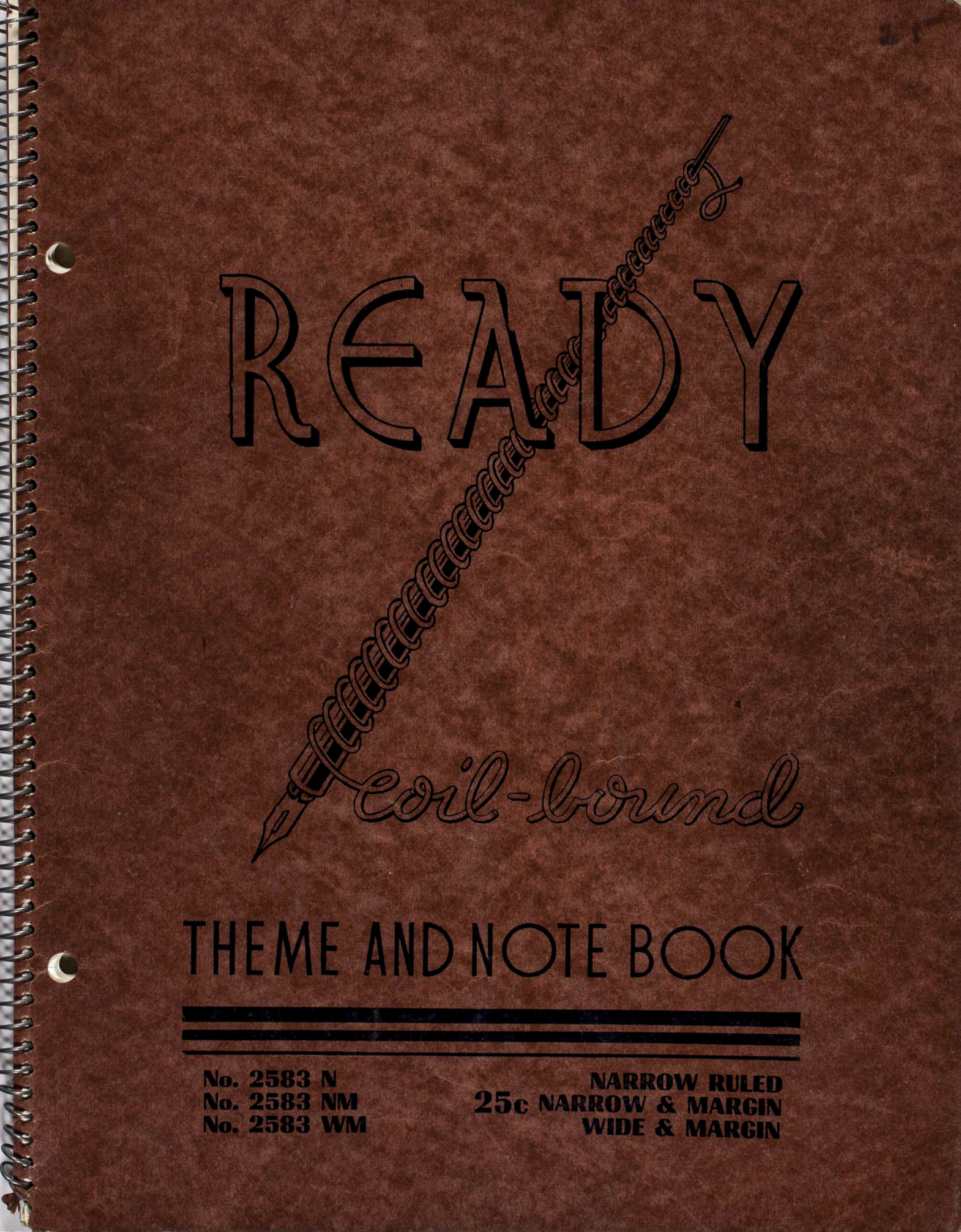
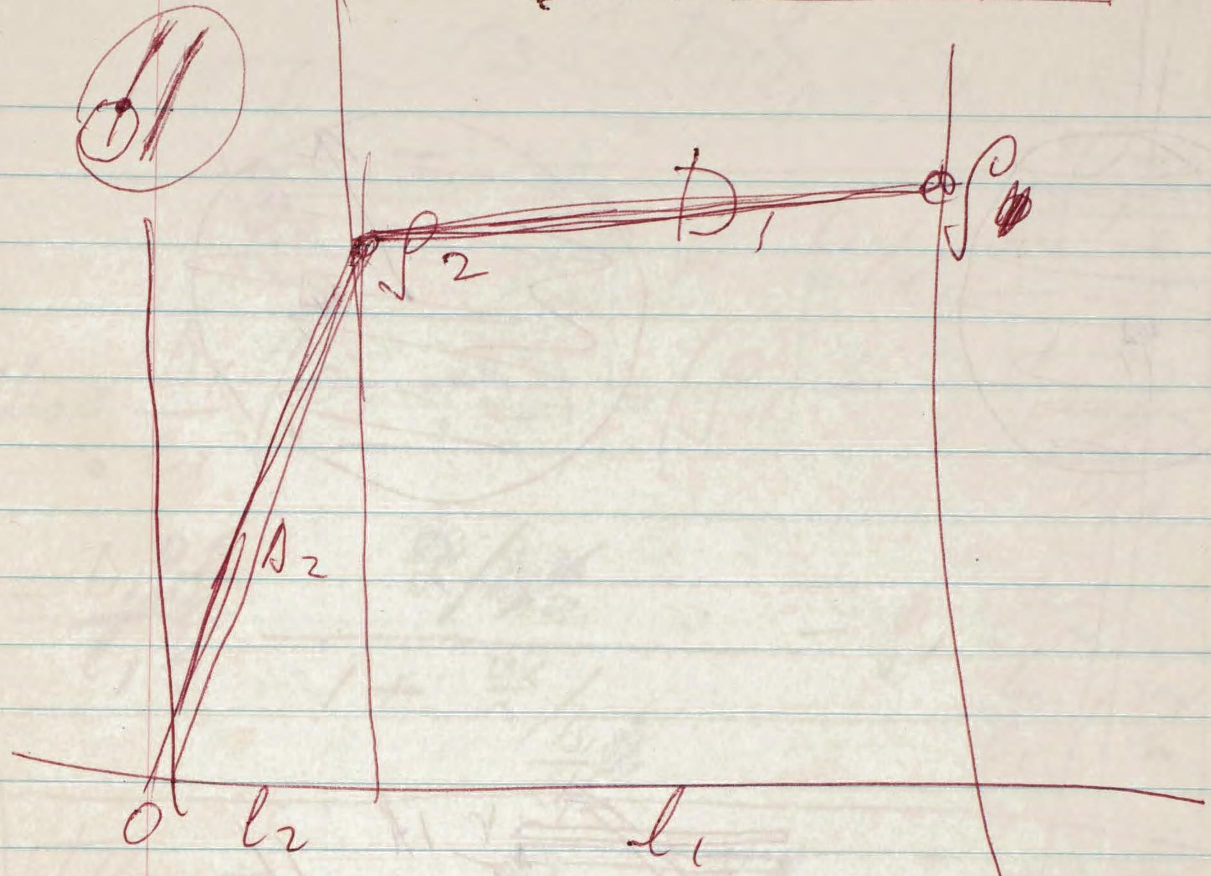

READY
coil-bound
THEME AND NOTE BOOK
No. 2583 N
No. 2583 NM
No. 2583 WM
NARROW RULED
25c NARROW & MARGIN
WIDE & MARGIN

~~Fox~~ = HP. 37915 — 9 AM / 10 PM



Ales $= \frac{D_2 \rho_2}{l_2}$

Hibbing $v_x \rho_2$

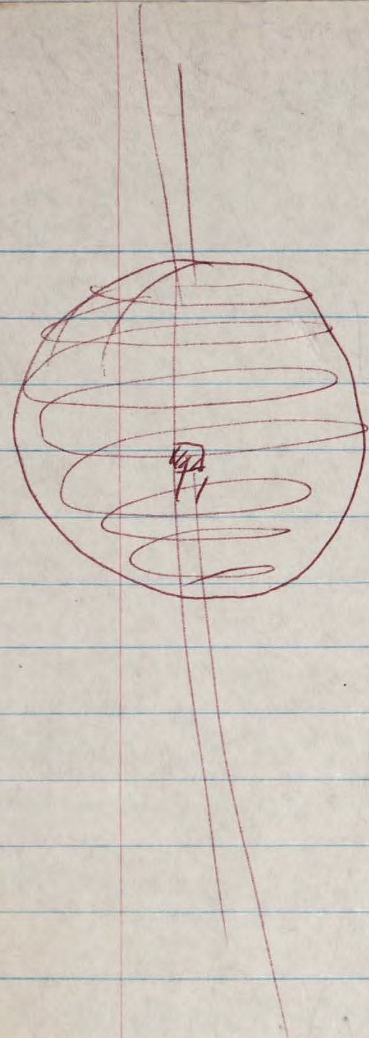
$n = \frac{[illegible]}{[illegible]} = \frac{2 [illegible]}{\left(\frac{D_2}{l_2}\right)}$

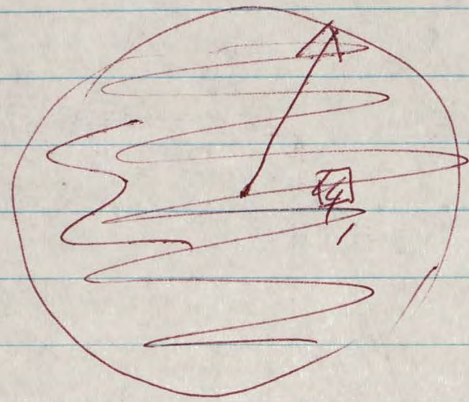
$D_1 \frac{\rho_1 - \rho_2}{l_1} = D_2 \frac{\rho_2}{l_2}$

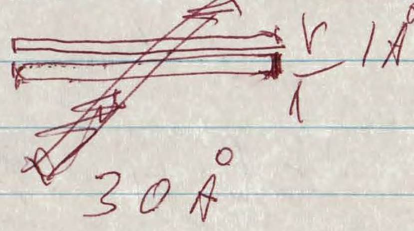
$= \frac{v_x}{n} \rho_2$

$\frac{D_1}{l_1} \rho_1 - \frac{D_1}{l_1} \rho_2 = \frac{v_x}{n} \rho_2$

$\frac{D_1}{l_1} = \left(\frac{v_x}{n} + \frac{D_1}{l_1}\right) \frac{\rho_2}{\rho_1}$

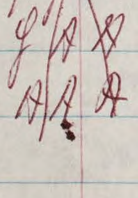


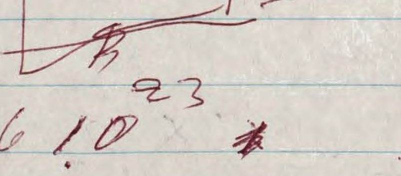




1/30

1 million





$6 \cdot 10^{23}$

$\frac{1\ 10^{6}}{6\ 10^{23}} = \frac{1}{6}\ 10^{-17}$ gm

$2 \cdot 10^{-18}$ gm
per molecola

$125.000\ 10^{-24}$

$1{,}25\ 10^{-19}$

$$\rho_2 = \frac{D_1/\ell_1}{\frac{v_x}{n} + D_1/\ell_1}\,\rho_1$$

$$\text{also } \frac{D_1}{\ell_1}(\rho_1 - \rho_2) = \left(\rho_1 - \frac{1}{1 + \frac{v_x/n}{D_1/\ell_1}}\,\rho_1\right)\frac{D_1}{\ell_1}$$

$$= \frac{D_1 \rho_1}{\ell_1}\,\frac{\frac{v_x}{n}/\frac{D_1}{\ell_1}}{1 + \frac{v_x}{n}/\frac{D_1}{\ell_1}} = \rho_1 \frac{\frac{v_x}{n}}{\frac{D_1}{\ell_1} + \frac{v_x}{n}}\,\frac{D}{\ell_1}$$

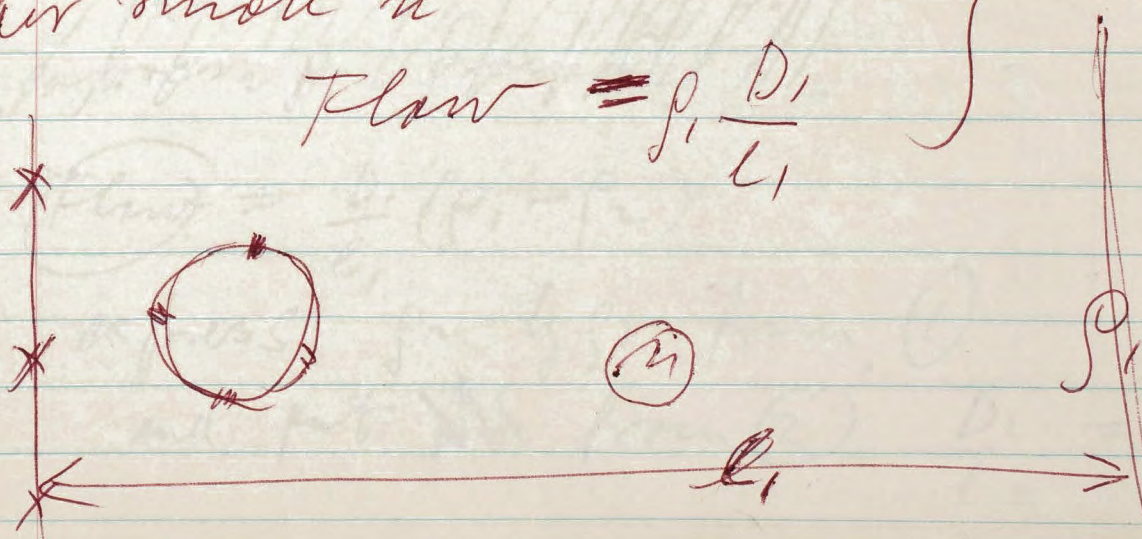
$$\text{flow} = \rho_1 \frac{\frac{v_x}{n}}{1 + \frac{v_x}{n}/\frac{D_1}{\ell_1}}$$

for large n

$$\text{flow} \approx \rho_1 \frac{v_x}{n}$$

for small n

$$\text{flow} = \rho_1 \frac{D_1}{\ell_1}$$



Series for Flow

Flow $= \rho_1 \frac{v x/n}{1 + \frac{v x/n}{D_1/l_1}}$

$$\text{Flow} = \rho_1 \frac{\frac{v x}{n}}{1 + \frac{v x}{n} \Big/ \frac{D_1}{l_1}}$$

