104}$

$p = 7/1000$

$q = 993/1000$

$pq = \frac{6951}{1000.1000}$

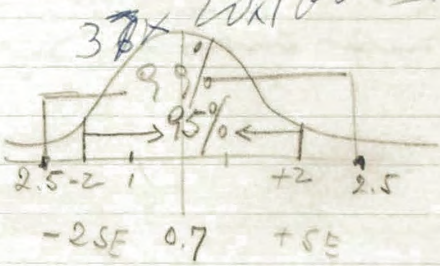
$pq = \frac{\quad}{1000}$

20,000 for 3% $\%$ accuracy

60000 for 5% $\%$ natural mortality

$3 \times 20 \times 100 =$

$6.25 \times \frac{6}{100}\;\frac{(4.5)^2\;100}{(22.5)^2\;100/10}$



Bill Jackson

$$\frac{t}{11.5}$$

$$e$$

$$e^{\frac{t}{11.5}+\frac{\Delta t}{11.5}} = e^{\frac{t}{11.5}}\left(1+\frac{\Delta t}{11.5}\right)$$

$$\frac{\Delta t}{11.5} = \beta$$

$$11.5\,\beta = \Delta t$$

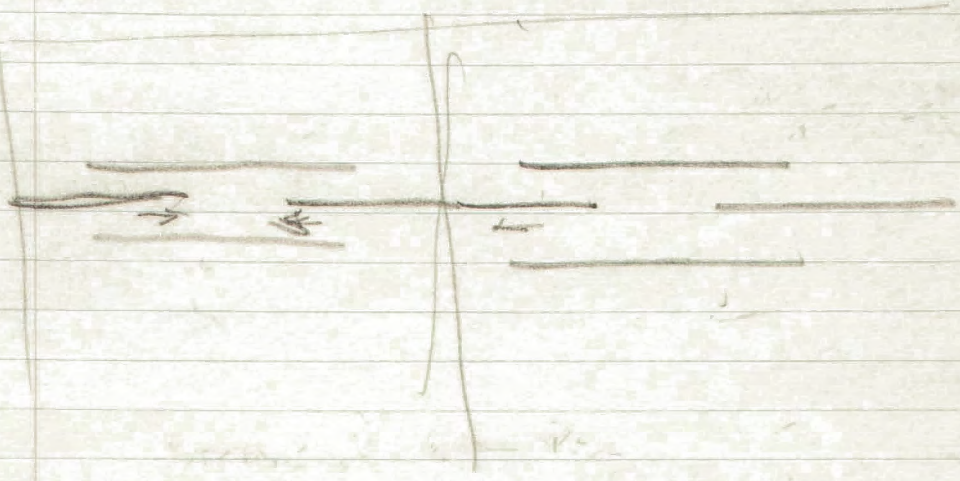
$$\beta = \frac{11.5}{100}\ ;\ \Delta t = 1 \text{ year}$$

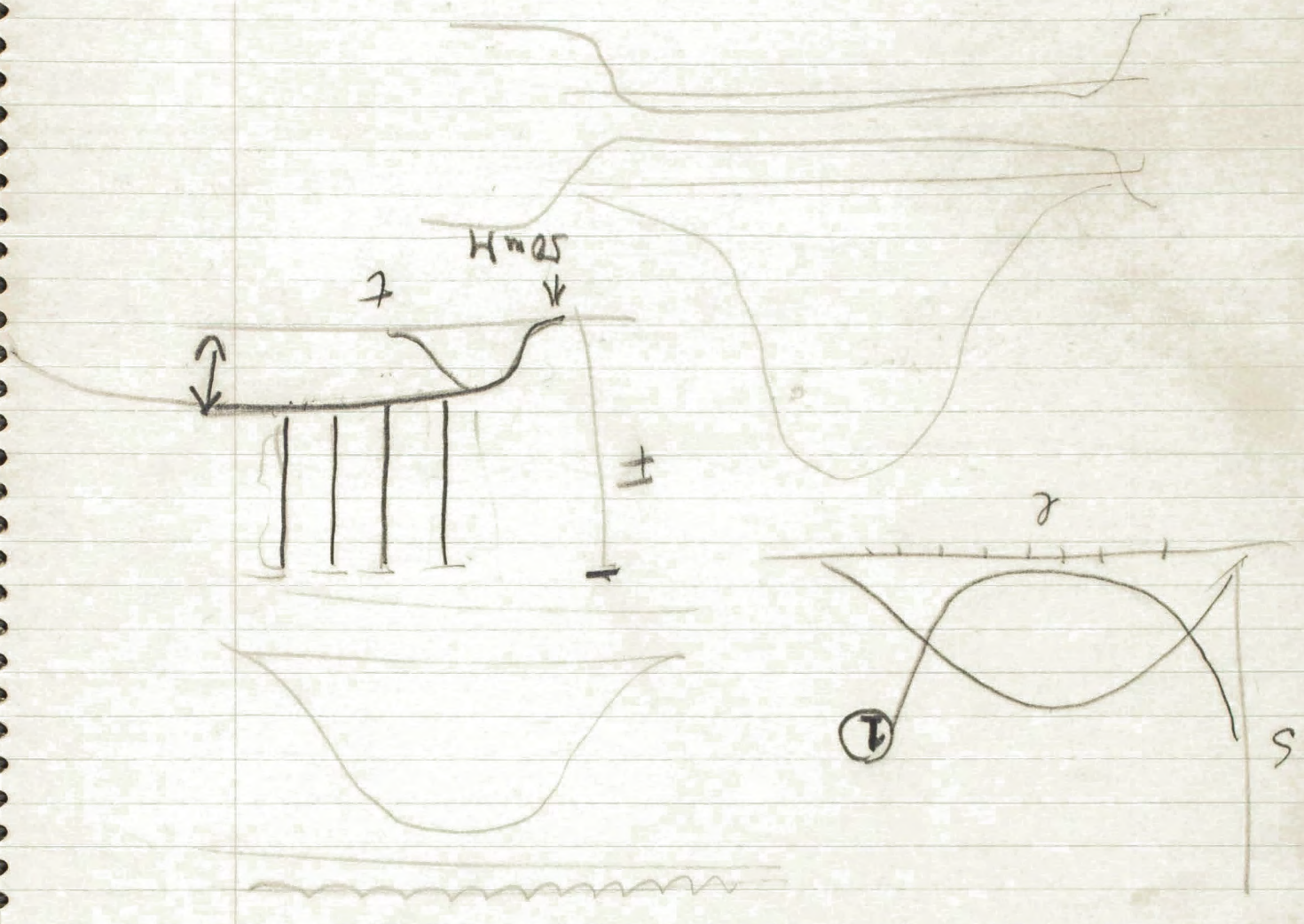
$$e^{\frac{-4}{11.5}} = 1 - \frac{4}{11.5} + \frac{\left(\frac{4}{11.5}\right)^2}{2!}$$

~~You~~ may ~~be able to~~ take your ~~choose~~ pick ~~make~~

~~choose~~ choose whether to dive from but ~~to~~ ~~not~~ whether ~~to~~ ~~not~~ you want to dive or not.

You may not choose




Hmes
z
±
−
γ
1
S

± 12.5

ℓ

4

	% P.	F.	C
Almonds	18.6	54.	19
cheese (swiss)	29	31	2
Ice cream	4	13	20
milk	3.5	3.9	4.9
dry skim milk	35	1	52
egg	12	11.5	0.7
cream (light)	2.9	20	4
cream heavy	2.3	35	3.2

Calories	P	F	C	Cal
	~~4.45~~ 4.35	9.45	4.1	
	(4)	(9)	(4)	

Heter agglutinins | Kahn rxn

Buchbinder Rev. Mech. of Path.
1933 — 1936

W/ Johnson

A.J. Atherogenic Index

0.1 (Sf 0-12) + 0.175 (Sf 12-400)

Hamilton Jones

Presidential Seal

Bush & White

4

$$N = \frac{(2\frac{1}{2})^2 \; p_1 + p_2 \; \frac{6}{100}}{\left(\frac{3}{100} \; \frac{7.5}{100}\right)^2}$$

$$\left(\frac{1}{100} \; \frac{4\cancel{2}}{100}\right)^2$$

$$N = (2\tfrac{1}{2})^2 \; 4 \times 600 \qquad 4$$

$$6.25 \times 4 \qquad \approx 15{,}000$$

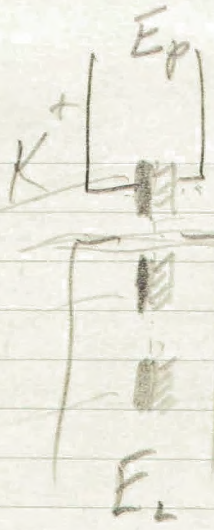
~~X~~ 60,000

(a) For currency alone

$$N = \frac{(2.5)^2 \; \frac{2}{100}}{\left(\frac{1}{100}\right)}$$

20,000

Ag^0

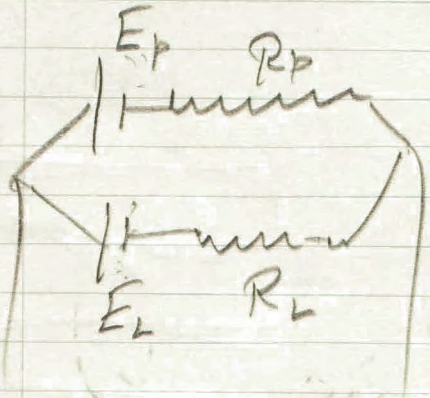


$Ag^+ + \varepsilon^-_{Ag} = Ag^+\varepsilon^-$

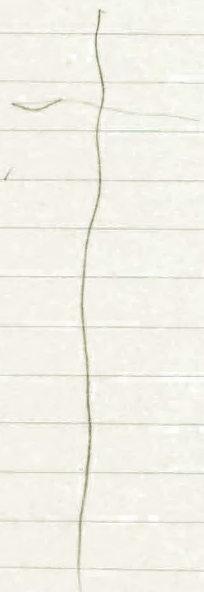
$(Ag^+)(Ce^-) = const$

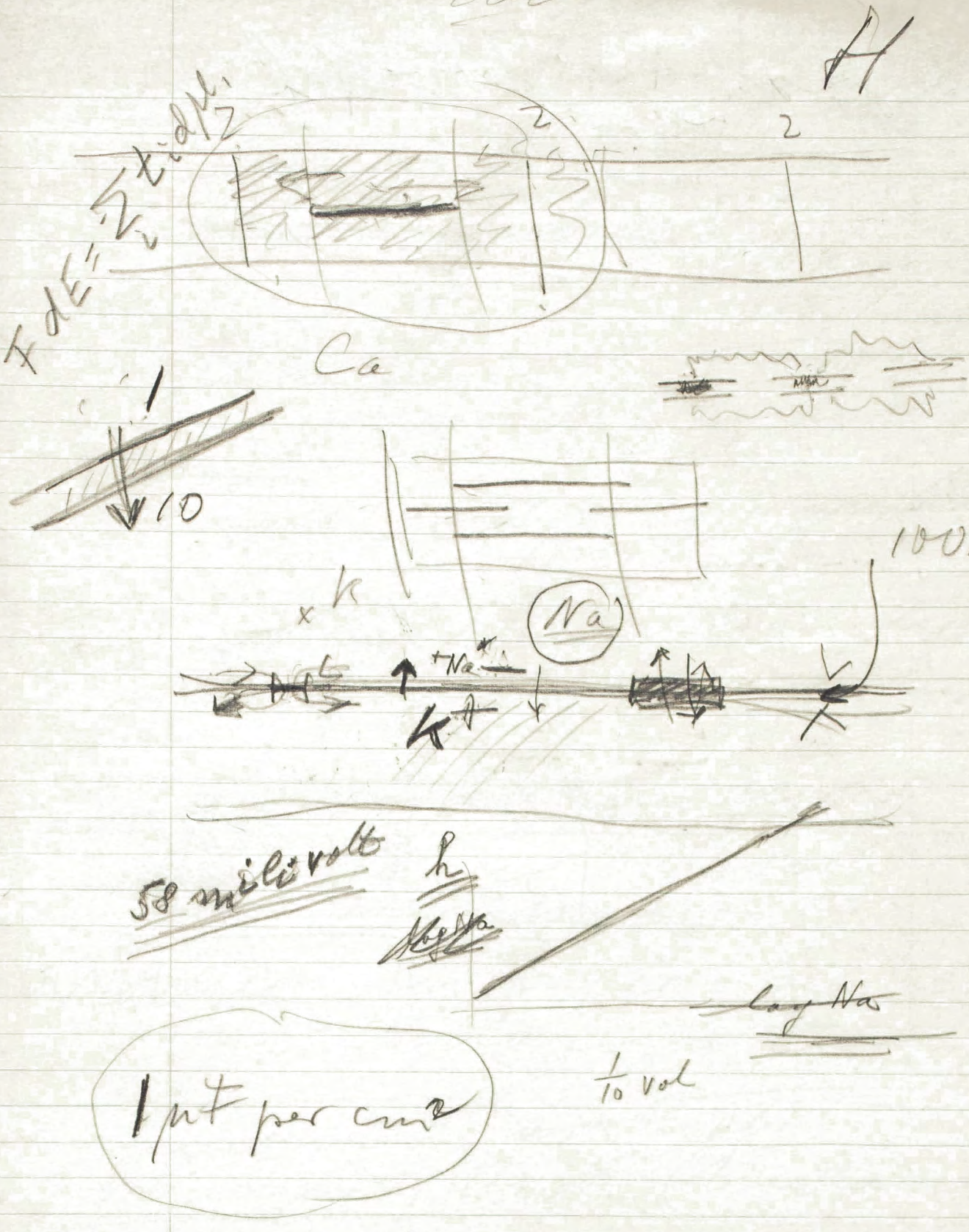
$A^- + H^+ = AH$

KA $\quad (K^+)(A^-) = const$



$$E = \frac{E_p + K E_L}{1 + K}$$




Ca
Na
100 Å°
58 milivolt
1/10 vol
1 μt per cm²

Ivan Rollwatch

⌐32 ⌐

p. 37. Dinos

condiotti

[illegible]

Luigi Mora ~~[illegible]~~ Visconti
2602

Prednisone for Schwindinger
Lederle

D-Amphetamine (appetite
Dexedrine
no blood
pressure)

Preludin — Boehringer
Pfizer or Hoechst Ingelheim
~~[illegible]~~
more specific an appetite
less excitement

[Try not combine D-Amphet.
amine with anti-histaminic]

Borden dried skim milk
"Meritene" Doatheme
who imports in Milano co

Invernice = Bel Paese
in Milano

Combine, ~~atte~~ of
Protein young Milk (Milano)

Haenszel & Shimkin

Smoking habits

p. 1417 16[2] 1956

Journal of the Nat. Canc. Inst.

White urban males

	Nonsmoker	ex-cigarettes stopped	less than 10	10-20	above 20	above 10
35-44	25	10.5	8.2	35.8	20.4	56.2
45-54	30	11.5	9	31.3	17.9	49.2
55-64	38	16.2	8.9	25.1	11.4	36.5
65 +	62.4	13.7	8.6	11.1	4.2	15.3

$E_0 - \gamma A$

$P = \gamma R + E_0 (\gamma)$

~~Alexander~~

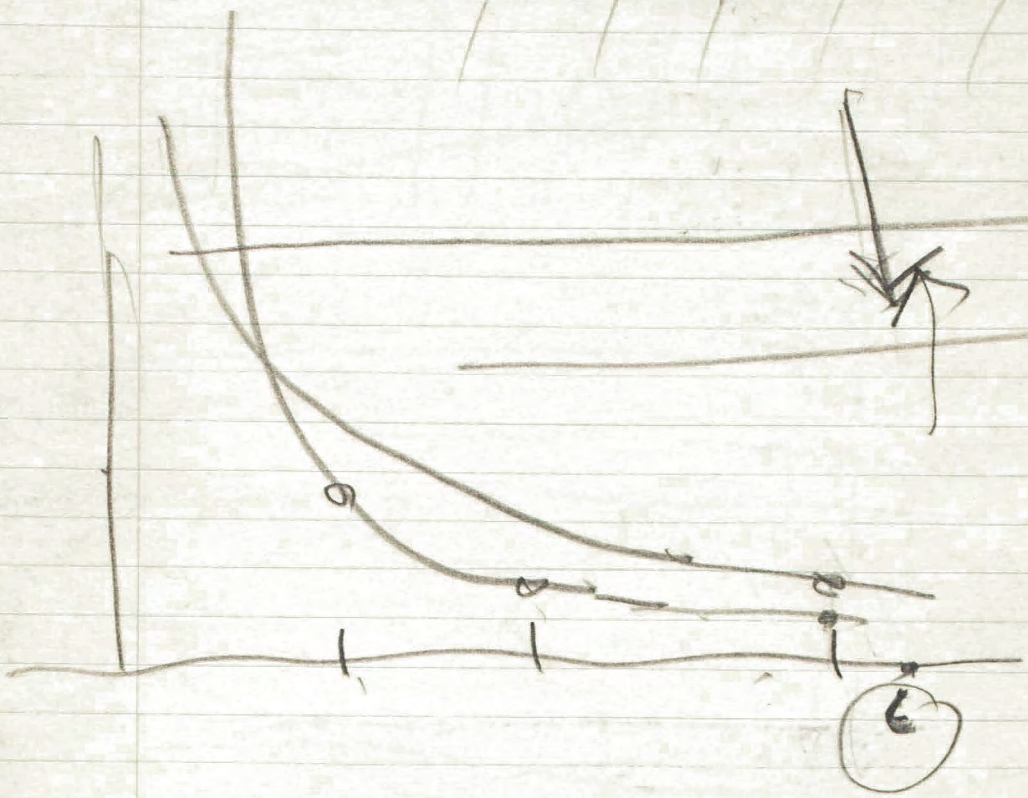
~~450~~ 0.4 mol

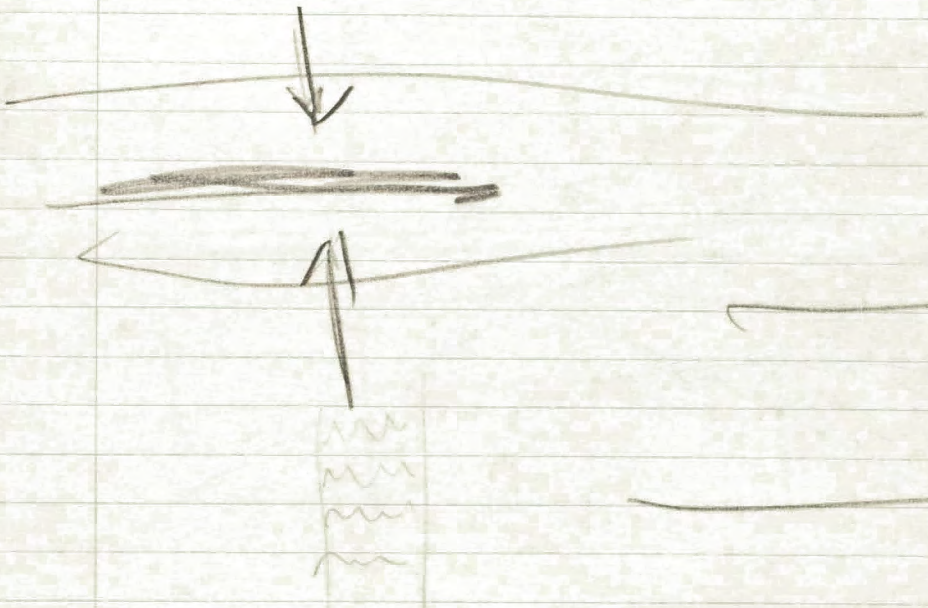
40% Na_2

+ + +

- - -

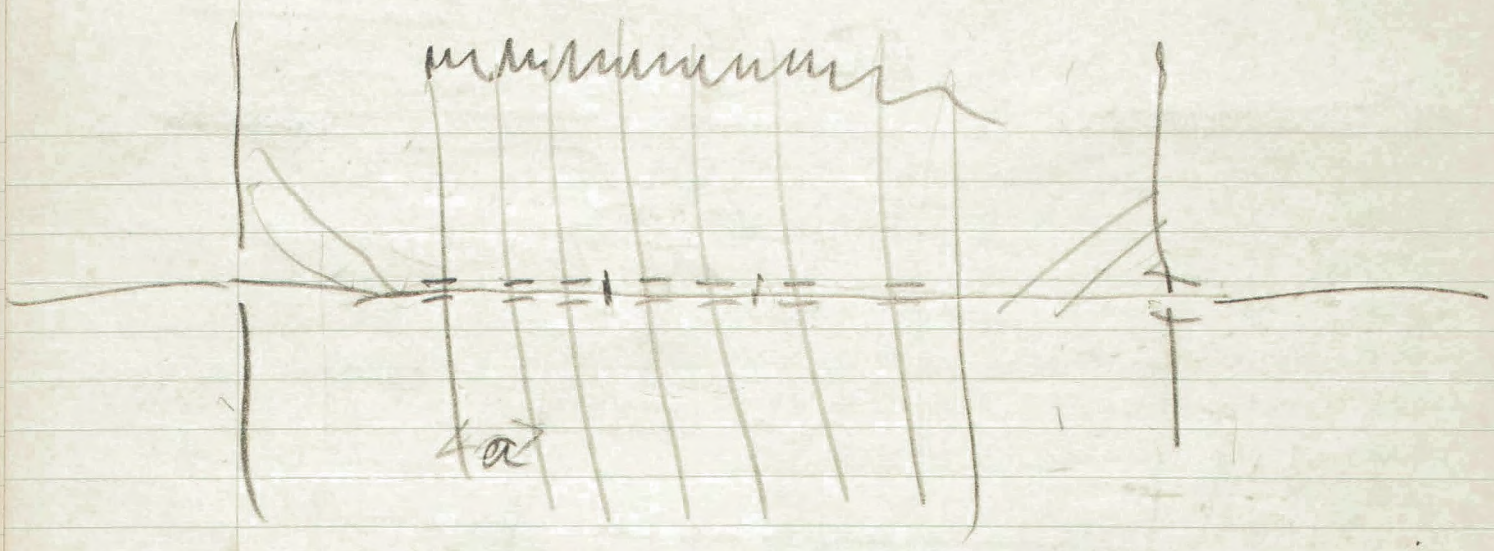
0.4 mol

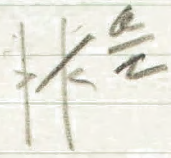


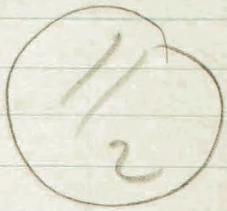


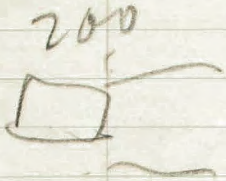
Na_2 .