<u>large n</u>

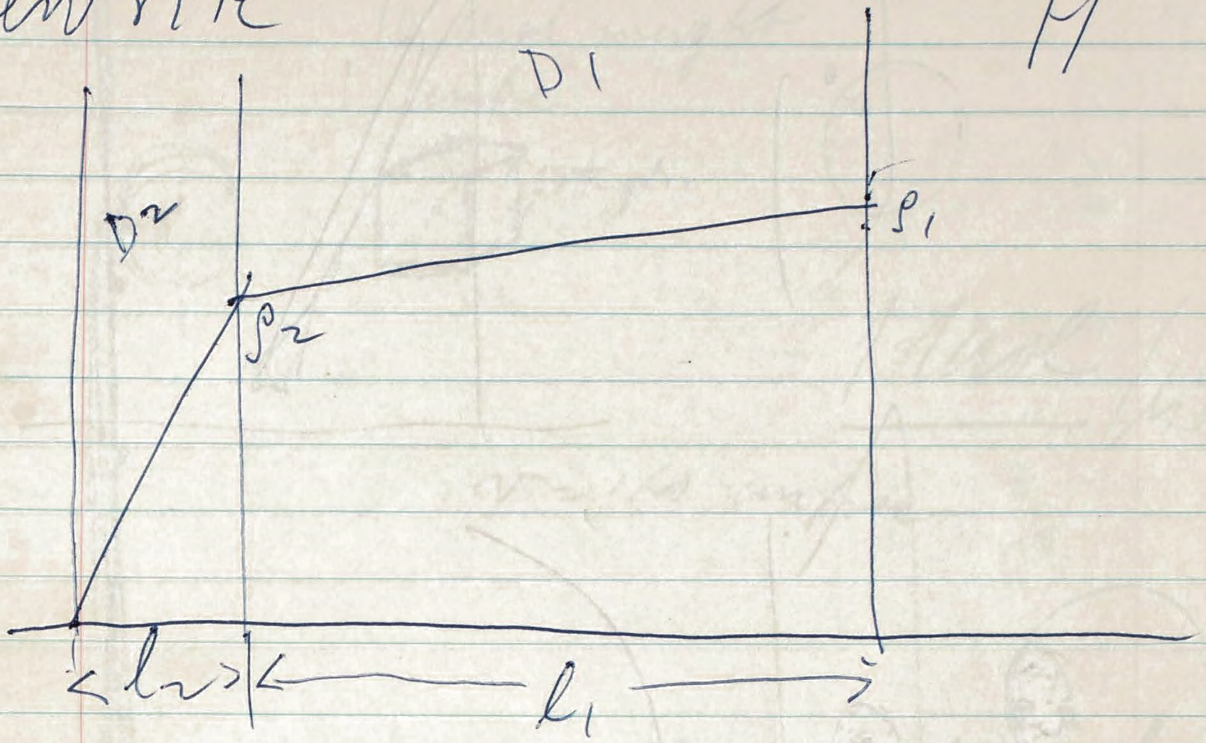
$$\text{Flow} = \rho_1 \frac{v x}{n}$$

small n

$$\text{Flow} = \rho_1 \frac{D_1}{l_1}$$

rewrite

H



$$\frac{D_1}{l_1}(\rho_1 - \rho_2) = \frac{D_2}{l_2}\rho_2 \quad (1)$$

$\ln \%_s = v_x \rho_2$

$\text{also} = \rho_2 \frac{D_2}{l_2}$

$$\mu = \frac{v_x}{\frac{D_2}{l_2}} \quad (2)$$

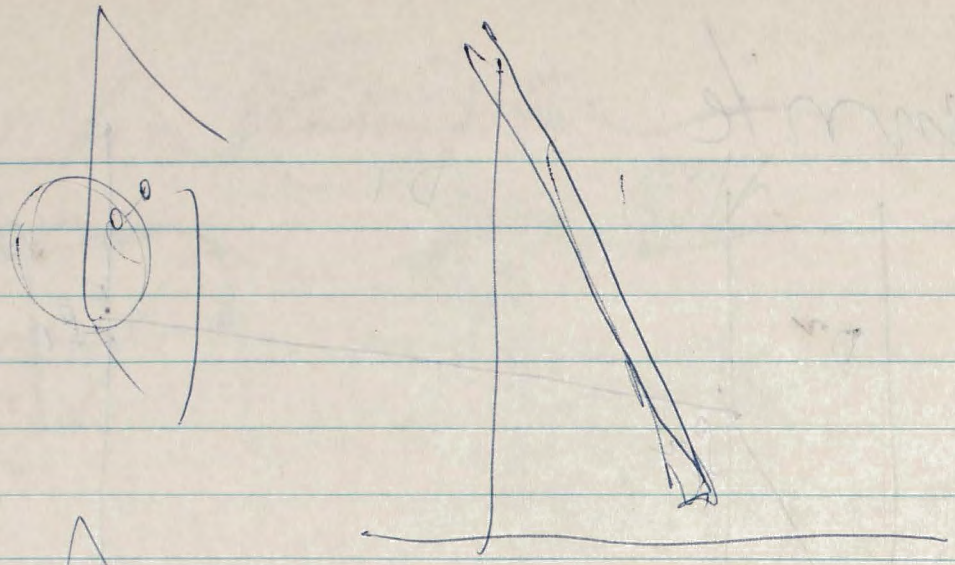
~~$\frac{D_1}{l_1}(\rho_1 - \rho_2) = \frac{v_x}{\mu}\rho_2$~~

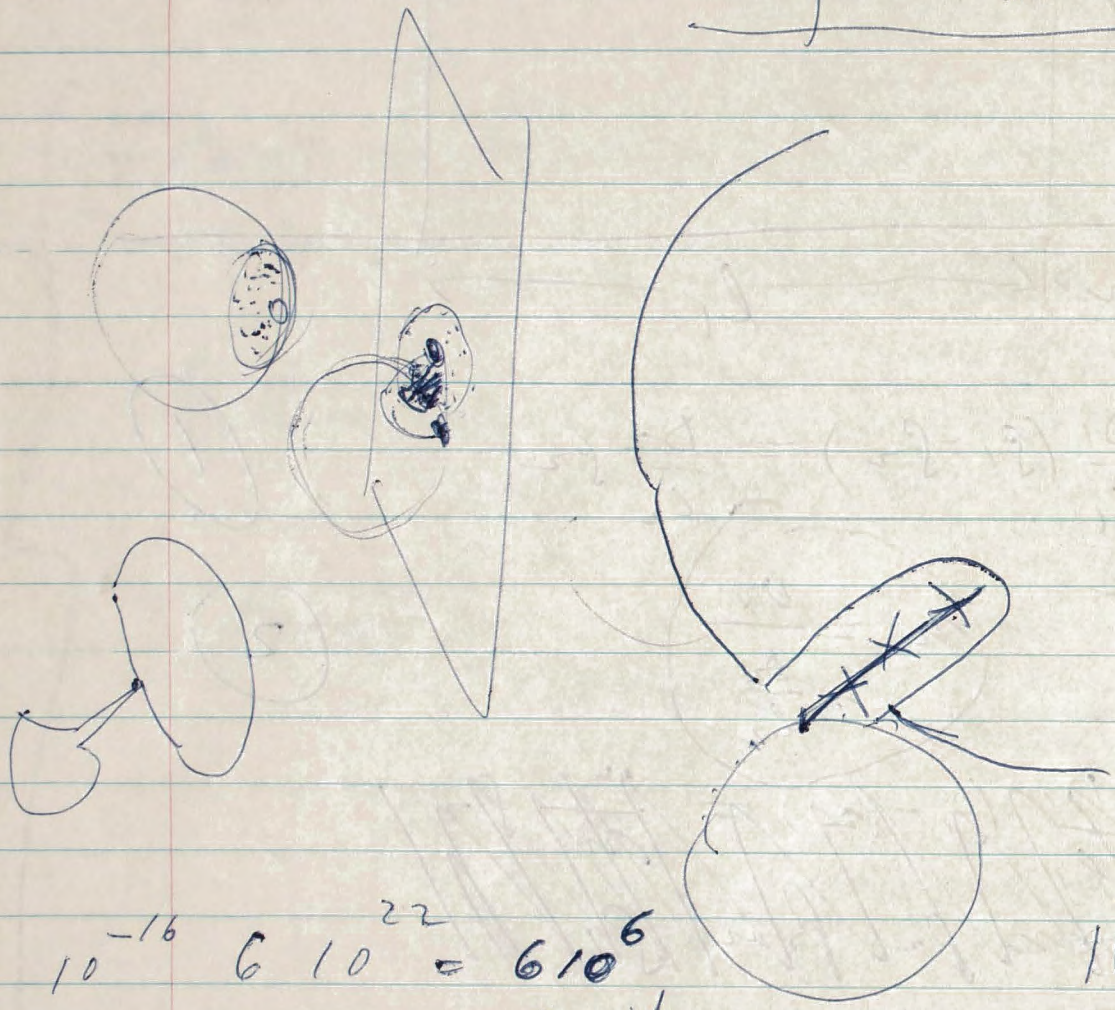
~~express ρ_2 from ρ_1~~

$$\text{Flow} = \frac{D_1}{l_1}(\rho_1 - \rho_2)$$

express ρ_2 by ρ_1 from (1)

and put ~~AA~~ from (2) $\frac{D_2}{l_2} = \frac{v_x}{\mu}$



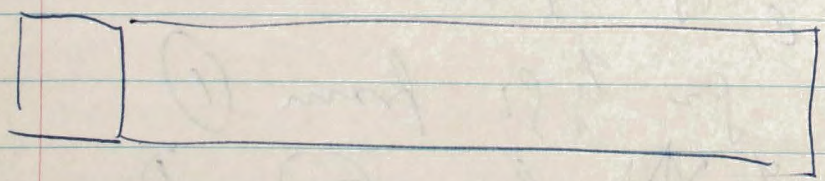


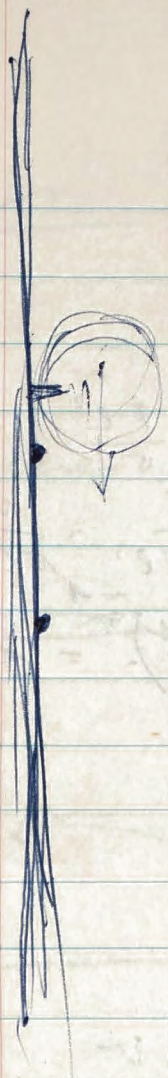
10^{-16} $6\ 10^{22} = 6 10^{6}$

6 bits per sec

10^{-6} Mol

$\frac{1000}{6}$ sec





10^6 mol weight cube

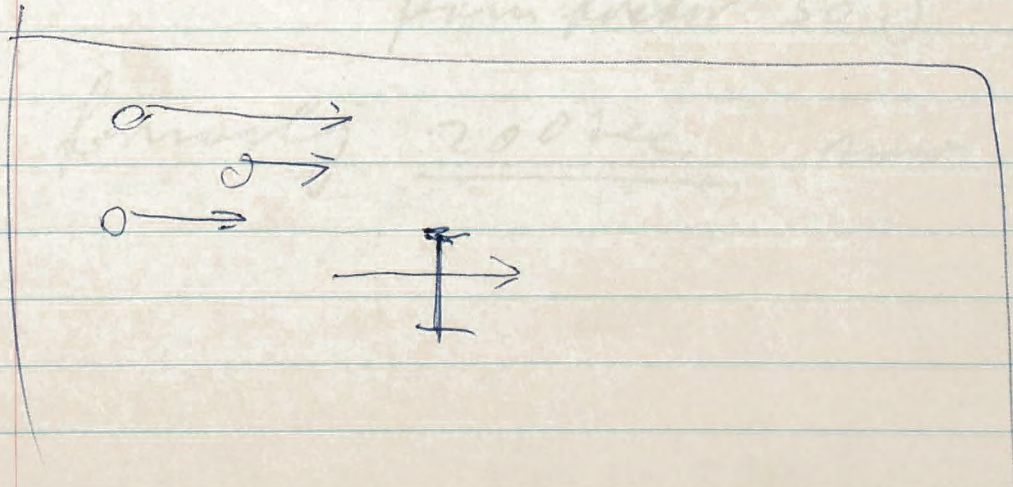
1 Mol / liter

$v = 100$ cm/sec.

per cm² $6 \cdot 10^{22}$ hits/cm²

fully cond. $\frac{1}{2.50 \; 10^{-16}} = \frac{1}{4} \; 10^{14}$ 10 percent covered means

10% cond $= \frac{1}{4} \; 10^{13}$ molecules



$D = \frac{q}{p^2}$ $\quad q = \frac{kT}{\lambda}$

$p = 6\pi a \eta$

$= \frac{kT}{36\pi^2 a^2 \eta^2}$

$F = \eta \frac{v}{l}$

$\eta = \frac{Fl}{v}$ $\quad \frac{Fl^2}{v}$

~~$m l^2 t^{-2}$~~ $\quad \frac{F l v^2}{l^2 F^x l^x} = \frac{v^2}{F l^3} = \frac{v^2}{v t^{-1} l^3} = \frac{v}{v l^2}$

$\frac{\mathcal{E}}{(l\eta)^{x}} = m l^2 t^{-2} (l\, m\, l\, t^{-2} l\, l^{-1} t)^{-1} = l^2 t^{-1}$

$t^{-1}\ l^{-1}\ t$

$D = L v$

Time $\quad \sqrt{Time} = M v$

$Time = M^2 v^2$

$L = M^2 v^3$

$D = \boxed{M^2 v^4}$

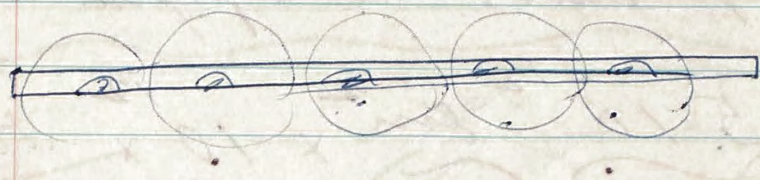
~~$M^3 v^2$~~

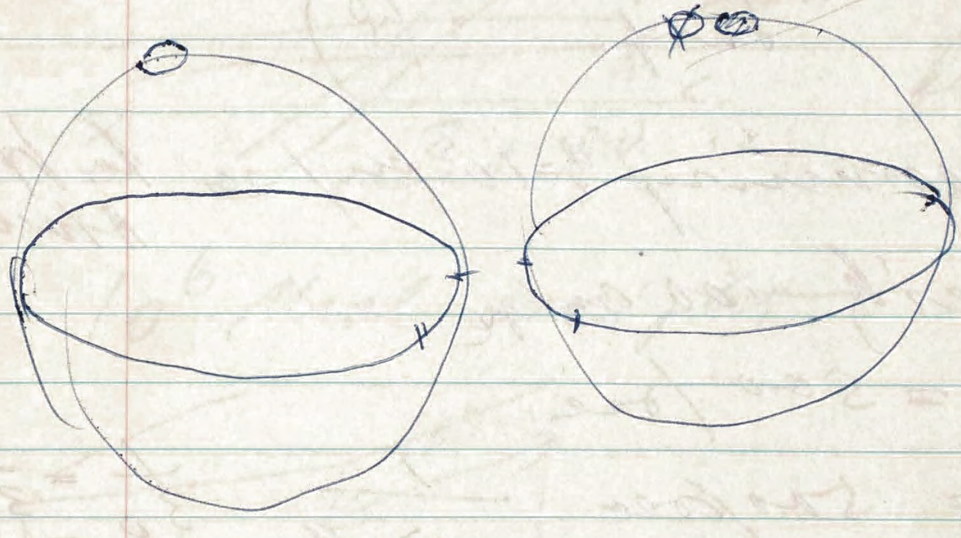
genes

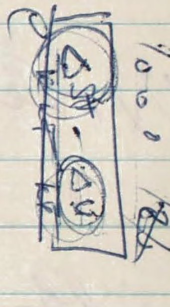
10^{-6} mol $6\,10^{23} = 6\,10^{17}$ mol/liter

$6\,10^{14}$/cc

genes [illegible] 10^{12} genes/cc







loss factor 600
gain factor 30 } loss 20

formerly 200 sec now 4000 sec

$\frac{1}{5\,10^4}$ reduction factor to hit right step

$\frac{1}{30}$ second reduction factor

Probability of collision per ~~...~~ sec

~~Nos 5 10^4 ...~~ $= 5 \cdot 10^{-12}\ cm^2 \times 10^{12} \times v$

surf. (ρ)

v_x velocity assuming $v_x = 10^5$ cm/sec for H atom

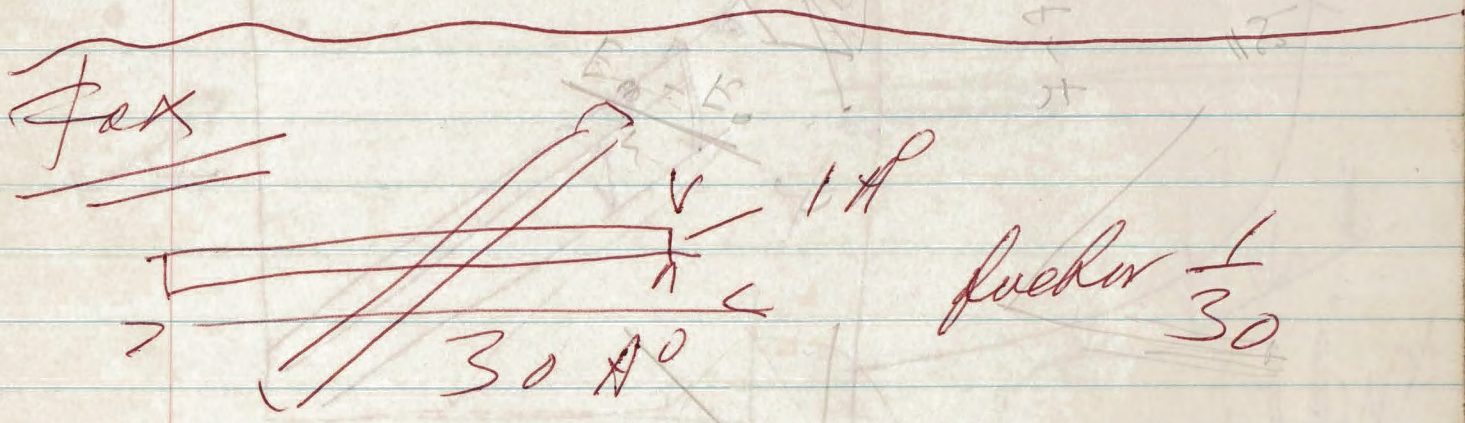
velocity 100 cm/se

Nos flow = 500 /sec

Real flow = 500/sec $\frac{1}{5\,10^4}$ $\frac{1}{30} = \frac{1}{3000}$ per sec

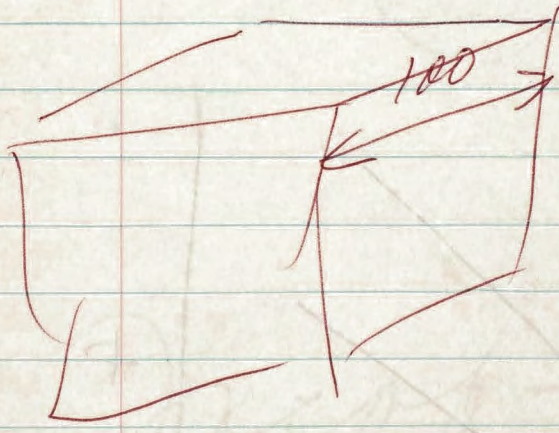
~~or~~

$A + B = AB$



factor $\frac{1}{30}$

10^6 Mol weight



$2000 \times 20 = 4\,10^{4}$ 10^{-16} cm^2

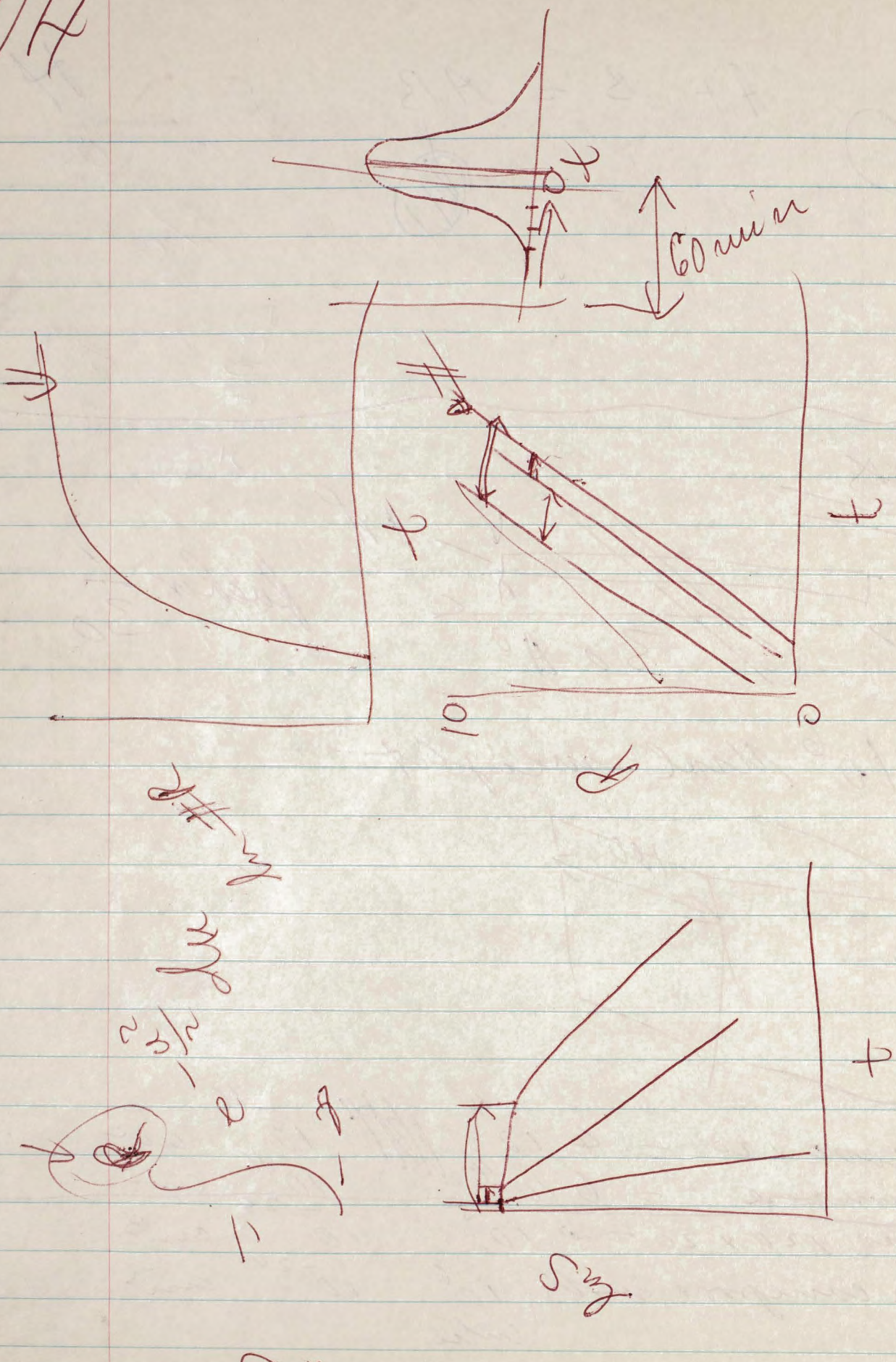
to compose $= 6\,10^{4}$ 10^{+16} cm^2

$2000 \times 20 \times 20 = 8\,10^{5}$ 10^{-24} cm^3

to compose with 10^{6} 10^{-24} cm^3

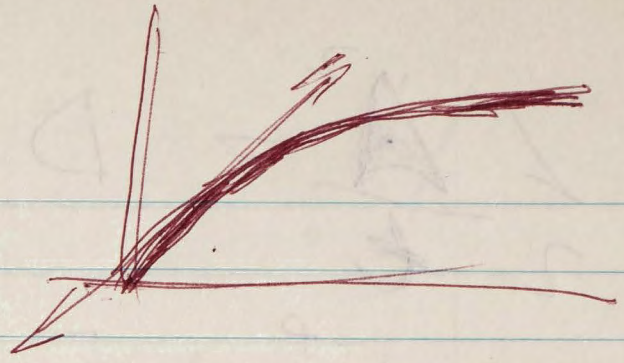
cube

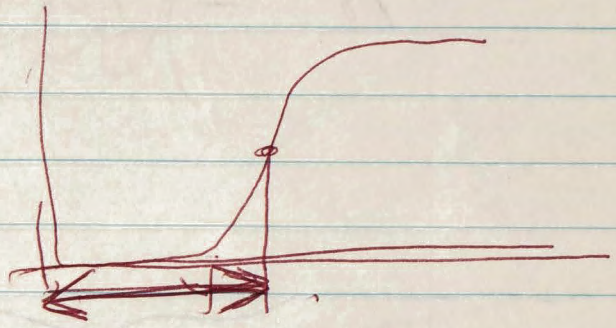
N/A

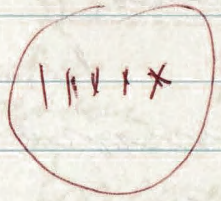


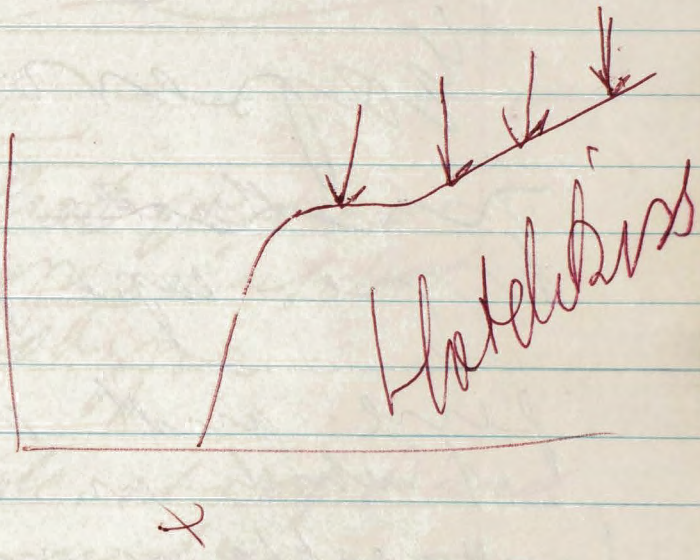
$1 - e^{-\frac{t}{3000}}$ t

$\frac{m^n}{n!} e^{-n}$









Jacob-Green

$$\frac{1}{2}\frac{A^2}{t} = D$$

$$10^{-8} = 10^{-}$$

$$t = \frac{l^2}{D}$$

10^{-8}

~~Transduce~~ use Jacob type exp. putting in a gene and determine rate at which an enzyme is produced (inducible or not) .—

If RNA is produced first curve is with t^2

Another exp. introduce chromosome à la Jacob and see how ~~soon~~ ~~transforming~~ long it takes for ~~transforming~~ transforming factor (for introduced gene) to appear. —

Ozeki H

~~[illegible]~~

2353 Feldmoser

~~Alex~~ Pax

Prepare DNA that gives phenotype but not genotype

(transformation / Transduction / gene)

Separate irreversible abs of and transformation. —

$D = 5\,10^{-7}$

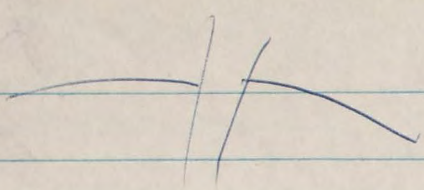
$l\,[illegible]\sqrt{\frac{T}{D}} = 1.$ $\sqrt{T} = \frac{D}{l}$

10^{4} 10

$10^{4}\sqrt{\frac{t}{10^{-6}}} = T$

$10^{10} = T^{2}$

Senator

 Serb. g Owen

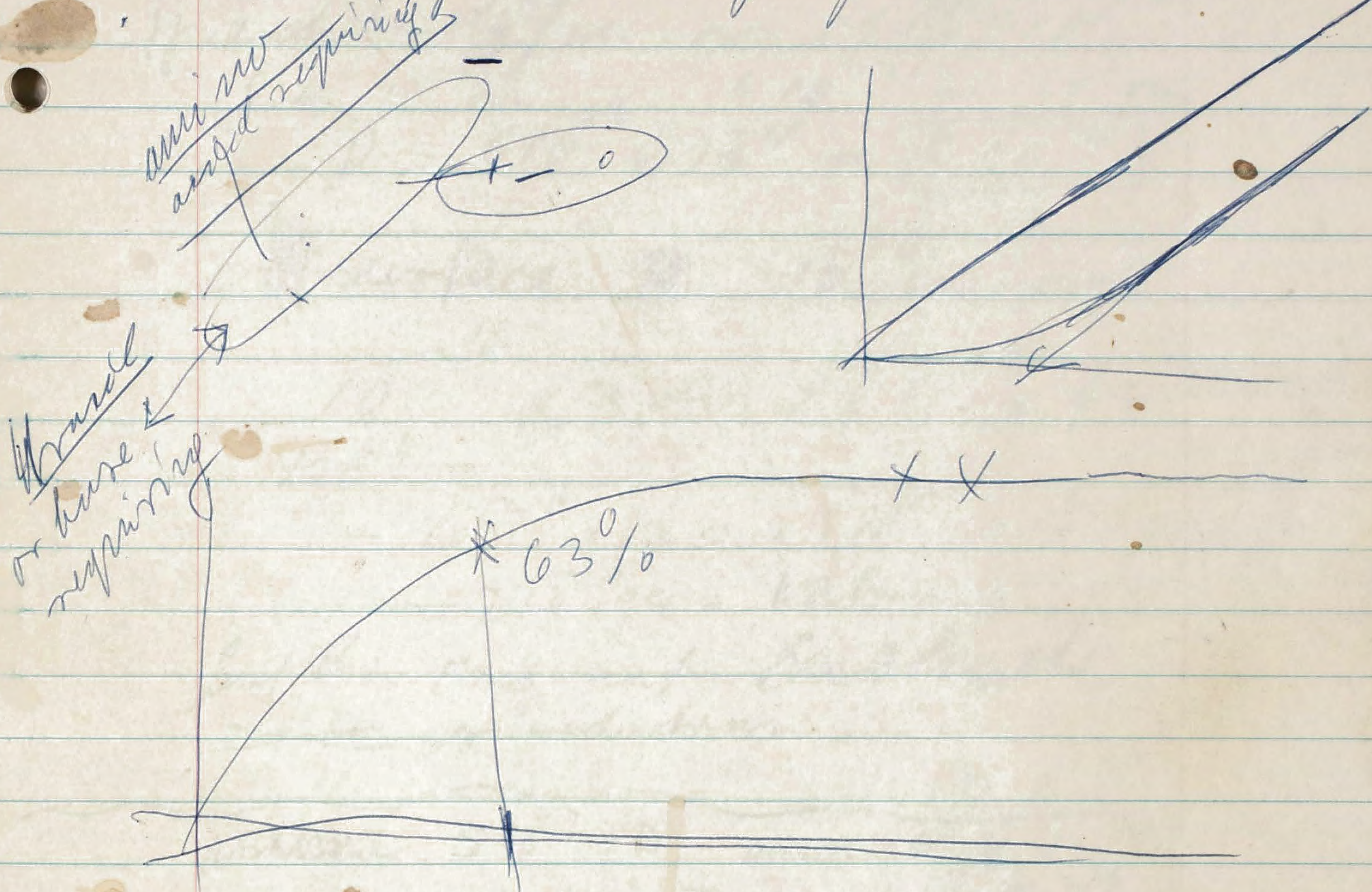
color

[illegible] Prescott Hotel No 7

Donald Steiner

Anker ~ Lenard Mindich (M)

between ff and 10 f per cc. —



(C)

Wagner Mitchel

(Ahms Fi 6 0338)
Ladd

Microwave
Raytheon

Assuming 4000 sec for gene
for antibody: assume 1 antigen
If antibody free or of $M = 10^5$

$\rho = \frac{10^{-6} gm}{6\,10^{23}} = 10^{5} gm$

$\rho = 6\,10^{23} \times 10^{-11} = \boxed{6\,10^{12}}$

surface 10^{-16} cm prob.