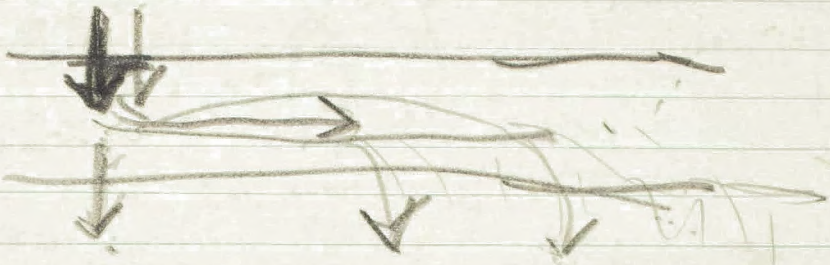
Na_2 .

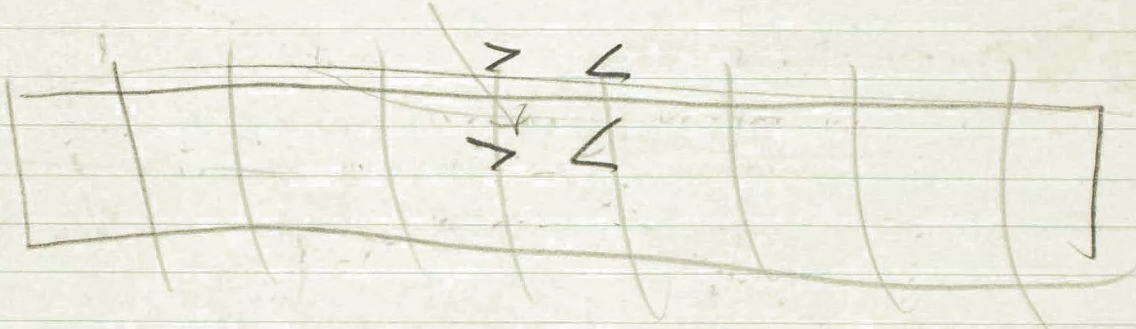

a


a/2


1/2

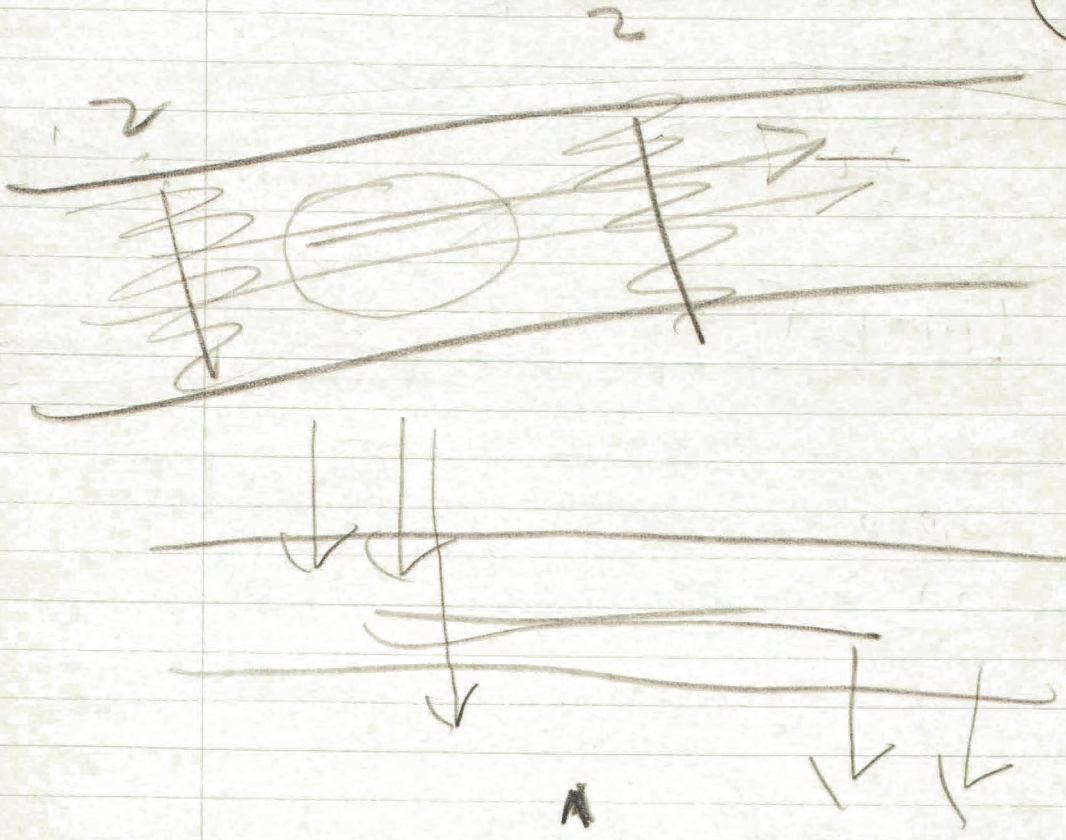

200



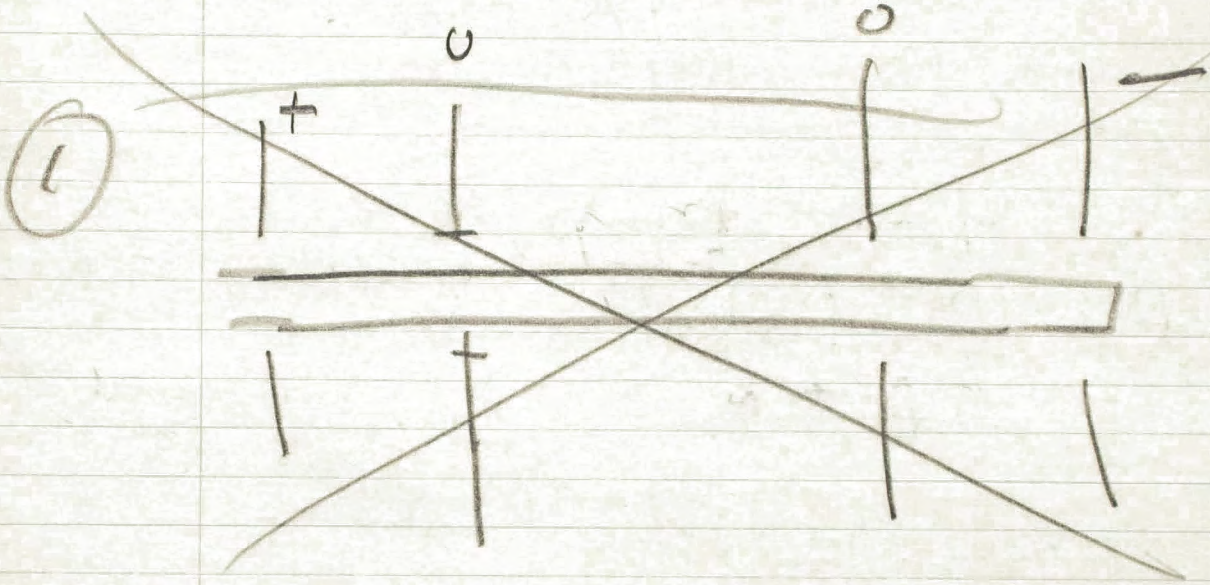


Co Mp

4



A



Correct formulae

$$CR_1 = \frac{(p_1 - p_2)^2}{\frac{p_1 q_1}{10{,}000} + \frac{p_2 q_2}{20{,}000}} = \frac{\left(\frac{3}{100}\right)^2 \times 20{,}000}{\frac{9}{100}}$$

$\approx \frac{(3)^2}{9} 2 \approx 2$

Output 30,000

or

or 15,000 and 30 000 give 3 times Standard error

this is for

10% increase in age specific death rate and >10 cigarettes per day

Output 45,000

Ratio of two group sizes $= k$

$$CR \approx \frac{(p_1 - p_2)^2 N_2}{kp + p}$$ lower group $= N_2$

For 20% change in p

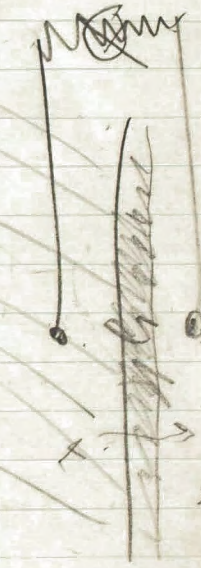
Assume $N_1 = N_2$ $CR = \frac{1}{1{,}000}$

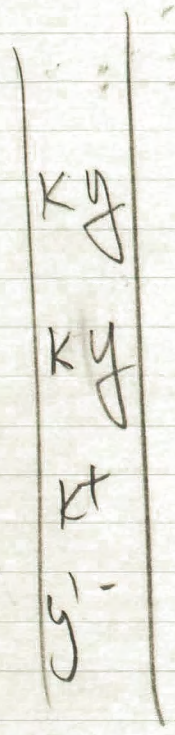
$k =$

Hamsel & Chimpin
p. 417. Vol 16[2] 1956

Journal of the Wash. ~~Dust~~ Cons. Dist.

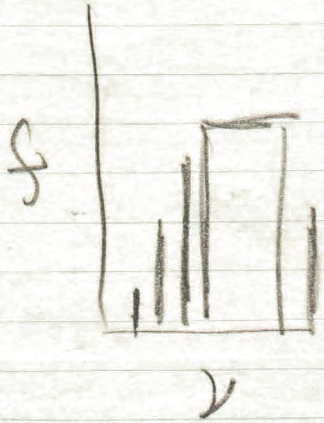
Urban metes	Never rep	stopped	<10	10–20	over 20	over 40
35–44	25	10.5	8.2	35.8	20.4	56.2
45–54	30	11.5	9	31.3	17.9	49.2
55–64	30	16.2	8.9	25.1	11.4	36.5
65 mer	62.4	13.7	8.6	11.1	4.2	15.3





50/.

25/.2



H.S.

H

Laurence

Leucocytes

(mg/m)

H. GREEN — 236 E 24th. St.

After JAN 1 — 29 Washington Sq. W.

LAB — Or 9-3200 ✓

10.30 AM — Rm. 511

11–12

Louis Dienes

Csapo [1221 York Ave
LE 5 4336] Taylor Thyridin

Fox

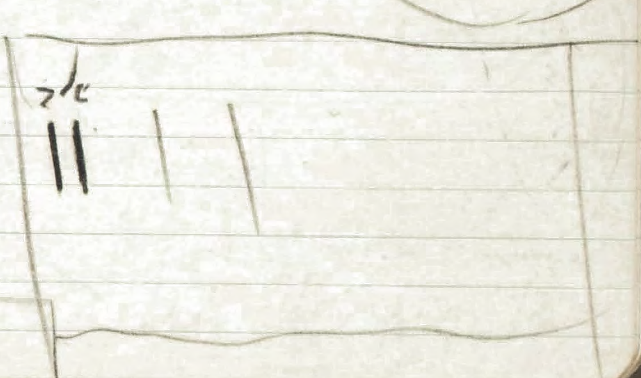
Home Bu8 [illegible] 7907

~~[illegible]~~ — 100–200 mg/day

intramuscular

linguets

I.