$10^{-16} \times 300 \times 6\,10^{12} \times \cancel{6 \times 2500} \times \frac{}{10^{-16}}$

$\times 1\,10^{-4} =$

$= 10^{-20} \times 20 \times 10^{12}\ 10^{2}$

$= 2\,10^{-5}$ sec = 12 hours

but this does not include
orientation

---

assume $5\,10^{-7} = D$ and $v = 10^{2}$

$vL \approx D \qquad L = 5\,10^{-9}$ cm

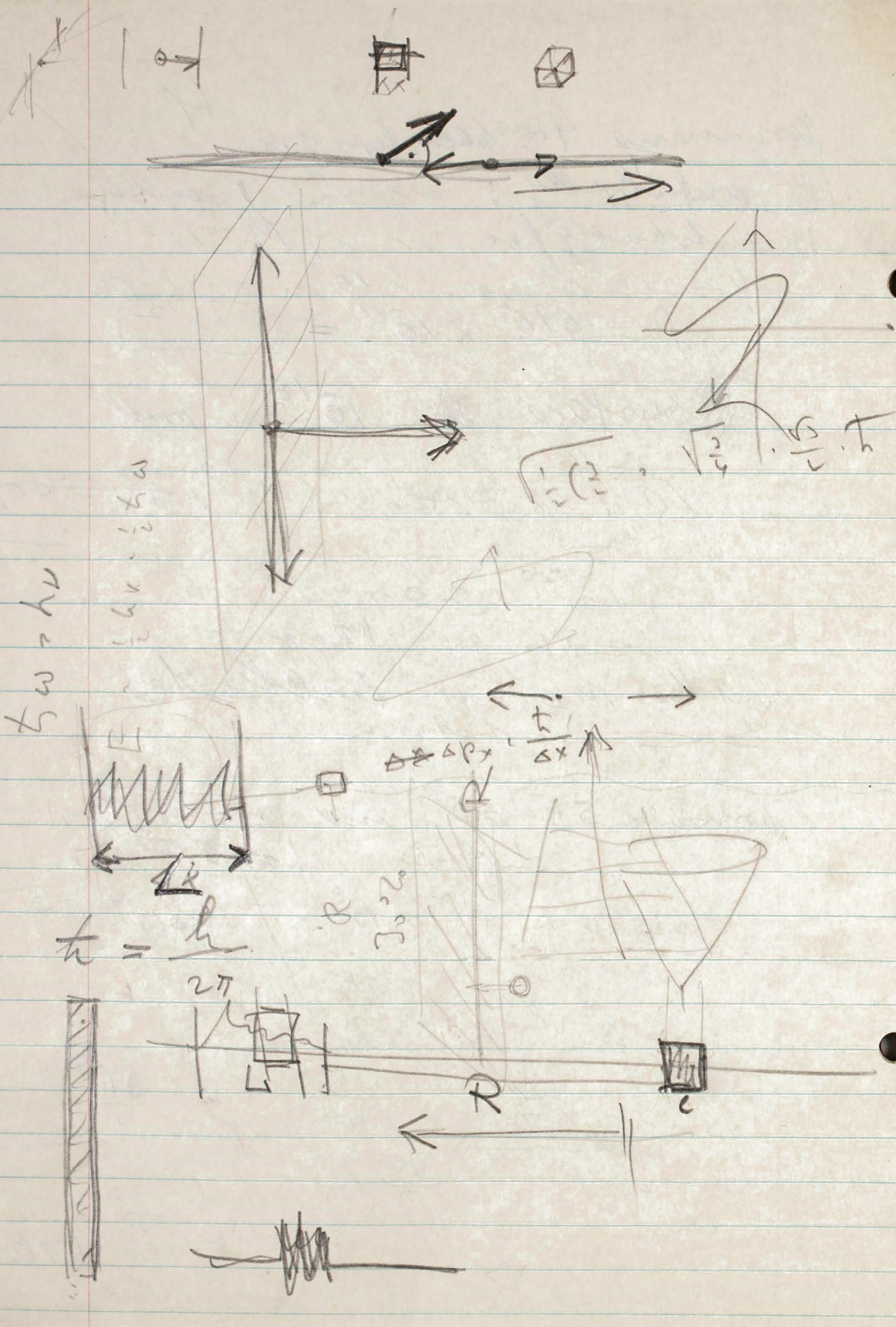
$p\,4\pi R D \approx 6\,10^{12}\ 10\ 10^{-8}\ 5\,10^{-7} = 3\,10^{14}\ 10^{-15}$

$\frac{v_x}{n}$

$\frac{v_x}{n} = \frac{3\,10^{2}}{104}$ $\qquad \frac{5\,10^{-7}}{1}$

$\frac{v_x}{n} \Big/ \frac{D}{l}$ $\qquad l = 10^{-4}$

$5\,10^{-7}$ $\qquad 5\,10^{-3}$

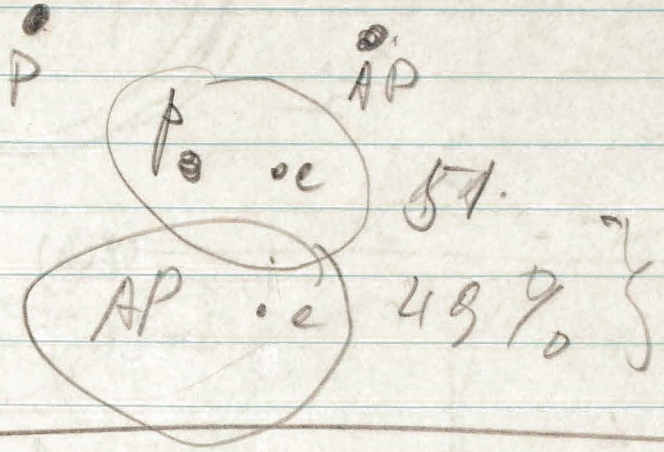

R
C

4

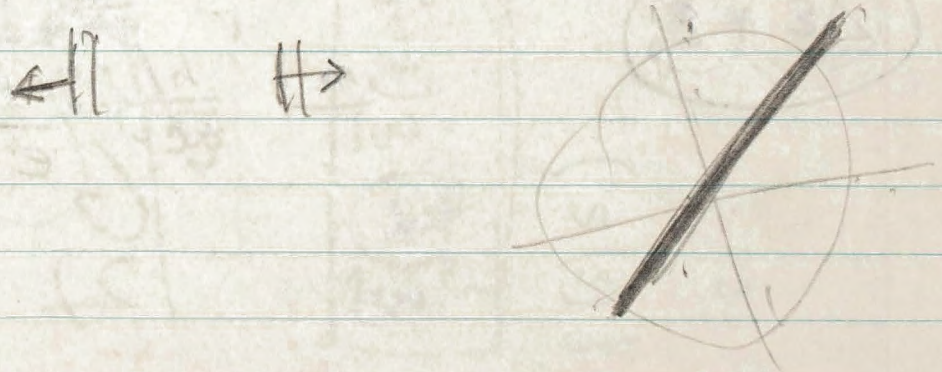
a)

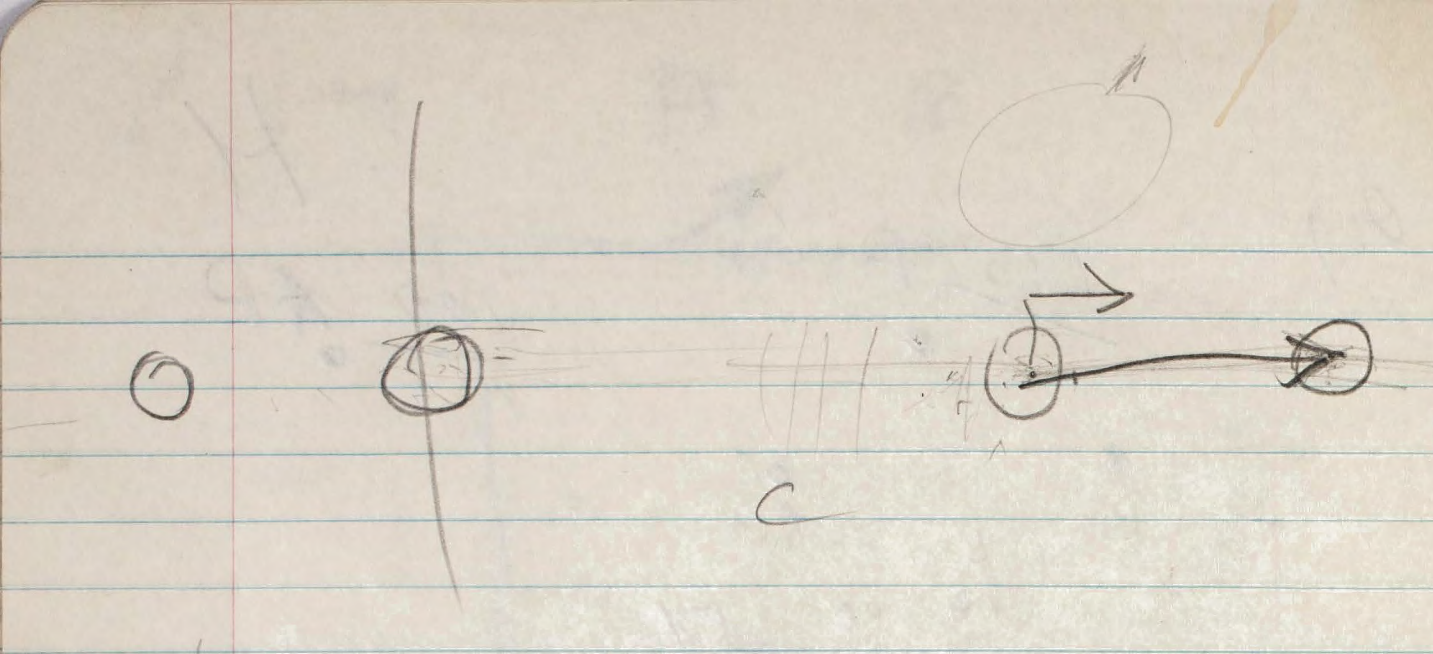
100 P

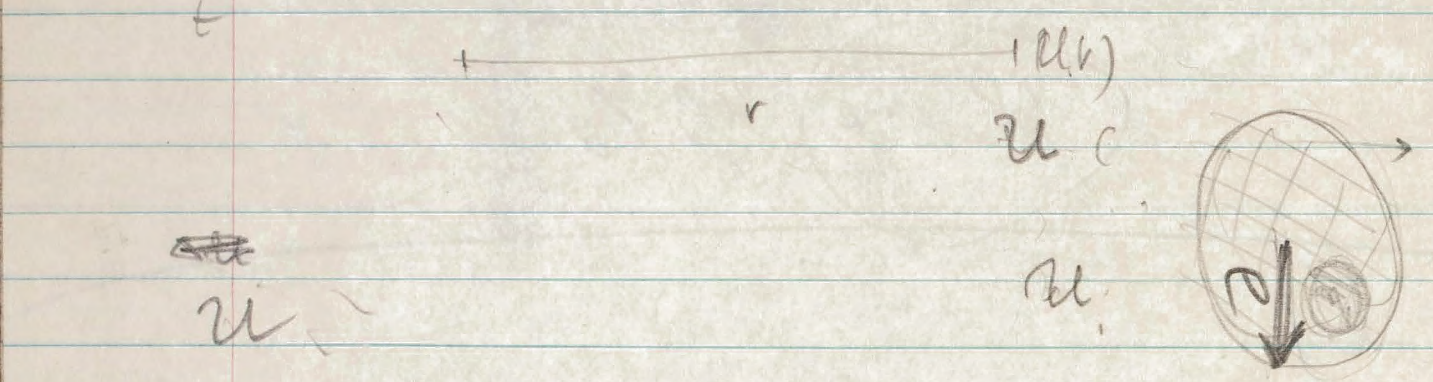
100 AP

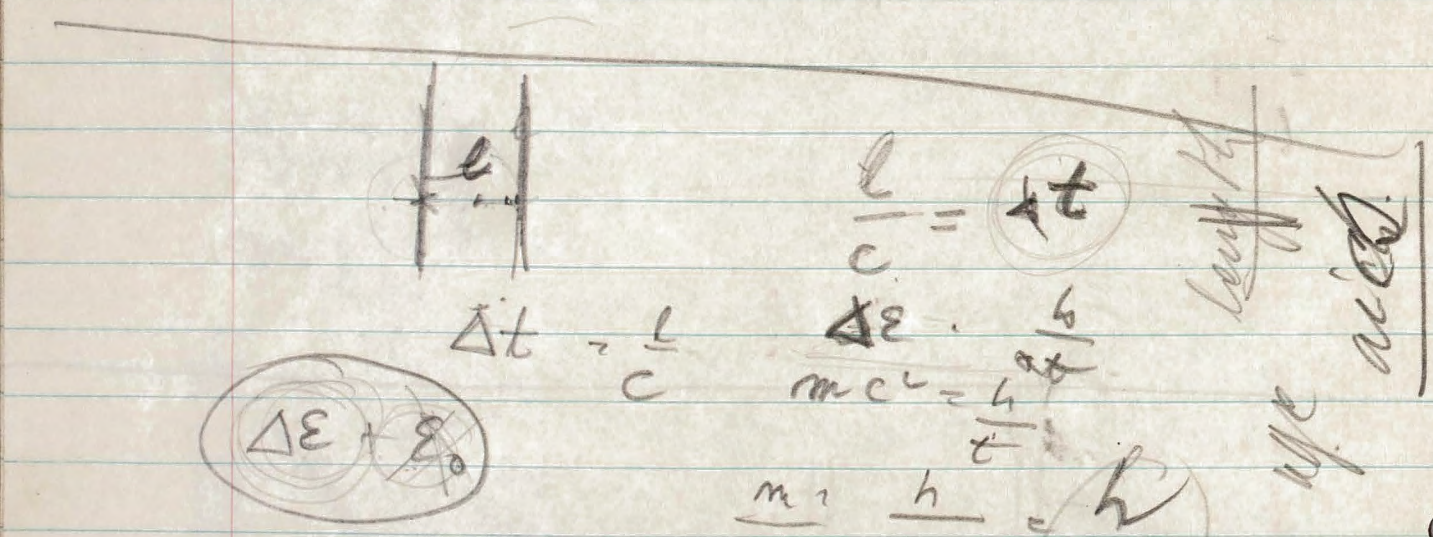


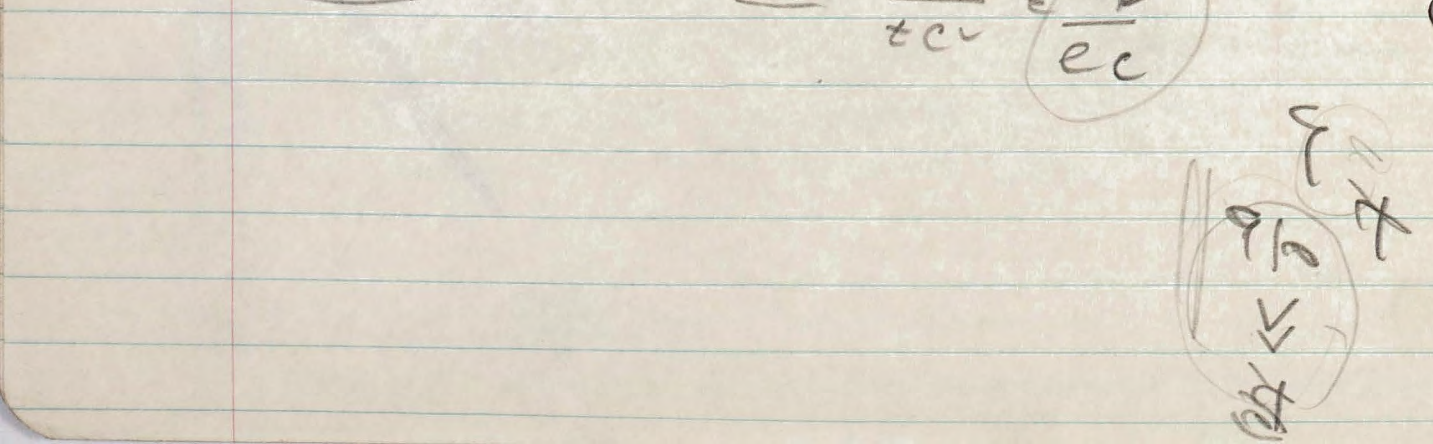
b)