Lambert, Hearing (28)

, Don't miss the fun of smoking,

Smoking is fun - smoking is fun
Don't let fun become cancer
Don't let fun turn to cancer

N (58) — 12% one pack or more | 66% non-cig smokers

~~[illegible]~~

Mitchell 3-Gross
A.P. Morton

P. 40% | P2.

Dr. Shepherd Pierce x

Howell V.P.

Prudential

x home standard are

> 20%

Metropolitan Life [S. Milligan]

Dr. H.F. Dorn || Bethesda

limit 140/90 limit 145/94

30 yrs 57

for 20%, change in p

$$(CR)^2 \approx \frac{\left(\frac{6}{100}\right)^2 N_2}{(K+1)\frac{3}{100}} = \frac{1.2}{K+1} \frac{N_2}{104}$$

$K = 7$

$N_2 = \frac{40{,}000}{\text{non cigarette group}}$

total group $5{,}3000 + 15\% = 60{,}000$

$CR = 3.1/2$

$\frac{6}{1.5} = 4$

CR =

40%

Assume: 3% and 4.2% corresponding to

twice ask with assurance ~~if~~ ~~twice~~ 2.5

the standard error that

cigarette group is higher

than 1.2 times non cigarette group

(N) ~~40~~ 12% ~~hung~~ cig ~~cigarettes~~ || 66% cig. non smokers

A B

42% | 3%

~~4.2~~ 1.2

to show with ~~a~~ degree of

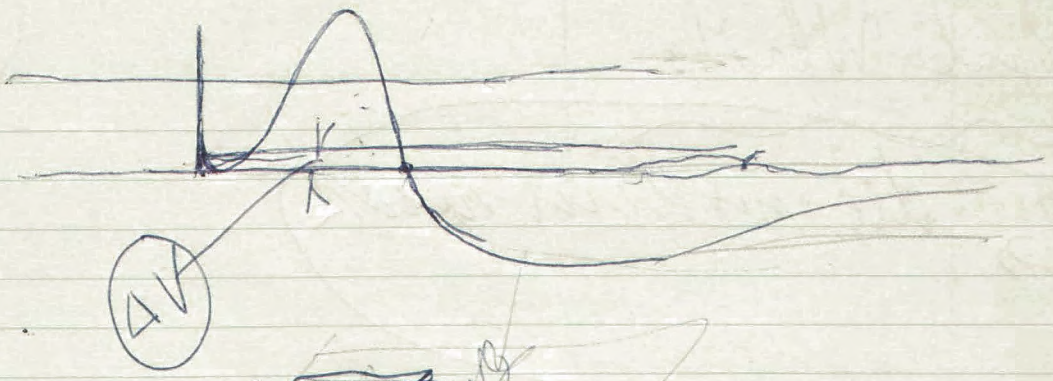
assurance corresponding to twice the

st. error that group A > 1.2 group B

Paul White

1/3 dies next week

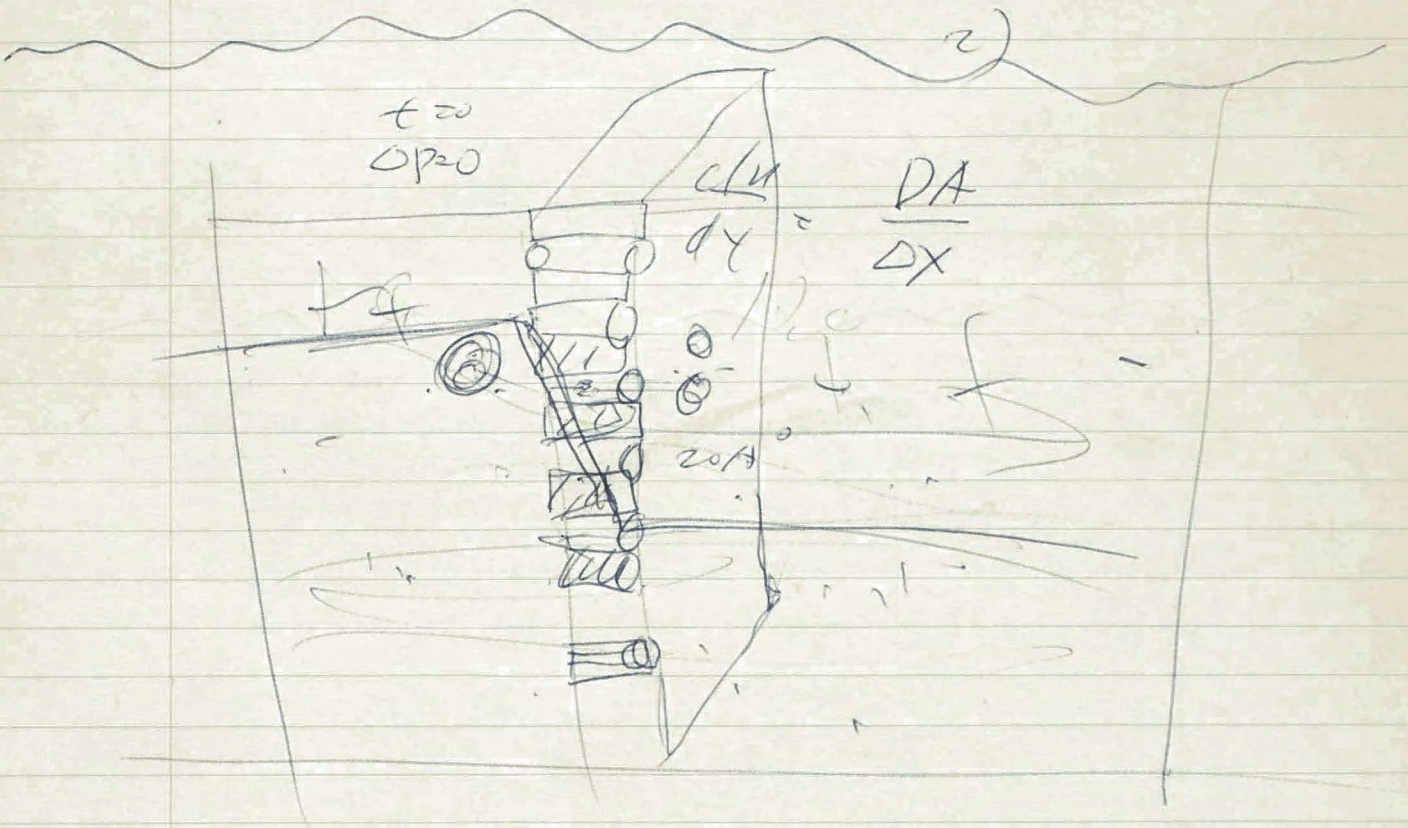
Dr John R. Heller Nat. Cancer Inst

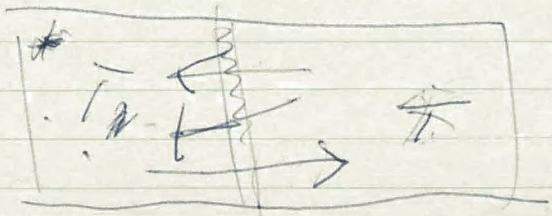


$\vec{dr} = 0$

1)

2)

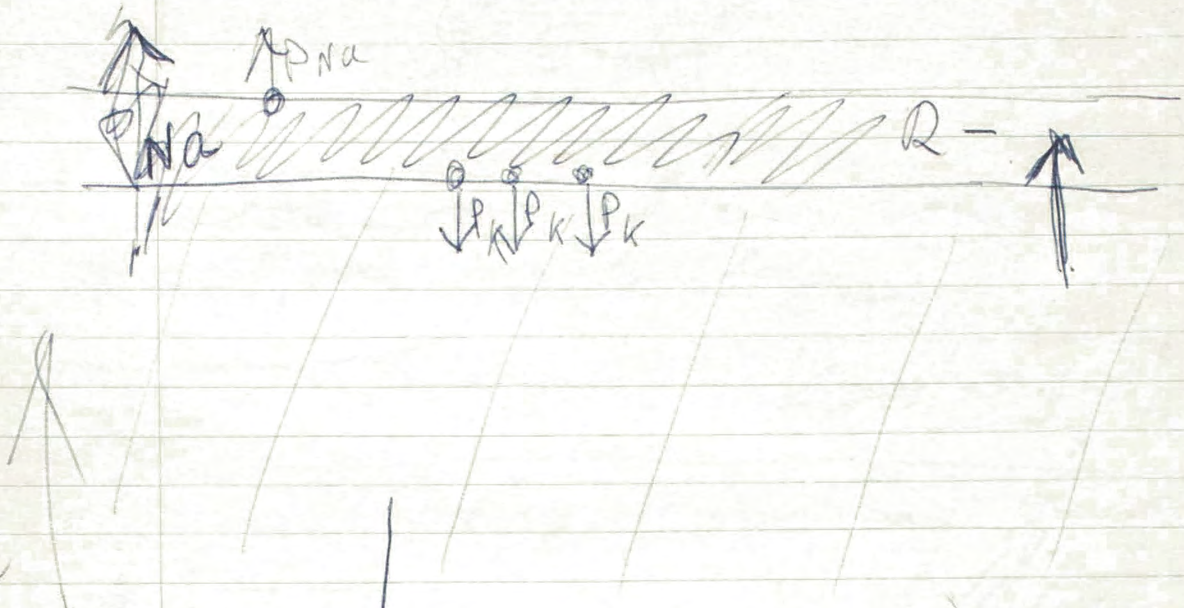


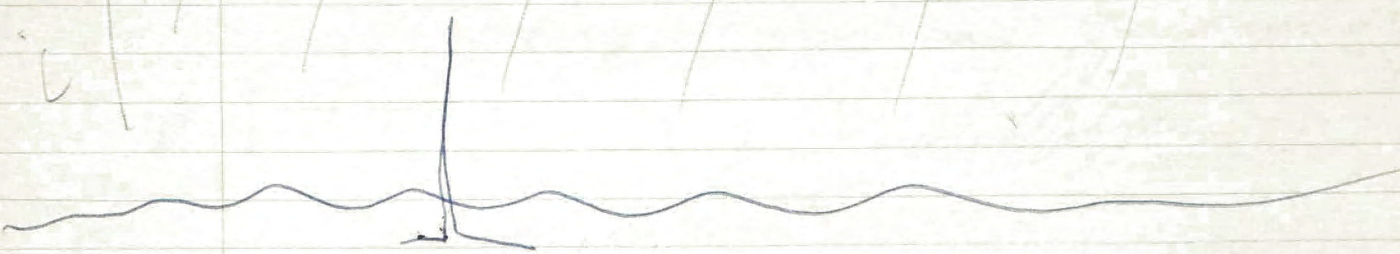


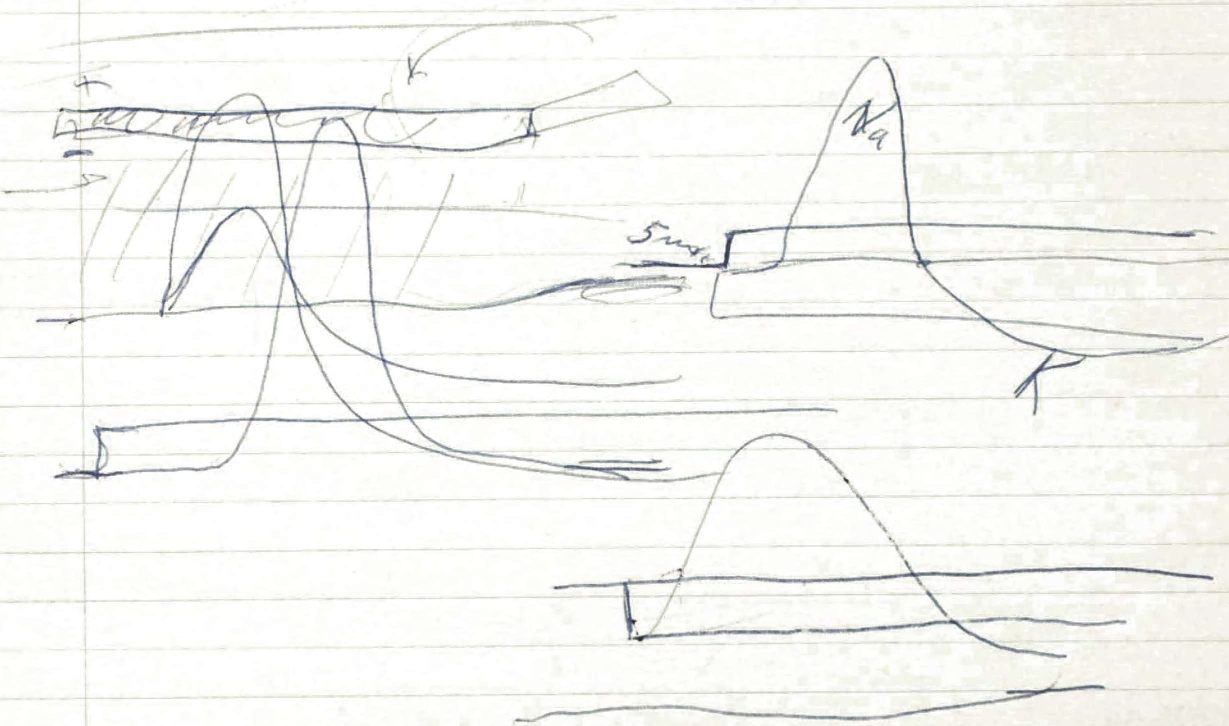
Weirsma Col Lect

for Moment

H







$B = \frac{3}{100} - \frac{2}{100}$

$N \left(0.5 \frac{1}{100}\right)^2 = (CR)^2 = \frac{1}{4}$

$\frac{5}{100}$

$N \frac{1}{4} \frac{1}{100} \frac{1}{5} = \frac{1}{4}$

$N = 8{,}000$ volunteers

100,000

Upon this our method is 1% (3% to 2%) different

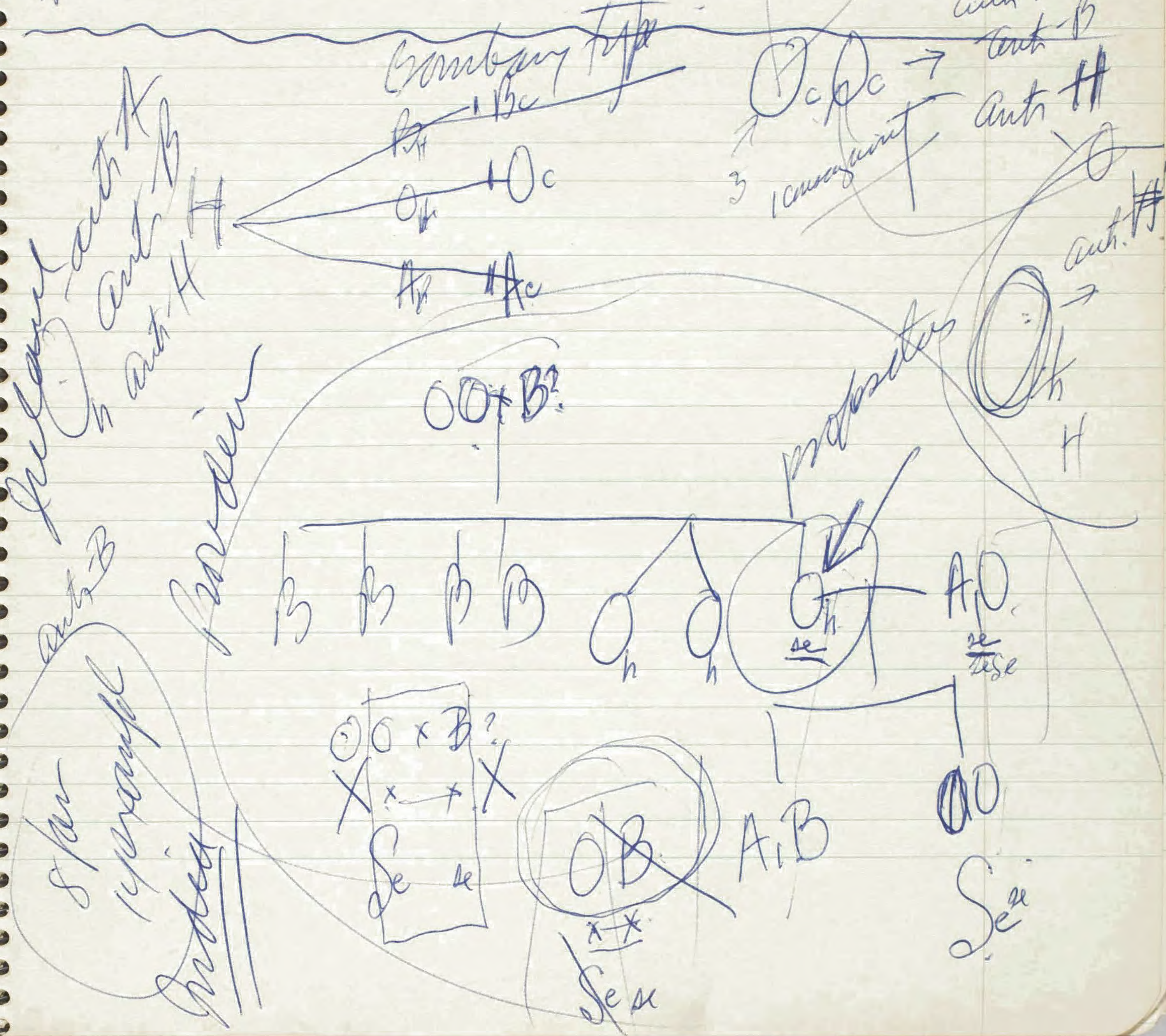
Robert Benjamin

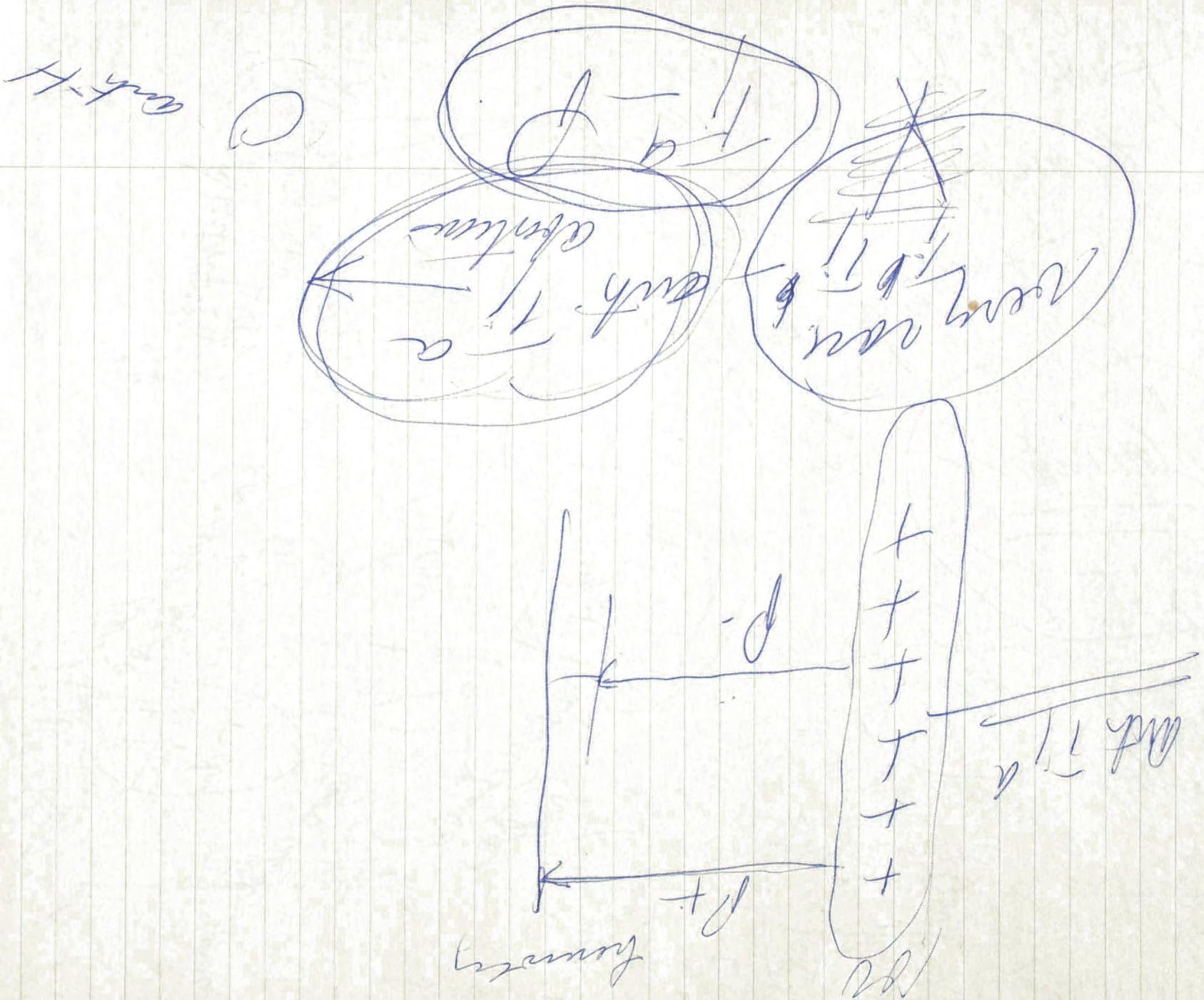
Kulekar (Herman)

Investigate an Rh⁻ girl, with Rh⁺ blood for protection. —

Wiener!
A.S.

OO$_c$ × OO$_c$





0 0

Diego
D. Rho + 99
intravenous tip
Mi a
blood
+ F
0 m
+ ch
1000 white 100%
100 —

Diego -- +
0
+

10/34

54 +
36 +
13 +
8 + 14

Chris
Jay
N Amer

OK —
Jaundice
liver
hemoglobin
pigment

O x
Rh x

bilirubin

Ob

lupus erythematosus }
osteo sclerosis

NN
SS
R'R' (DCe)/DCe
Fy^a (a-)
O

multiplicity ?