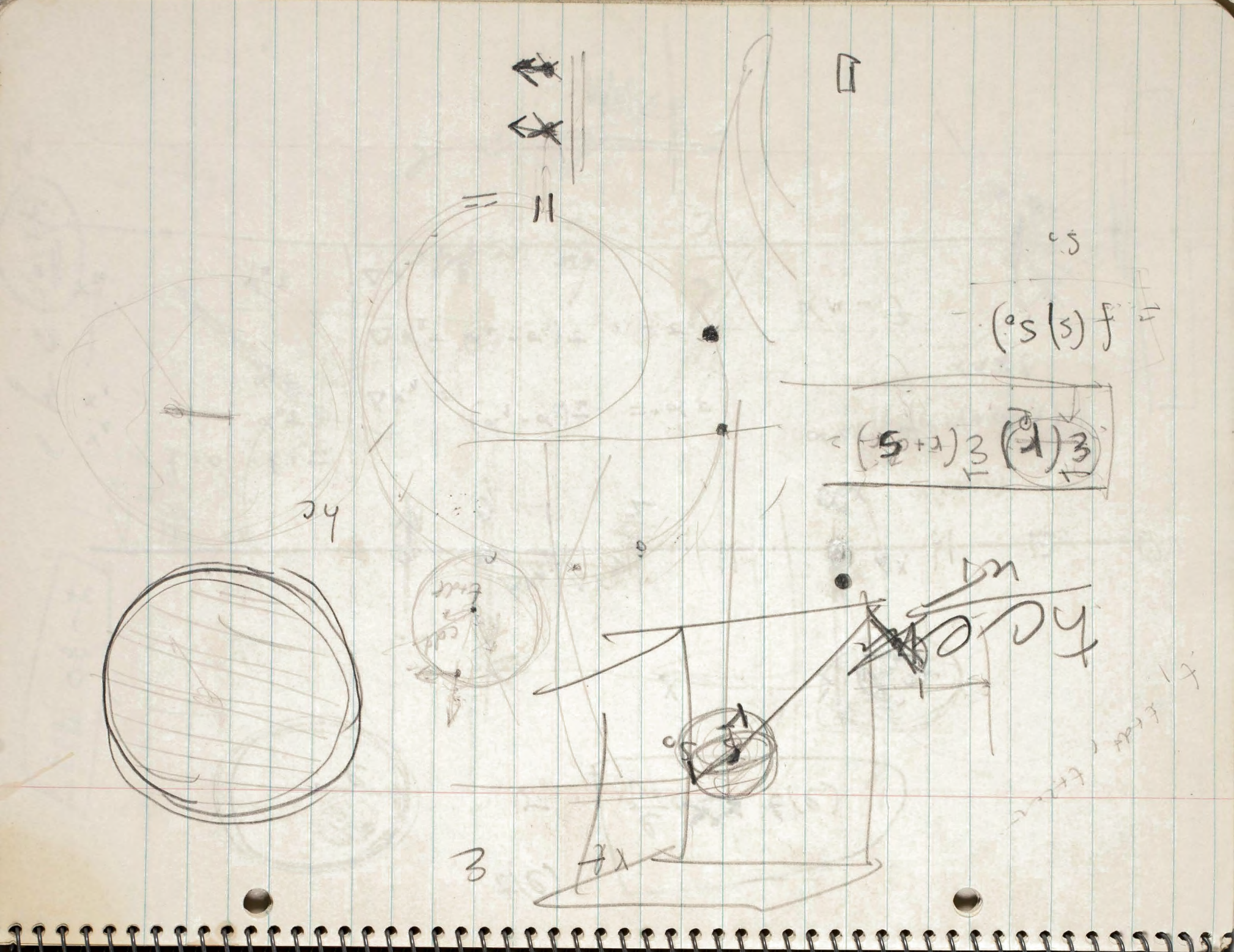


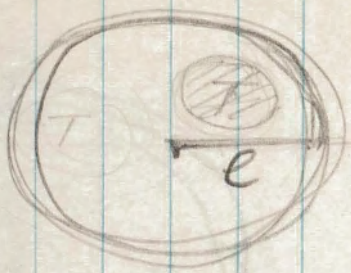








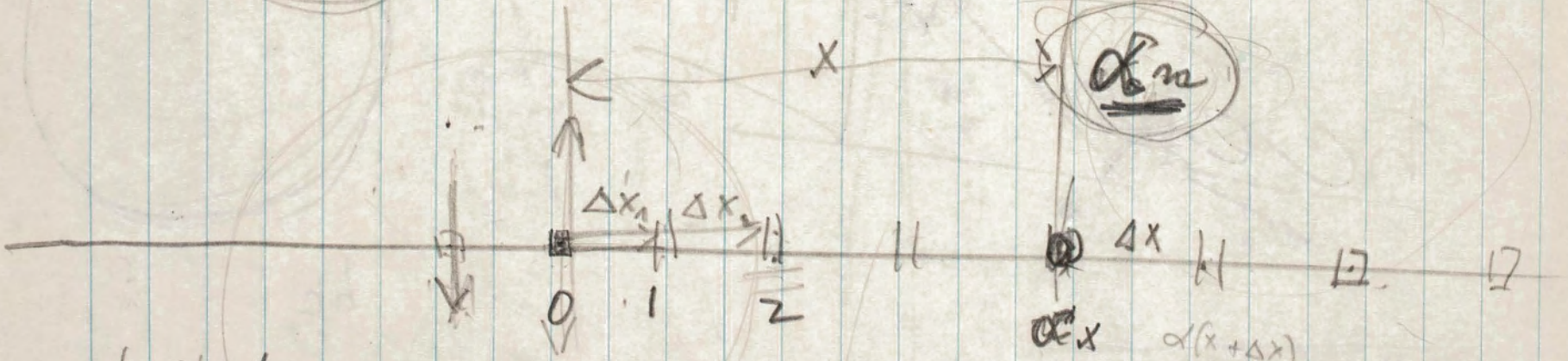




$t(e)$

v

$\frac{e}{v} \gg t(e)$



	$t=0$	$t=\tau_1$	
x_0		$\alpha_0\tau$	$\Delta x_1 = (\alpha_1-\alpha_0)\tau = \alpha\tau$
x_1		$\alpha_1\tau$	$\Delta x_2 = (\alpha_2-\alpha_1)\tau = \alpha\tau$
x_n		$\alpha_n\tau$	Δ

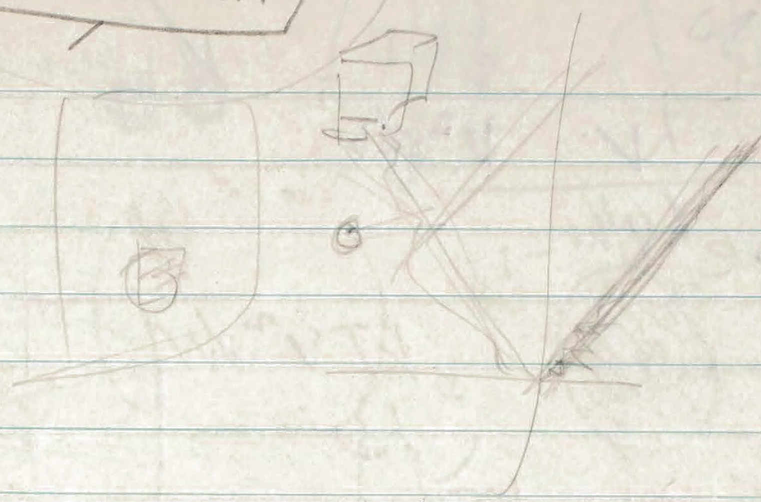
$\alpha x t - (\alpha x t + \alpha \Delta x t)$

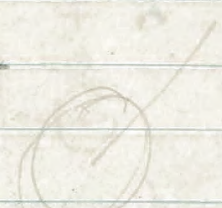
$\alpha \Delta x t$

$\alpha n - v$

$\Delta E(t)\ \delta t \sim \hbar$

$ehc\ (m+M)^2$

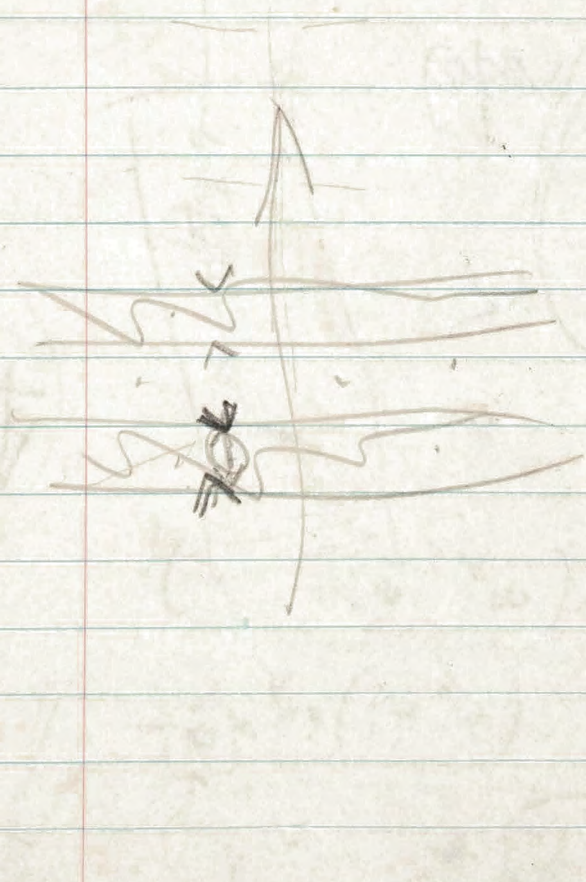


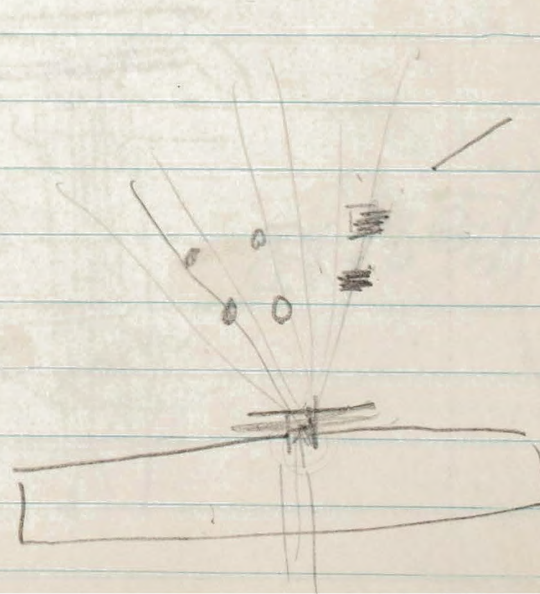


$\frac{hc}{e} \approx Mc^2$

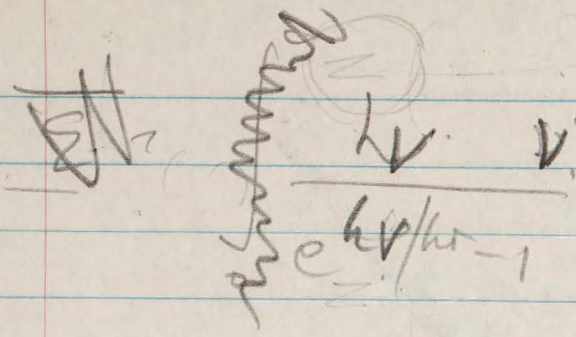
$\frac{\hbar}{Mc} \sim e$

$\frac{\hbar}{e} / c$





$$\frac{1}{2}(v \times H - H \times v)$$

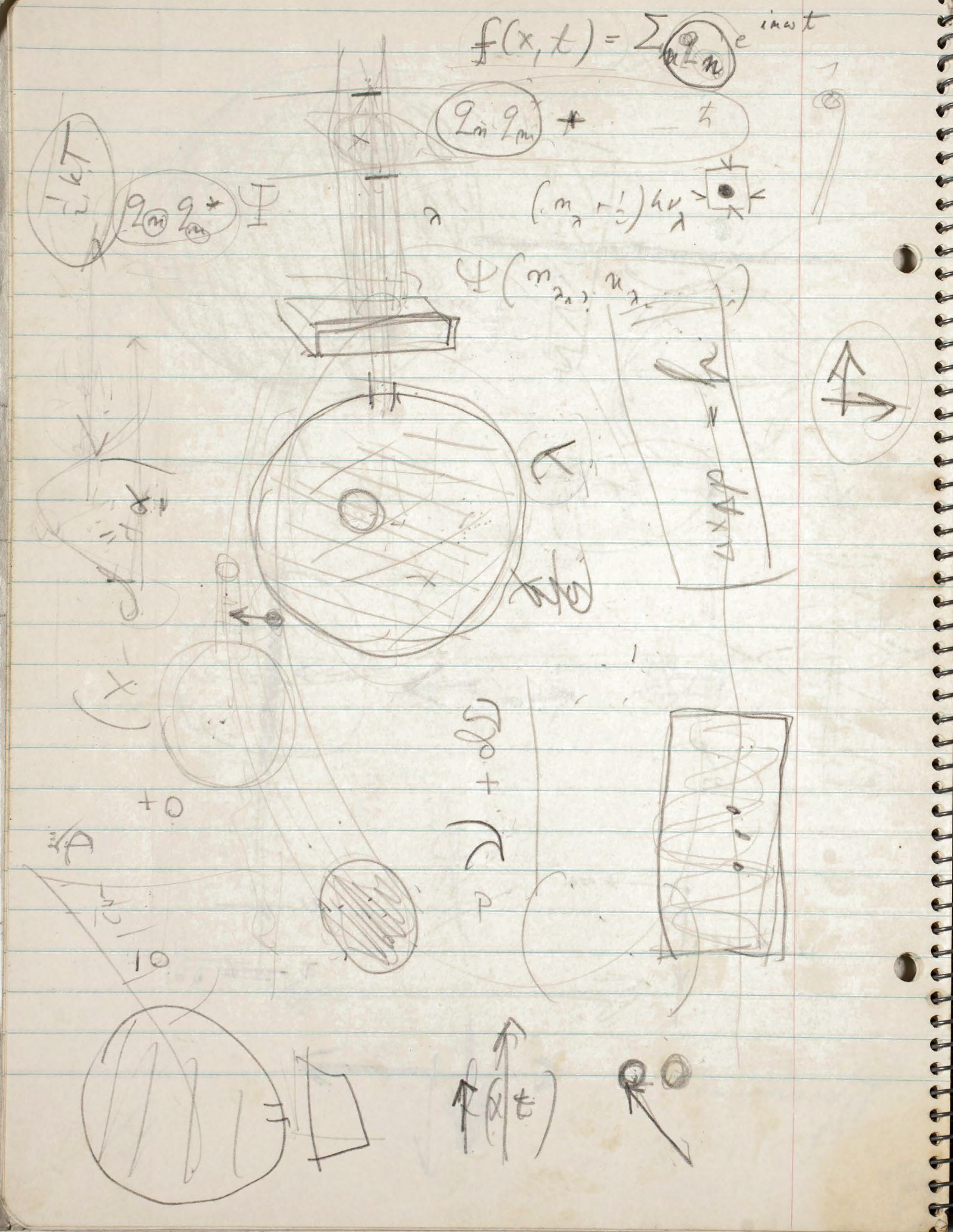


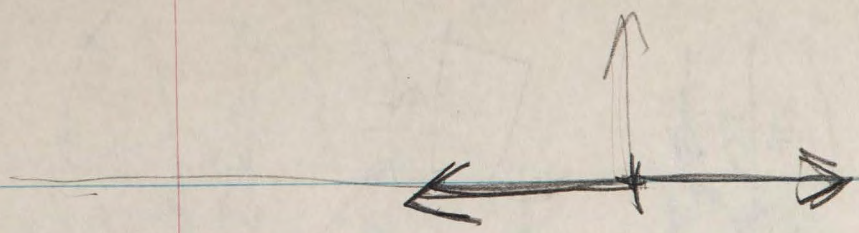
$$\frac{h\nu \cdot \nu^2 d\nu}{e^{h\nu/kT} - 1}$$

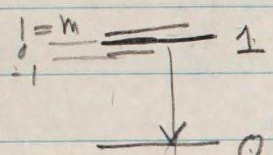
$$kT\nu^2 d\nu$$

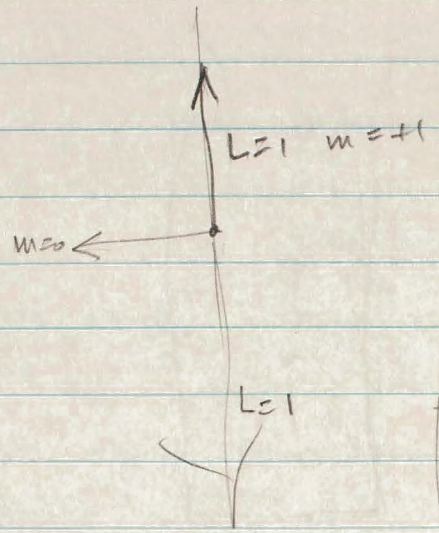
$$h\nu$$

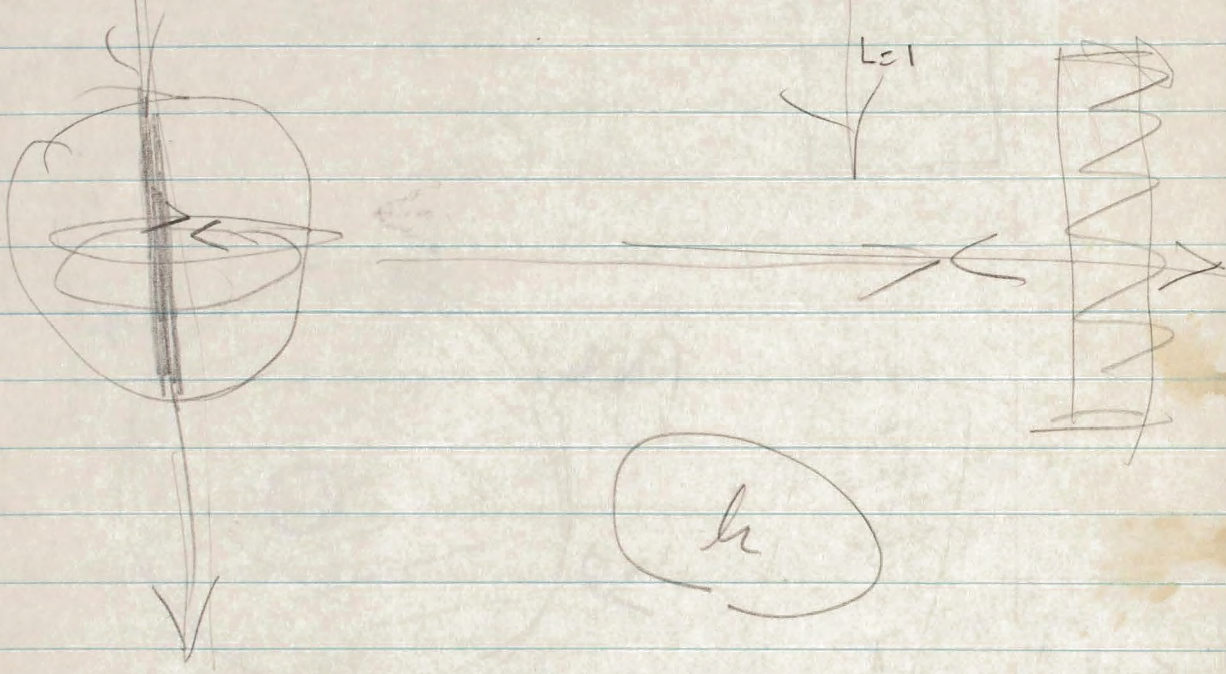
$$n_{\nu,\nu+d\nu} = \frac{kT}{h} \nu \, d\nu$$