MN
Ss
R_1R_2 (DCe)/DCe
Fy(a+)
A
P+

prolonged anemia

kernicterus
3-5 days
kernicterus

neonatal
1:26

1x
2x
3x
4x

Edith Potter Univ of
Obstetrics Chicago

previous pregnancy of Rh trouble

~~30,000,000~~

A → B → D 1 1 / 30,000 ova

(00)
(0A) 10^6
(0B) 10^6

AA AB $\frac{1}{3}\ 10^{-?}$

$5\ 10^6\ 10^3\ 5\ 10^3$

$25 \cdot 10^{12}$ cell = ~~25~~ $3\ 10^{13}$

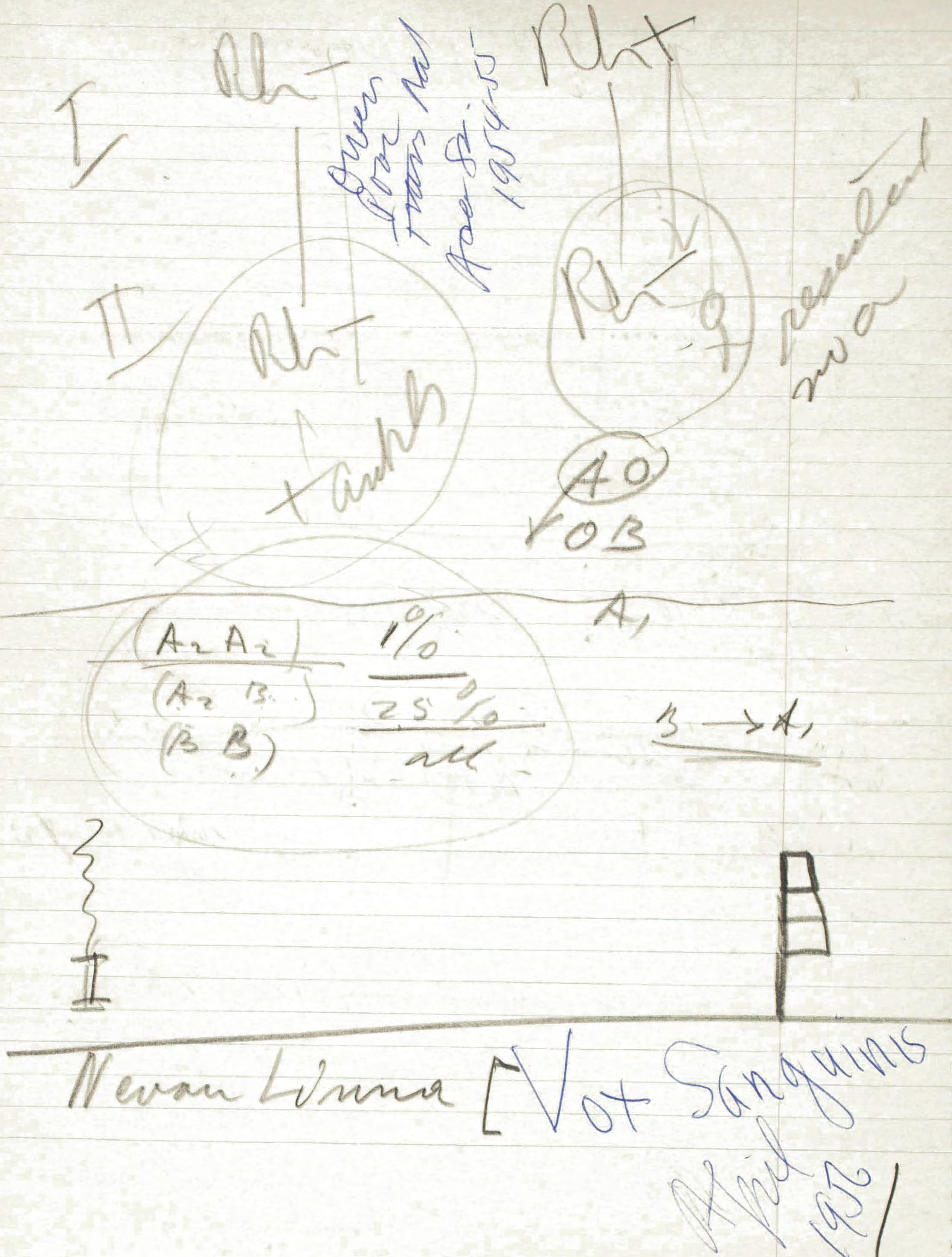
$3\ 10^{11}$ $\frac{1}{3}\ 10^{-?} = 10^{+4}$

10^6

~~1~~ 1 in 150 is diseased
10% die
in U.S. 1 10% brain damage

NN

Weiss? Organ? anti A, B anti B



I
Rh+
II
Rh+
Rh−
AO
OB
A_1
(A_2 A_2)
(A_2 B)
(B B)
1%
25%
all
B → A_1
Nevan Linna
Vox Sanguinis
April 1956

MN Ambit N MM NN

OMM

OMM

10^6 Osh Pappenheimer

A^2 a^1 A a' I

Nov 8/56

Exp. 1

Fathers tissue implanted into mother (pregnant)

Exp 2 rat I (meadow arvicola with Rat II.)

Is rat I protected against non transplantable tumor by transplanted gland from rat II.?

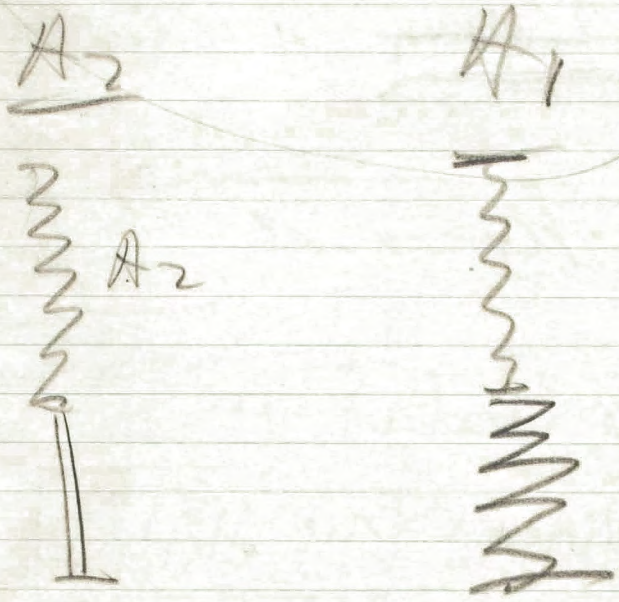
Thomas 3) (Mature Placenta to implant in Rabbit + pregnancy

0,0 OA OB

10^6

A_2A_2
A_2B
BB

11%
25%
100%



1.) "Rose" for substitute to Thedersk

2.) Rabbit serum in lieu of Nat Globus

3.) Medawar

Lowrance Kinsell — Hyghland Alameda County Hospital Oakland

Corn oil

P-F-C	F	F
15-40-45	15-10-75	15-70-15

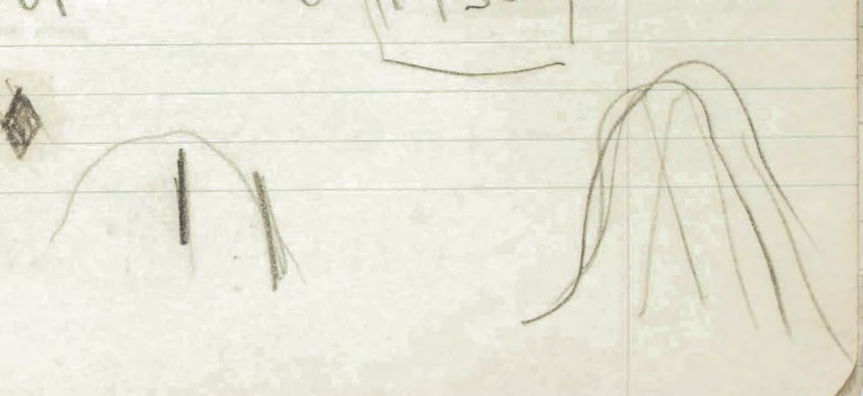
E. H. Ahrens jr.

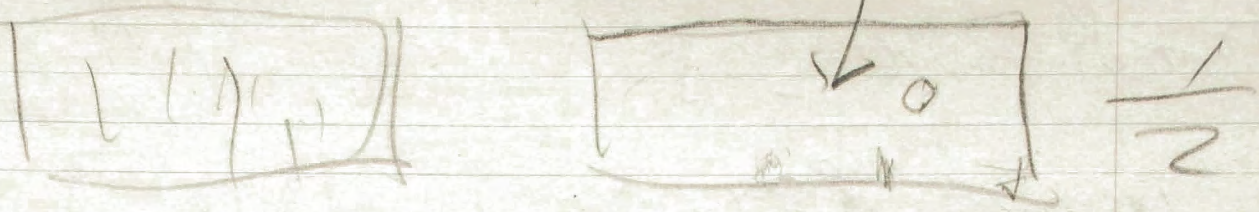
Fred Stare Harvard

Vol 2. Circulation

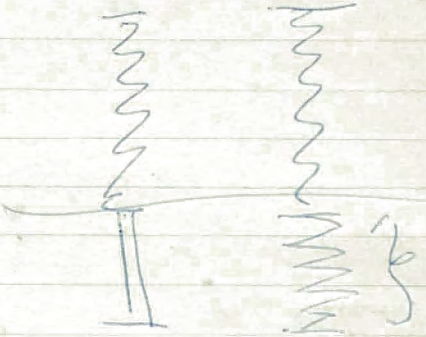
Oct. issue 1956

A1 A2	1/0
A2 B	25 %
B B	100 %




0
1/2


A2
A1



Armor Starred [3] (4)

10 mg / day [prod #1 / pm]

(5)

Mr. LeKashman H

$10,000

240,000 (1/2 militany)
220,000 1/2 "
150,000 [all non militany]
backorders 110,000 (1/2 speakers | 1/2 amplifiers)
100 to 250,000 break even point

Brociner Electronic Co
> needs $25,000.—
modern under quality
amplifiers would be better
and less expensive ' — —

60,000

300,000

45,000

45,000 loss carry 22,000
(total) forward
deficit
{27,000 in cash
{32,000 BROCINER
$ 13,000,000 salary assumed.
> 22,000 stock in
32 stock Brociner $ 81,000 lieu of
82 debt

Secretary of Medical Awards
Lederle Company
Pearl River, New York

Apt.
110

7500

5500
3600
9100
1800 save
7300

69th Madison

$$I(\varepsilon,T)\,\delta\varepsilon = C(T)\,g(\varepsilon)\,e^{-\varepsilon/kT}\,\delta\varepsilon$$

$$\frac{I(\varepsilon_1,T)}{I(\varepsilon_2,T)} = \frac{g(\varepsilon_1)}{g(\varepsilon_2)}\,e^{-(\varepsilon_1-\varepsilon_2)/kT}$$

$$\frac{g(\varepsilon_1)}{g(\varepsilon_2)} = e^{1/k\cdot\int_{T_1}^{T_2}\frac{1}{T}\left(\frac{d\varepsilon_m}{dT}\right)dT}$$

$$\ln\frac{P_2}{P_1} = \text{const}\int\frac{\dot{\varepsilon}_m}{T}dT - \frac{\varepsilon_2}{kT}$$