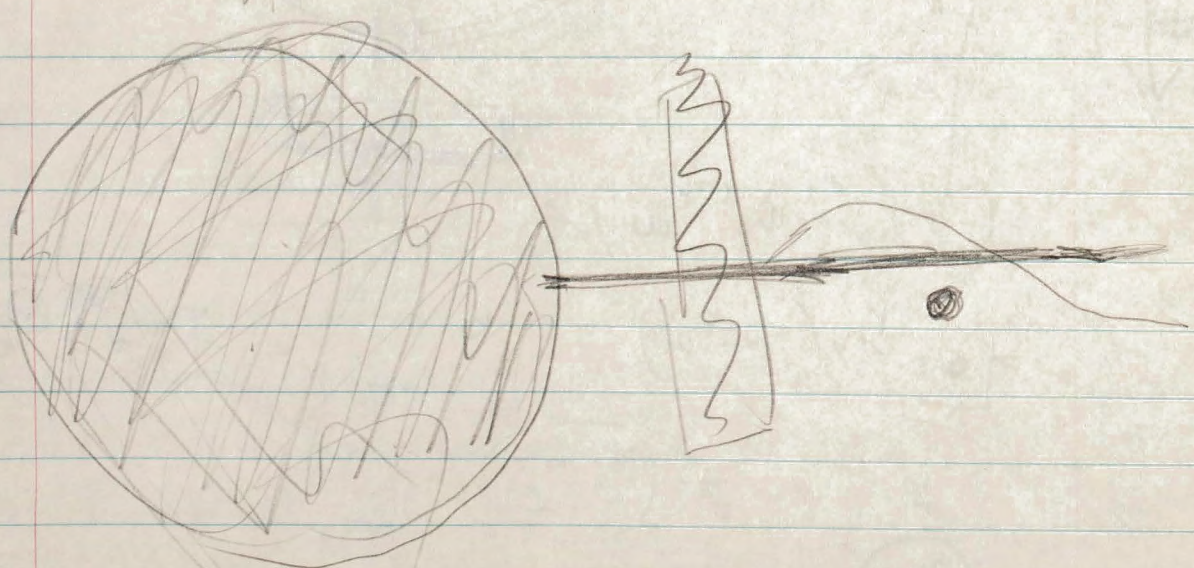



l=m
1
0


L=1 m=+1
m=0
L=1

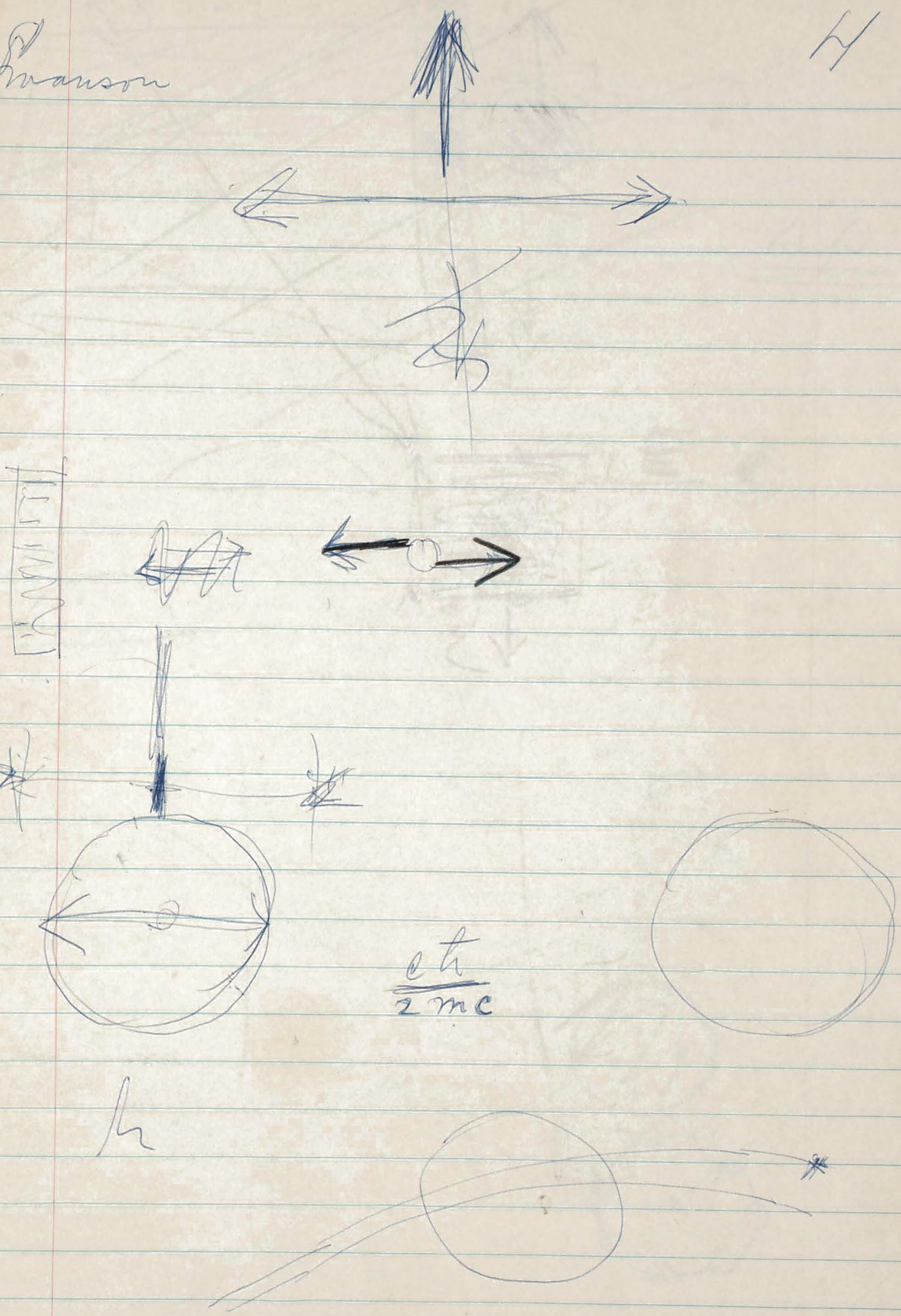


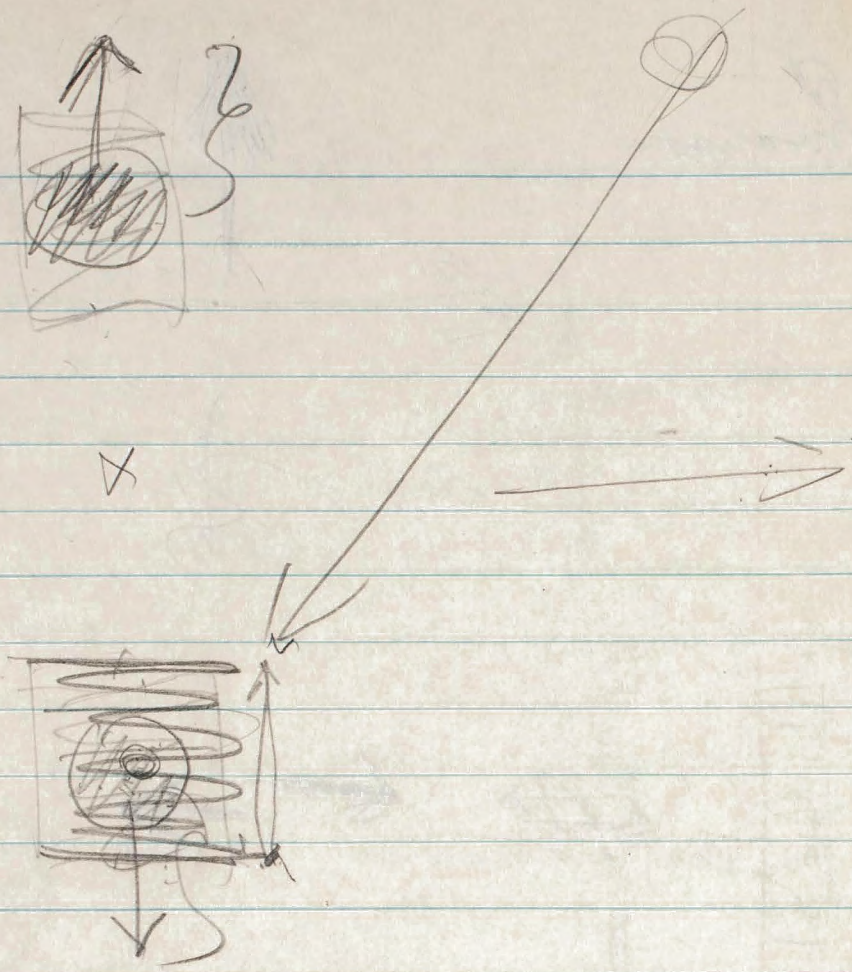
h

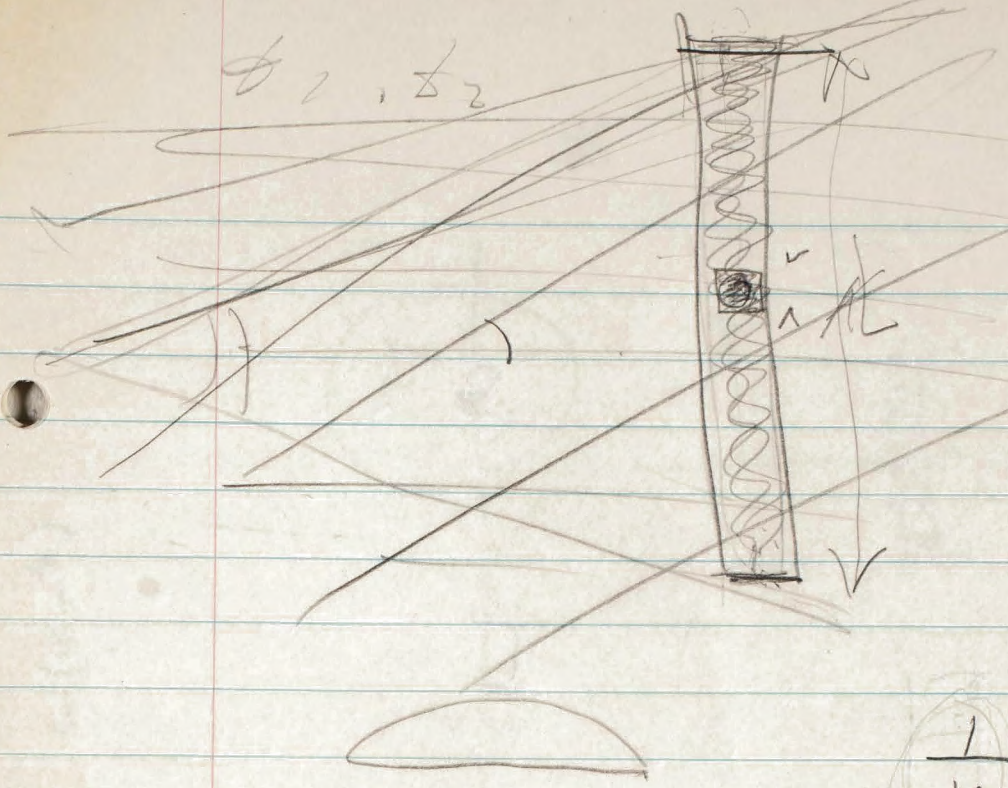


Swanson

4



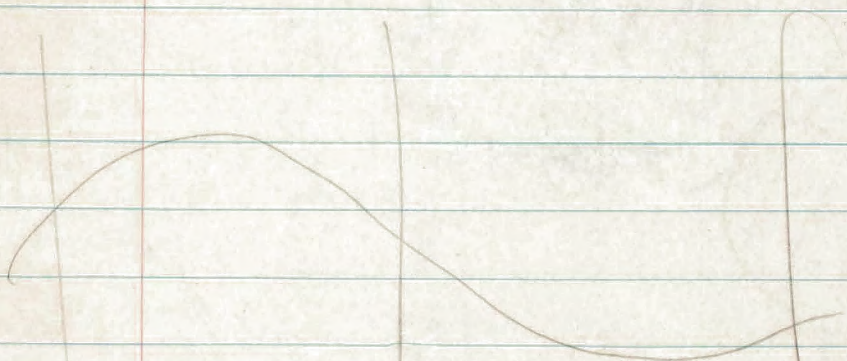


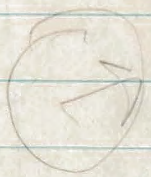


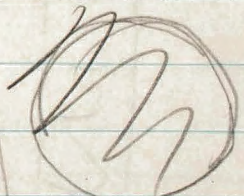
Δp

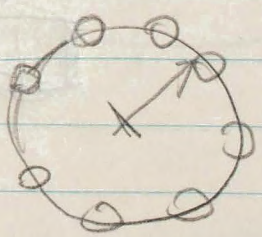
$\frac{1}{v} E e$

$\frac{e^2}{r} = m c^2$





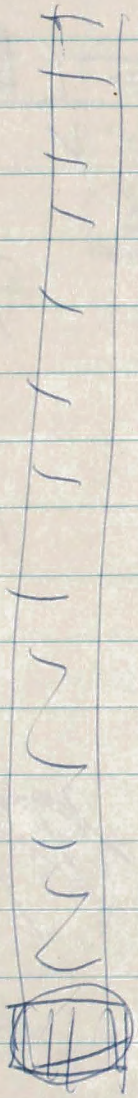


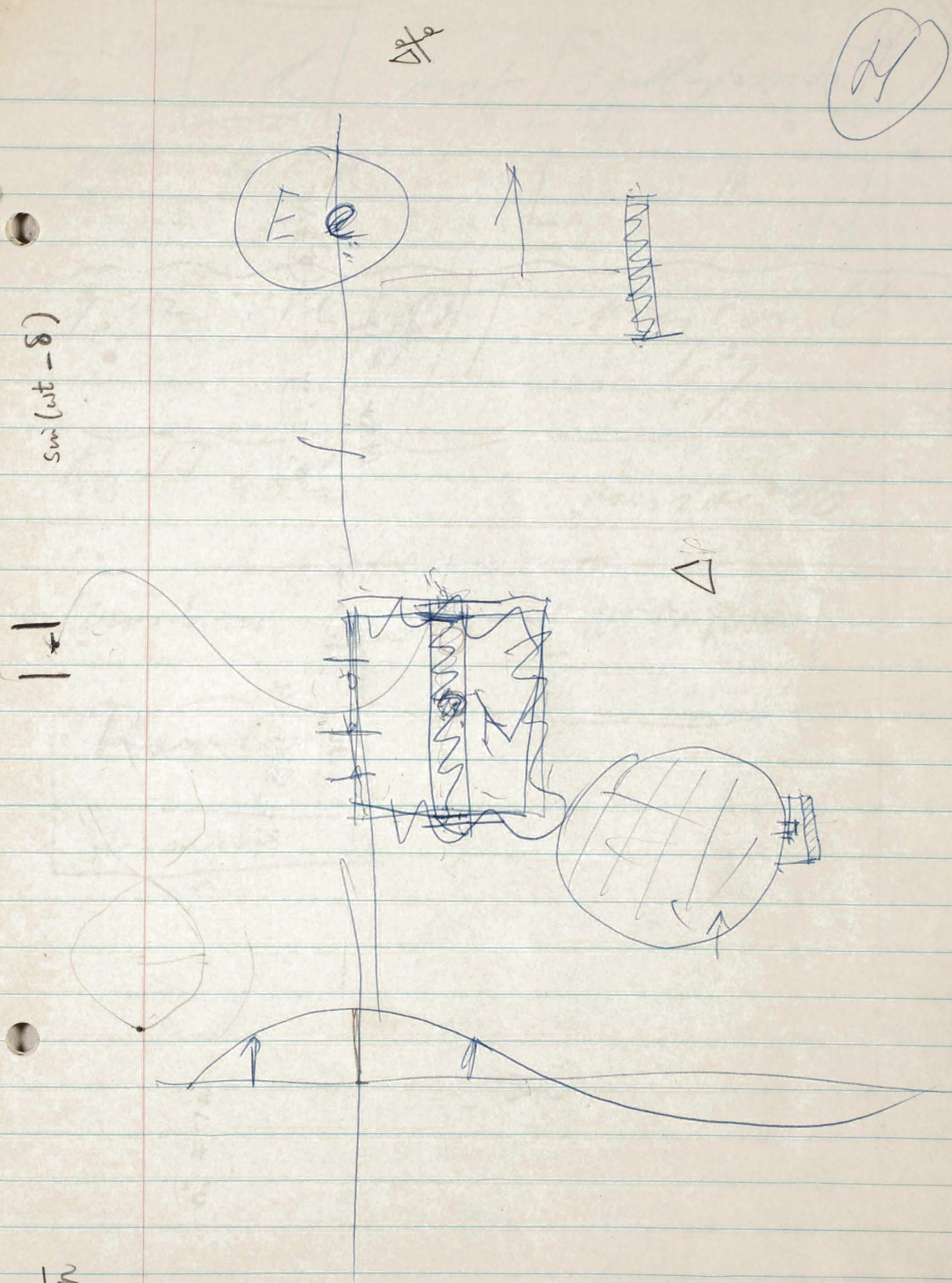


Ex

ax

$\Delta p = \frac{h}{4x} \times ..$




sin(ωt − δ)

$\frac{e}{M}$

$\Delta v \longrightarrow v$

$M v \gg \Delta v M$

$M \Delta v = \Delta p$

$v_0 \pm \Delta v \longrightarrow v \pm \Delta v$

$v_0 \pm \Delta v$

Te^{118} [6d] not [spall-fission H
Bi

Te^{119} 4.5 d [11]

Te^{132} 77h / 8 / [fission 0
4%

As^{77} 40h fission ~10^{-2}

Murriano Lavia [NOV 9610]

Rowley

Steiner

Colfax Mineral Spring Co
Sugar free ~~Bourbon~~

ant of lung

$(1+\alpha) N_2 = N_1 + \alpha N_0$ $N_2 = N_1$

$(1+\alpha) O_2$ $O_2 = O_1 + \alpha O_0 - x$

$(1+\alpha) C_2$ $(1+\alpha) C_2 = C_1 + x$

6

Impr

150,000 | Bind sites / cell

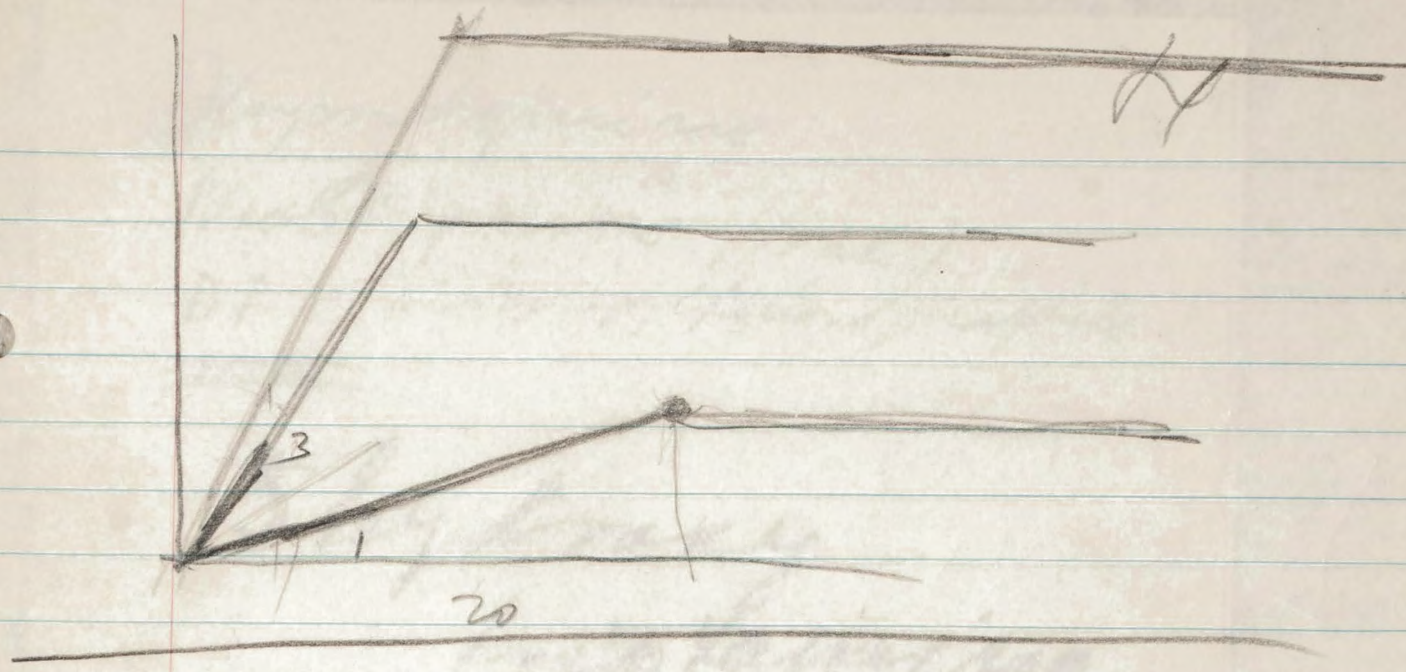
10^{14} 100

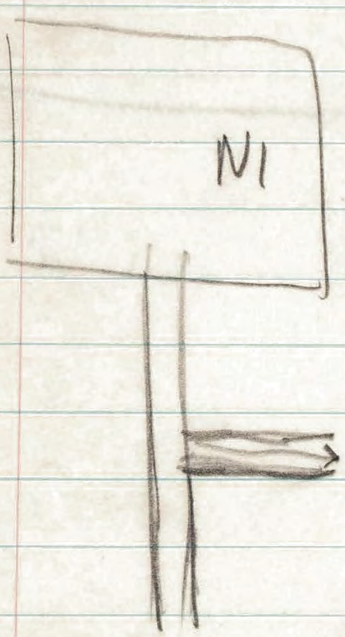
$6 \cdot 10^{23}$

$6\ 10^{-9}$ mol

$6\ 10^{-7}$ gm

Clayton Foundation





$X = N_2$ curve

$y\ (O_2)$

$z\ (CO_2)$

case of

$C + O = \text{Const}$

~~$(N+\alpha)\ \frac{1}{2}(N_1 ; O_1 ; C_1)$ goes in~~

In ~~α~~$N_1 + O_1$ ~~[illegible]~~ $+ C_1 + \alpha\ N_0\ O_0\ C_0$

$N_1 + \alpha N_0$ goes into lung

$O_1 + \alpha O_0$ "

$C_1 +$ ~~αC_0~~ "

Curve Ball

Danger = That is would be terribly positive to your hostess would it and be insulted to your hostess? It's habit forming.

~~Warning~~ — ~~things~~ whiskey choose

~~you may have for each guest's~~ fancy brand you ~~choose~~ (Irish whiskey, bourbon, Scotch) ~~that they choose~~ Schramm's. It's habit forming.

Don't ~~drink~~ take it yourself and don't serve it to your guests. If once you taste it you won't be able to hide your dismay ~~have one or two of it~~ if you can not find it without it ~~your distant~~ dismay when your host served it. Someone ~~other brand~~ ... ~~supports~~ regularly ... your serving. The telephone will keep ringing in your house and friends ~~supporting that they~~ ~~taking of they~~ will ask if they ~~might~~ may drop in for a drink. It is allright to be popular but do you want to be that popular? You do not believe us? You think we exaggerate? All right, all right have it your own way, call FO 2 3698 now, place your order now and take the consequences. ~~We have spoken~~ × You have been warned.

Physostigmine
Neostigmine (oral)
DFP (Diisopropylfluorophosphate

~~[illegible]~~

5 hydroxy-
-tryptamine

Wien

The Quadrangle Club
1155 EAST FIFTY-SEVENTH STREET
CHICAGO 37, ILLINOIS

1067-72
1069
[illegible]

1064 Syrup of ipecac

paroxismal atrial
tachycardia

Ipecac
(Emetine)

F. D. Basch

Terpin hydrate (no good)
Betanechol 3.)
Carbachol 2.)
Metacholin 1.)
(Neostigmin enhances
4 fold (0.5 mgm)

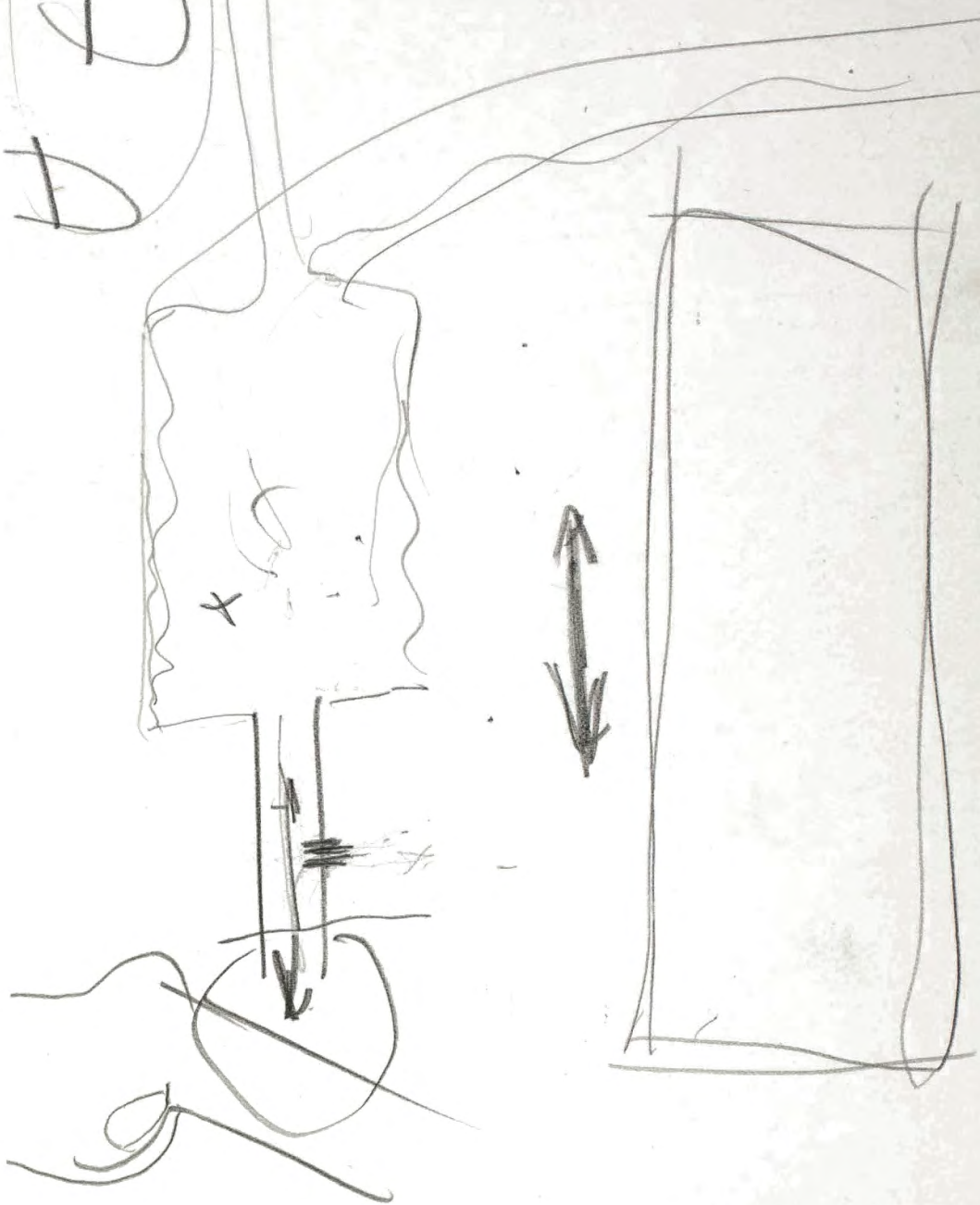
10^{14} Atoms

$\frac{1}{2}\ 10^{14}$ disint in 8 days

or per sec. $\frac{1}{2}\ 10^{8}$/sec

$5\ 10^{7}$/sec $\doteq$ or $\sim$ 2 m.c.