$\varepsilon(\lambda)$

$$\frac{I(\lambda_1,T)}{I(\lambda_2,T)}$$

$$\frac{\left(\frac{d\varepsilon}{d\lambda}\right)_{\lambda_1}}{\left(\frac{d\varepsilon}{d\lambda}\right)_{\lambda_2}}$$

$$\frac{I(\lambda,T)\,\delta\varepsilon}{\delta\lambda}\,d\lambda = C(T)\,\tilde{g}(\lambda)\,e^{-\varepsilon(\lambda)/kT}\,\frac{d\varepsilon}{d\lambda}\,d\lambda$$

$$\frac{Q(\lambda,T)}{Q(\lambda,T)}$$

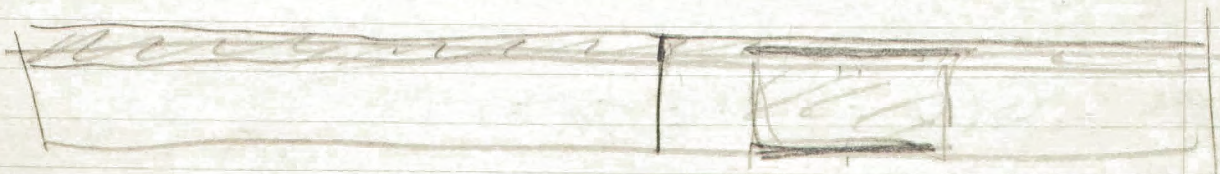
$$\frac{Q(\lambda_1,T)}{Q(\lambda_2,T)} = \frac{F(\lambda_1)}{F(\lambda_2)}\,e^{-\left[\frac{\varepsilon(\lambda_1)-\varepsilon(\lambda_2)}{kT}\right]}$$

$$\frac{\tilde{g}(\lambda_1)\left(\frac{d\varepsilon}{d\lambda}\right)_{\lambda_1}}{\tilde{g}(\lambda_2)\left(\frac{d\varepsilon}{d\lambda}\right)_{\lambda_2}} = e^{-\int\frac{1}{T}\left(\frac{d\varepsilon}{d\lambda}\right)_{1m}\left\{\frac{d\lambda}{dT}\right\}_{1m}dT}$$

$\frac{1}{50}$ C° at less 100 cycles

1% annual variation in flow

one to ten variation in flow



$x = \varepsilon^2 \qquad \varepsilon = \sqrt{x}$

$g(\varepsilon) = \sqrt{\varepsilon}$

$\tilde{g}(x) = x^{1/4}$

$\frac{d\varepsilon}{dx} = \frac{1}{2}\frac{1}{x^{1/2}}$

$g(\varepsilon)\frac{d\varepsilon}{dx} = G(x) = x^{1/4} \cdot \frac{1}{2}\frac{1}{x^{1/2}} =$

$= \frac{1}{2}\frac{1}{x^{1/4}}$

$\int \frac{1}{T}\left(\frac{d\varepsilon}{dx}\right)_{x=x_m} \frac{dx_m}{dT}\, dT$

$\left(\frac{d\varepsilon}{dx}\right)_{x=x_m} = \frac{1}{2}\cdot\frac{1}{\sqrt{x_m}} = \frac{1}{2}\frac{2}{kT}$

$\frac{dx_m}{dT} = \frac{2kT}{2}\cdot\frac{k}{2}$

$\frac{1}{2}\int \frac{1}{T}\cdot\frac{1}{2}k\cdot kT\, dT$

$e^{\frac{1}{4}\ln\left(\frac{\varepsilon_2}{\varepsilon_1}\right)^{1/2}} = \sqrt{\frac{\varepsilon_2}{\varepsilon_1}} = \frac{g(\varepsilon_2)}{g(\varepsilon_1)}$

$\frac{\partial}{\partial x}\left(\frac{1}{4}\log x - \frac{\sqrt{x}}{kT}\right) = 0$

$\frac{1}{4x} - \frac{1}{2}\frac{1}{\sqrt{x}\,kT} = 0$

$2x = \sqrt{x}\,kT$

$2\sqrt{x} = kT$

$\frac{kT}{2} = \sqrt{x_m}$

$x_m = \left(\frac{kT}{2}\right)^2$

$\frac{\partial}{\partial x}\left(\log G - \frac{\sqrt{x}}{kT}\right) =$

$= \frac{\partial}{\partial x}\left(-\frac{1}{4}\log x - \frac{\sqrt{x}}{kT}\right)$

$\frac{1}{4x} + \frac{1}{2}\frac{1}{\sqrt{x}\,kT} = 0$

$2x - \sqrt{x}\,kT = 0$

$2\sqrt{x} = kT$

$\sqrt{x_m} = \frac{kT}{2}$

$x_m = \left(\frac{kT}{2}\right)^2$

$g(\varepsilon) = \sqrt{\varepsilon}\, e^{-\varepsilon/kT}$

$x = \sqrt{\varepsilon}$

$\varepsilon = x^2$

$\log g(\varepsilon) = \frac{1}{2}\log \varepsilon$

$\frac{1}{2\varepsilon} - \frac{1}{kT} = 0$

$f(\varepsilon)$ $\varepsilon_m = \frac{kT}{2}$

$g(\varepsilon) = \sqrt{\varepsilon} = x$

$f(\varepsilon)\left|\frac{d\varepsilon}{dx}\right| dx$

$\frac{d\varepsilon}{dx} = 2x$

$g(\varepsilon)\frac{d\varepsilon}{dx} = g(x)$

$f(x) = 2x^2 e$

$\frac{\partial}{\partial x}\left(2\log x - \frac{x^2}{kT}\right) = 0$

$\frac{2}{x} - \frac{2x}{kT} = 0$

$x^2 = kT$

$x_m = \sqrt{kT}$

$\frac{x_2^2}{k} = T_2$

$\int \frac{1}{T}\left(\frac{d\varepsilon}{dx}\right)_m \frac{dx_m}{dT}\, dT$

$\frac{1}{2}\frac{1}{\sqrt{kT}} \cdot k$

$\int \frac{1}{T} 2x_m$

$\int_{T_2} \frac{1}{T} 2\sqrt{kT} \cdot \frac{1}{2\sqrt{kT}} k\, dT$

$\frac{1}{k}\int_{T_1} \frac{k}{T} dT = \ln \frac{T_2}{T_1} = \ln \frac{x_2^2}{x_1^2} = \ln \frac{\varepsilon_2}{\varepsilon_1}$

$g(\varepsilon) = \frac{1}{\sqrt{\varepsilon}}$

$\log g = -\frac{1}{2} \log \varepsilon$

$-\frac{1}{2}\frac{1}{\varepsilon}$

$e^{(\log g(\varepsilon) - \varepsilon/kT)}$

$g(\varepsilon)\, e^{-\varepsilon/kT}$

$\frac{1}{\sqrt{\varepsilon}}$

$-\frac{1}{\varepsilon^{\frac{1}{2}}} e^{-\frac{\varepsilon}{kT}} = W(E)$

$A\, e^{-\frac{1}{2}\frac{v^2}{kT}}\, dv$

$\varepsilon = \frac{1}{2} v^2$

$d\varepsilon = v\, dv$

$dv = \frac{d\varepsilon}{\sqrt{2\varepsilon}}$

$\int \varepsilon\, W(E)\, d\varepsilon$

$\frac{\partial}{\partial \varepsilon}\left(\log g(\varepsilon) - \frac{\varepsilon}{kT} \right) = 0$

$-\frac{1}{2\varepsilon_m} \sum \frac{1}{kT} = 0$

$\varepsilon_m(T)$

$\int_{\varepsilon_m(T)} \varepsilon\, W(\varepsilon, T)\, d\varepsilon$

$\frac{-\frac{1}{2}}{\varepsilon}\, e^{-\frac{\varepsilon}{kT}}\, \frac{d\varepsilon}{dv}\, dv$

$z\, v^2$

left by the electrons.

$\ln g(\varepsilon) - \frac{\varepsilon}{kT}$

$\frac{d}{d\varepsilon} \ln g(\varepsilon) - \frac{1}{kT} = 0$

$\varepsilon = \varepsilon_m$

$\varepsilon = f(x)$

$F(x)$

$g(\varepsilon) \frac{d\varepsilon}{dx} dx$

$\frac{F(x_1)}{F(x_2)} =$

$\frac{1}{T} \int \frac{\dot{\varepsilon}_m(T)}{T} dT$

$\int \left(\frac{dE}{dx}\right)_{x_m} \frac{\dot{x}_m}{T_m} dT$

$e^{-\frac{v^2}{a}}$

$g(\varepsilon) = \frac{1}{\sqrt{\varepsilon}} - \sqrt{\varepsilon}$

$\ln g(\varepsilon) = -\frac{1}{2} \ln \varepsilon$

$-\frac{1}{2\varepsilon} = \frac{1}{kT}$

$\frac{1}{2} q_m^2 = \frac{1}{kT} \quad -\frac{kT}{2} = \varepsilon_m$

The truth again would ~~they may but~~ 45

as

his much ~~once~~ ~~that~~ said there are never as many lies told ~~floatingly around~~ as before the ~~elections~~, as during the war, after the event and before the elections. ~~[illegible]~~ The was of course not ~~[illegible]~~ speaking of any ~~[illegible]~~ the ~~coming~~ election. ~~[illegible]~~ Lies are not the stock in trade in elections any more at least not in American ~~elections~~. The stock in trade now is the half truth. And where the truth is concerned two halfs do not make a whole; ~~they~~ ~~only as~~ ~~rather~~ they merely make for confusion. Therefore before we can begin to grope for the truth again we ~~to talk sense~~ ~~[illegible]~~ ~~the election~~, we ~~first~~ ~~[illegible]~~ ~~[illegible]~~ ~~[illegible]~~ away ~~all~~ ~~[illegible]~~ the debris ~~of the~~ ~~accumulated~~.

~~as if they are~~

H

[~~Two truths~~ truth
When it comes to
~~dx/dt = W~~ truth two halfs
don't make a whole ~~the~~
rather they make for
confusion. —]

> If they are forced to defend this thesis on the conscious level they ~~will~~ may put forward ~~an~~ arguments which often sound plausible enough except that they ~~want~~ prove a little too ~~much~~ ~~apparently~~ the same. Insofar as ~~they~~ prove that things basically ~~will~~ remain in the future ~~for an forever the way these are now they also prove that things have been the~~ as ~~the way~~ things ~~are at present~~ they also prove that they have ~~been~~ remained the same in the past.

~~Most of them~~ This ~~[illegible]~~ [illegible]
leaves most of them quite
undisturbed for they are
not bothered by ~~[illegible]~~ (unduly) [illegible]
~~of the past.~~ familiarity
with the past. — Perhaps
by ~~[illegible]~~ helping them to see how
wrong they are about the past
they can be ~~[illegible]~~ made to suspect ~~[illegible]~~
that they might be wrong also
about the future. — ~~[illegible]~~
~~[illegible]~~ (Shall we keep on testing H bombs?)

~~[illegible]~~

The present

While I write these
lines the ~~noise of the~~
elections ~~for shall we not~~ is still unabated.
Because they all are the Shall we stop testing H-bombs?
wrong questions they ~~(in any case)~~
~~all~~ come up with the
wrong answers & they the truth is not easy to discover but
are not out for the truth
anyhow anything might seem they are
they are out to be elected *

The Bomb & Its ~~The Past~~ Past, Present and Future ~~of the Bomb~~

Motto:

"I do not know what makes a man more cons: to know nothing of but the past or to know nothing but the ~~future~~ present. — John Maynard Keynes

~~In my own p~~

~~The~~ ~~The most outstanding qu~~ Speaking of my own personal experience the most outstanding quality of the species) "Homo sapiens" is its total lack of imagination.

~~[illegible]~~

Most men are ~~[illegible]~~ convinced down to the depths of their soul ~~[illegible]~~ that things are as they are and by themselves will remain

1456

272

7 = 0.857

[illegible]

222

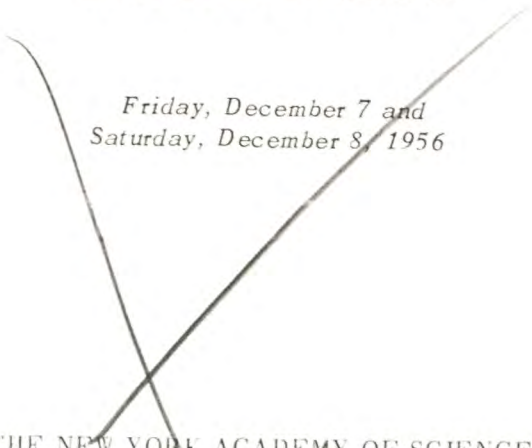
223, 224, 225

35

CONFERENCE

on

BIOLOGICAL APPLICATIONS OF INFRARED SPECTROSCOPY



Friday, December 7 and
Saturday, December 8, 1956

THE NEW YORK ACADEMY OF SCIENCES
SECTION OF PHYSICS AND CHEMISTRY
and
SECTION OF BIOLOGY
2 East Sixty-third Street
New York 21, N. Y.

ALL SESSIONS WILL BE HELD AT

The Barbizon-Plaza Hotel
101 West 58th Street at 6th Avenue
New York City

This program will serve as a ticket of admission and is nontransferable

Conference Co-Chairmen
Robert P. Bauman, Polytechnic Institute of Brooklyn, Brooklyn, N. Y.
Carl C. Clark, Naval Aviation Medical Acceleration Laboratory, Johnsville, Pa.

PROGRAM

FRIDAY, DECEMBER 7, 1956

Session Chairman: Van Zandt Williams
Perkin-Elmer Corporation, Norwalk, Conn.

9:00 A.M. –
Greetings from the Academy – Frank C. Collins, Chairman, Section of Physics and Chemistry, The New York Academy of Sciences, New York, N. Y.; Polytechnic Institute of Brooklyn, Brooklyn, N. Y.

Introduction to the Conference – Robert P. Bauman, Polytechnic Institute of Brooklyn, Brooklyn, N. Y.

"The Place of Chemistry in Infrared Analysis" – R. C. Gore, American Cyanamid Company, Stamford, Conn.

"Utilization of Fractionation Procedures with Infrared Analysis" – Harris Rosenkrantz, Worcester Foundation for Experimental Biology, Shrewsbury, Mass.

"Automatic Analysis of Infrared Spectra" – Mortimer Rogoff, Federal Telecommunications Laboratories, Nutley, N. J.

"Intensity Measurements Applied to Determinations of Molecular Structure" – R. Norman Jones, National Research Council, Ottawa, Canada.

12:30 P.M. –
Luncheon – Academy Building, 2 East 63rd Street, New York, N. Y.

Session Chairman: Frederick C. Nachod
Sterling-Winthrop Research Institute, Rensselaer, N. Y.

2:00 P.M. –
"The Influence of Environment on Infrared Spectra" – Ralph Halford, Department of Chemistry, Columbia University, New York, N. Y.

"Some Simple Hydrogen Bonding Systems Studied by Infrared Absorption" – Urner Liddel, National Institute of Arthritis and Metabolic Diseases, National Institutes of Health, Bethesda, Md.

"Infrared Spectra of Biochemical Substances in Aqueous Solutions" – Elkan R. Blout, Polaroid Corporation, Cambridge, Mass.

"Infrared Studies of Amino Acids and Oligopeptides" – Robert J. Koegel, National Cancer Institute, National Institutes of Health, Bethesda, Md.

5:30 P.M. –
Cocktail Hour – Academy Building

6:30 P.M. –
Informal Subscription Dinner – Academy Building

SATURDAY, DECEMBER 8, 1956

Session Chairman: Arthur W. Pollister
Columbia University, New York, N. Y.

9:00 A.M. –
"Infrared Studies of Tissue Lipids" – H. P. Schwarz, R. Childs, L. Dreisbach, and S. V. Mastrangelo, Philadelphia General Hospital, Philadelphia, Pa.

"Infrared Spectroscopy of Serum Lipids" – Norman K. Freeman, Donner Laboratory of Biophysics and Medical Physics, University of California, Berkeley, Calif.

"The Characterization of Mycobacterial Strains by Comparison of their Lipid Content" – Donald W. Smith and M. Gastambide-Odier, Department of Medical Microbiology, University of Wisconsin, Madison, Wis.; Harrison M. Randall and A. L. Koevoet, Harrison M. Randall Laboratory of Physics, University of Michigan, Ann Arbor, Mich.

"The Study of Virus Preparations by Infrared Spectroscopy" – A. A. Benedict, University of Texas – Medical Branch, Galveston, Tex.

12:30 P.M. –
Luncheon – Academy Building, 2 East 63rd Street, New York, N. Y.

Session Chairman: Lloyd C. Miller
U. S. Pharmacopeia, New York, N. Y.

2:00 P.M. –

"Infrared Studies of Tissues" – Leopold May and Robert G. Grenell, The Psychiatric Institute, University of Maryland, Baltimore, Md.

"Applications of Infrared Methods to Pharmaceutical Analysis" – Jonas Carol, Food and Drug Administration, Washington, D. C.

"Infrared Microspectroscopy in Biological Research" – Darwin L. Wood, Bell Telephone Laboratories, Murray Hill, N. J.

"The Availability of Infrared Spectra of Biochemicals" – Carl C. Clark, Naval Aviation Medical Acceleration Laboratory, Johnsville, Pa.

The Sections of Physics and Chemistry and of Biology provide conferences for active workers in the special fields of Physics and Chemistry and Biology.

Attendance is limited to those invited to participate in these conferences and to interested Members of the Academy.

Frank C. Collins
Chairman, Section of Physics and Chemistry

Robert N. Boyd
Secretary

Hilary Koprowski
Chairman, Section of Biology

Daniel Ludwig
Secretary

CONFERENCE

on

MODERN IDEAS ON SPONTANEOUS GENERATION

Wednesday, December 26, 1956

THE NEW YORK ACADEMY OF SCIENCES
SECTION OF BIOLOGY
2 East Sixty-third Street
New York 21, N. Y.

IN COLLABORATION WITH

SECTION F, AMERICAN ASSOCIATION
FOR THE ADVANCEMENT OF SCIENCE
Washington, D. C.

ALL SESSIONS WILL BE HELD AT

The Barbizon-Plaza Hotel
101 West 58th Street at 6th Avenue
New York City

This program will serve as a ticket of admission and is nontransferable

Conference Chairman: Ross F. Nigrelli
New York Zoological Society, Zoological Park
The Aquarium, New York, N. Y.

PROGRAM

WEDNESDAY, DECEMBER 26, 1956

Session Chairman: Harold F. Blum
Princeton University, Princeton, N. J.

9:00 A.M. –
Greetings from the Academy – Hilary Koprowski, Chairman, Section of Biology, The New York Academy of Sciences, New York, N. Y.; Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.

"Formation of Organic Compounds on the Primitive Earth" – Stanley L. Miller, College of Physicians & Surgeons, Columbia University, New York, N. Y.

"Paleobiochemistry" – Philip H. Abelson, Carnegie Institution of Washington, Washington, D. C.

"Electrolytic Requirements of Protists and Archeo-Metabolism" – Seymour H. Hutner, Marvin Sanders, and J. J. A. McLaughlin, Haskins Laboratories, New York, N. Y.

"Speculations on Origins and Evolutions in Photosynthesis" – Sam Granick, Rockefeller Institute for Medical Research, New York, N. Y.

12:30 P.M. –
Luncheon – Academy Building, 2 East 63rd Street, New York, N. Y.

Session Chairman: George Wald
Harvard University, Cambridge, Mass.

2:00 P.M. –
"Phosphorous and the Origin of Life" – Addison Gulick, Cambridge, Mass.

"Interaction of Synthetic Polynucleotides" – Robert C. Warner, New York University College of Medicine, New York, N. Y.

"The Structure of Crystalline Proteins" – David Harker, Polytechnic Institute of Brooklyn, Brooklyn, N. Y.

"Spontaneous Generation of Protein and Anabolic Pathways" – Sidney W. Fox, The Florida State University, Tallahassee, Fla.

"The Gene as the Prime Mover" – Carl C. Lindegren, Southern Illinois University, Carbondale, Illinois.

Concluding Remarks – George Wald, Harvard University, Cambridge, Mass.

5:30 P.M. –
Cocktail Hour – Academy Building

ORGANIZING COMMITTEE

Ross F. Nigrelli, *Chairman*
Walter S. Root M. J. Kopac
E. L. Severinghaus

The Section of Biology provides conferences for active workers in the special fields of Biology.

Attendance is limited to those invited to participate in these conferences and to interested Members of the Academy and of the American Association for the Advancement of Science.

Hilary Koprowski
Chairman, Section of Biology

Daniel Ludwig
Secretary

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EXECUTIVE DIRECTOR

THE NEW YORK ACADEMY OF SCIENCES

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New York 21, N. Y.

TO THE EXECUTIVE DIRECTOR

THE NEW YORK ACADEMY OF SCIENCES

I shall attend the Conference on "Biological Applications of Infrared Spectroscopy" sponsored by The New York Academy of Sciences to be held at the Barbizon-Plaza Hotel, 101 West 58th Street at 6th Avenue, New York, N. Y., on Friday, December 7, and Saturday, December 8, 1956.

Please reserve the following number of seats for the informal Subscription Luncheons and Dinner at the Academy Building, 2 East 63rd Street, New York, N. Y. Payment will be forwarded on receipt of tickets. (Please note that reservations may be made through December 8, but cancellations cannot be accepted after December 4, 1956.)

Friday, December 7, 1956, Luncheon at 12:30 P.M. at $2.00 _____

Friday, December 7, 1956, Dinner at 6:30 P.M. at $3.00 _____

Saturday, December 8, 1956, Luncheon at 12:30 P.M. at $2.00 _____

(PLEASE PRINT) Name _____

Address _____

If you plan to attend this meeting, kindly signify in the space provided and return this card promptly.

TO THE EXECUTIVE DIRECTOR

THE NEW YORK ACADEMY OF SCIENCES

I shall attend the Conference on "Modern Ideas on Spontaneous Generation" sponsored by The New York Academy of Sciences in collaboration with Section F, American Association for the Advancement of Science, to be held at the Barbizon-Plaza Hotel, 101 West 58th Street at 6th Avenue, New York, N. Y., on Wednesday, December 26, 1956.

Please reserve the following number of seats for the informal Subscription Luncheon at the Academy Building, 2 East 63rd Street, New York, N. Y. Payment will be forwarded on receipt of tickets. (Please note that reservations may be made through December 26, but cancellations cannot be accepted after December 22, 1956.)

Wednesday, December 26, 1956, Luncheon at 12:30 P.M. at $2.00 _____

(PLEASE PRINT) Name _____

Address _____

If you plan to attend this meeting, kindly signify in the space provided and return this card promptly.