The Quadrangle Club
1155 EAST FIFTY-SEVENTH STREET
CHICAGO 37, ILLINOIS



Kimberly, Kennewood Rt 63 north side

Wiener & Kosofsky
J. Immunology 42 : 381, 1941

$K_1 [a_1] \rightleftarrows [E a_1] K_2$ || N sites per cell

stat. st. $x N K_2 = K_1 a_1 N$
fraction filled

$$X_0 = \frac{K_1 a_1}{K_2}$$

for small $\frac{dx}{dt} = a_1 K_1 - x K_2$

$$X = \frac{K_1}{K_2} a_1 (1 - e^{-K_2 t})$$

"time" for saturation $= \frac{1}{K_2} = \frac{x}{K_1 a_1}$

if $\frac{1}{K_2} = 1$ min and $x = \frac{1}{1000}$

$$\frac{1}{K_1 a_1} = 1000 \text{ min}$$

if N = 50 Occupied $\frac{50}{1000}$ and per min 50×10^{-6}

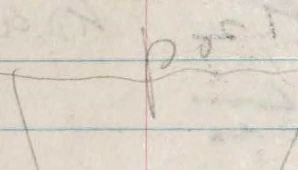
~~My interpretation ... are not encumbered by any knowledge of the field and whose ability to interpret oracles is not impeded therefore~~

Eyebrows wrote who are not encumbered by any knowledge of the field and whose ability to interpret oracles is therefore not impeded

---

$$pv = RT$$

$$p\,dv = C\,dT = \tfrac{3}{2} R\,dT$$

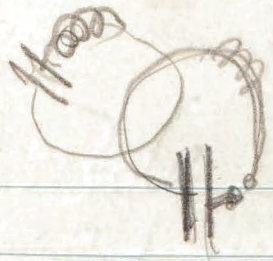


$$\frac{T}{T_0} = \left(\frac{v}{v_0}\right)^{2/3}$$

$$\frac{pv}{p_0 v_0} = R\left(\frac{v}{v_0}\right)^{2/3}\frac{T_0}{R\,T_0} \quad \left(\frac{v}{v_0}\right)^{-2/3} \quad \left(\frac{v}{v_0}\right)^{-5/3}$$

$$\left(\frac{p}{p_0}\right)^{\frac{2}{5}} = \left(\frac{v}{v_0}\right)^{-\frac{5}{3}\cdot\frac{2}{5}} = \frac{T}{T_0}$$

$$\boxed{\frac{p}{p_0} = \left(\frac{T}{T_0}\right)^{\frac{5}{2}}}$$



1 g mol = 600 cal

1 cc $\frac{300}{22000}$ bar

6000 gm cal

24 000 watt sec

24 KW sec

to heat up

1 cc normal density

10^5 cm sec × 300 = $3\,10^7$

$pv = RT$

$\frac{\partial T}{\partial v} dv = \frac{3}{2} \frac{RT}{T}$

$\frac{2}{3} \frac{\partial v}{v} \frac{1}{v} = \frac{dT}{T}$

$\frac{2}{3} d \log v = \log T$

$d \log v^{2/3} = \log T$

$T = v^{2/3}$

A B

300

1 cc

x cc

$x \frac{1}{30}$

factor 3,000 required

$x^{3/3} = 3{,}000^{3/2}$

[50]

$16 \times 10^4 \approx 10^5$

$27\,10^9 = 270\,10^8$

[illegible]

p. 26
31

a rabbit which lack an
iso agglutinin [illegible], and it
~~the [illegible]~~ produce immune
iso agglutinin $\frac{1}{2}$ x 2 Oncodal
for [illegible] much as [illegible] little
[illegible] [illegible]!

p 198
p 199
p 201
p 334 – 335 ! 2 2 2 !
error ?

$\frac{1}{\rho}\frac{d\rho}{dr}$

$\frac{d \ln \rho}{dr}$

$(v + dv)(r + dr)(\rho + d\rho) =$

$= (v + dv)(r\rho + dr\rho + r d\rho) =$

$\frac{d\rho}{\rho}$

$= vr\rho + v\rho dr + vr d\rho + dv r\rho$

$v\rho \not{dr} + vr\frac{d\rho}{dr} + r\rho\frac{dv}{dr} = r\not{dr}\,\dot{\rho}$

~~$\rho(r\,t)$~~

$\rho_0(rt)$

~~$A(\rho\, rt$~~ ~~$\rho = A\rho_0$~~

$v\rho + vr\frac{d\rho}{dr} + r\rho\frac{dv}{dr} = \frac{d\rho}{dr}\frac{dr}{dt}\; r\dot{\rho}$

$\frac{d\rho}{dr} =$

$= \frac{d\rho}{dt}\frac{dr}{dt}$

$\frac{d\rho}{dp}\cdot\frac{dp}{dr}$

$\frac{m}{kT}\frac{dp}{dr}$

$p = \frac{kT}{m}\rho$

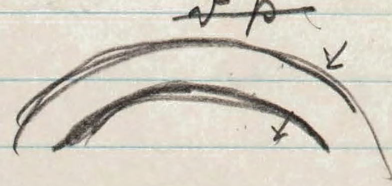
$dp = \frac{kT}{m}d\rho$

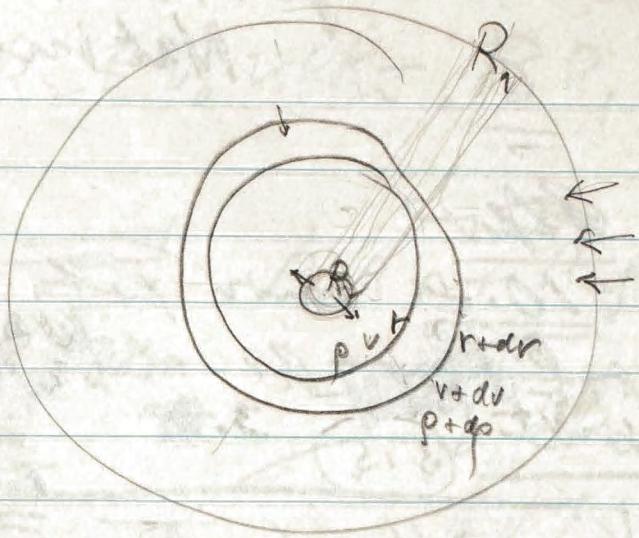
$\frac{d\rho}{dp} = \frac{m}{kT}$

$\frac{1}{2}\rho v^2 + \frac{p}{\rho} = E$ $\left[2\pi(r+dr)\right]\left[(v+dv)(\rho+d\rho)\right] - v\rho 2\pi r$

$\frac{1}{2}\dot{\rho} v^2 + \frac{1}{2} 2\rho v\dot{v} +$

~~$v\rho$~~





$$\frac{V}{r}\,r^2\rho$$

$$r\rho$$

$$(v+dv)\,2\pi(r+dr)(\rho+d\rho) - 2\pi r\rho = 2\pi r\,dr\,\frac{d\rho}{dt}$$

$$\frac{p}{\rho} = kT \qquad pV = nRT \qquad \frac{pV}{mN} = \frac{nRT}{m}$$

$$p/\rho = \frac{kT}{m}$$

$$2\pi rv\rho \qquad 2\pi r\,dv\rho \quad + 2\pi r v\,d\rho$$

$$2\pi r\,d\rho\rho \qquad 2\pi r v$$

$$\rho v\,dt\,2\pi$$

$$dp \cdot kT\,\frac{d\rho}{dt}\,dt$$

$$dp = z$$

$$\frac{d\rho(r)}{dt} = kT\,\frac{d\rho(r)}{dv} = kT\left(\frac{v\rho}{r} + v\frac{n}{kT}\left(\frac{d\rho}{dr}\right) + \rho\left(\frac{dv}{dr}\right)\right)$$

$$= 2\pi r\,dr\,\frac{d\rho}{dv}$$

$$\frac{1}{2}\rho v^2 + \frac{p}{\rho}\cdot E \qquad f\left(\frac{d\rho}{dr}, \frac{dv}{dr}, \frac{d\rho}{dr}\right)$$

$$\rho v\,dv - \frac{p}{\rho}\,d\rho = 0$$

$$\frac{dr}{dr} \qquad \rho v\,\frac{dv}{dr}$$

$$\frac{1}{2}$$

1.3 [illegible]
[illegible]
Nat income

100

6

80. at 6%

~~[illegible]~~

10.8 [illegible] gets

+ 0.70

~~08~~ yrs. 20 invest ~~12~~ 5.75 ~~20~~ 20 at 3½% 3. ~~2.2~~ ~~1.65~~

$3 \times \frac{3}{4} = 2.2$
-0.8
$\frac{1.4}{20} = 7\%$

or 7½% Tax exempt

or 90 × 6 ~~6~~ 5.4

[illegible] 1.2

50% [illegible]

3 dollar
[illegible] 1.50 receive 2.2
diff ~~1.50~~ 0.70

2.46 Tax free

Optimum Taxbracket = ε

~~22~~ - ~~X~~ × $\frac{6}{100}(1-\varepsilon)$

cost

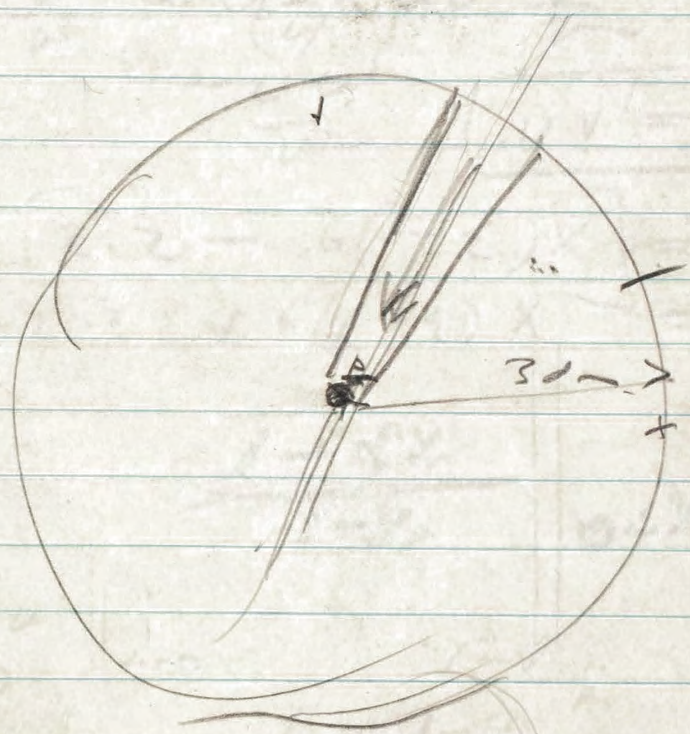
yield = $\frac{2.2 - X \cdot 6\,(1-\varepsilon)}{100 - X}$

$$P_2 R_2 + v_0 v_0 \rho R_2 - P_1 R_1 = \frac{d}{dt}\left(\bar{v}_0 M\right)$$

$$v_0 \bar{v}_0 \rho R_2$$

~~$P_2 R_2$~~

$$P_2 R_2 + R_2 \rho v_0 [v_0 - \bar{v}_0] = P_1 R_1$$

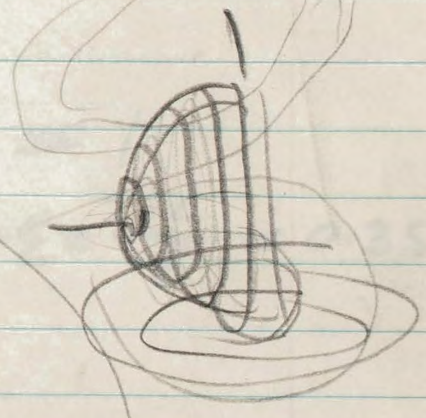


100 Atm

1—1

3,000

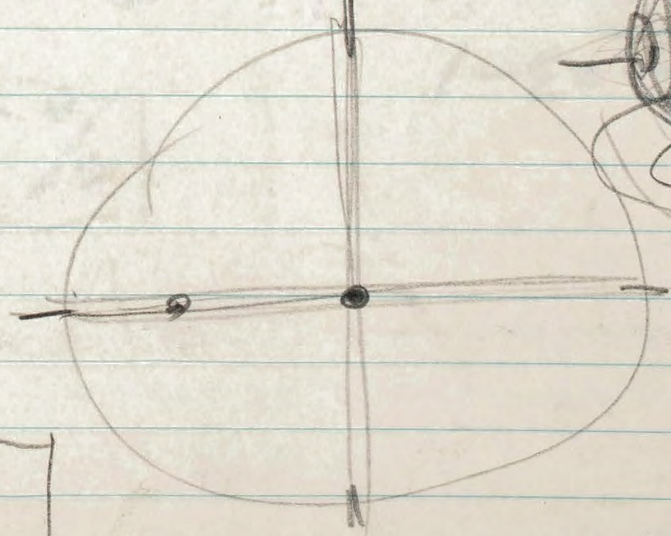
~~30000~~



~~30,000~~

300,000 x

$\frac{1}{1000}$ Atm



0.7 / 50

Maximum

$$+\left[2.2 - 6X(1-\varepsilon)\right] = (1-x)\,6(1-\varepsilon)$$

$$2.2 - 6x(1-\varepsilon)$$

$$\frac{d}{dx}\frac{u}{v} = u\left(\frac{1}{v}\right)' + u'\frac{v}{v^2}$$

$$-\frac{uv'}{v^2}$$

$$\boxed{uv' = u'v}$$

$$-\left[2.2 - 6(1-\varepsilon)X\right] = -(1-X)\,6(1-\varepsilon)$$

$$-2.2 + 6(1-\varepsilon)X = -6(1-\varepsilon) + 6(1-\varepsilon)X$$

$$\frac{1-\alpha x}{1-x} \quad 0<X<1$$

$x = 0$ $y = 0$ $\|$ 1 $\pm\infty$

$$1-x = y$$

$$\frac{1-\alpha(1-y)}{y}$$

$$\alpha = \frac{6}{2.2}(1-\varepsilon) \equiv 1$$

$$1-\varepsilon = \frac{2.2}{6} = 0.35$$

$$\boxed{\varepsilon = 65\%}$$

Cecil's [illegible]
medicine [Sable]
Peters Vale "The Body Waltz"

I 60 day 35 KV γ
D_2 + Te (organic)
K capture

Se (75) 127 days
~~500~~ ½ MEV
D + AS (organic)

AS (73) 67 KV
76 days D + Se

---

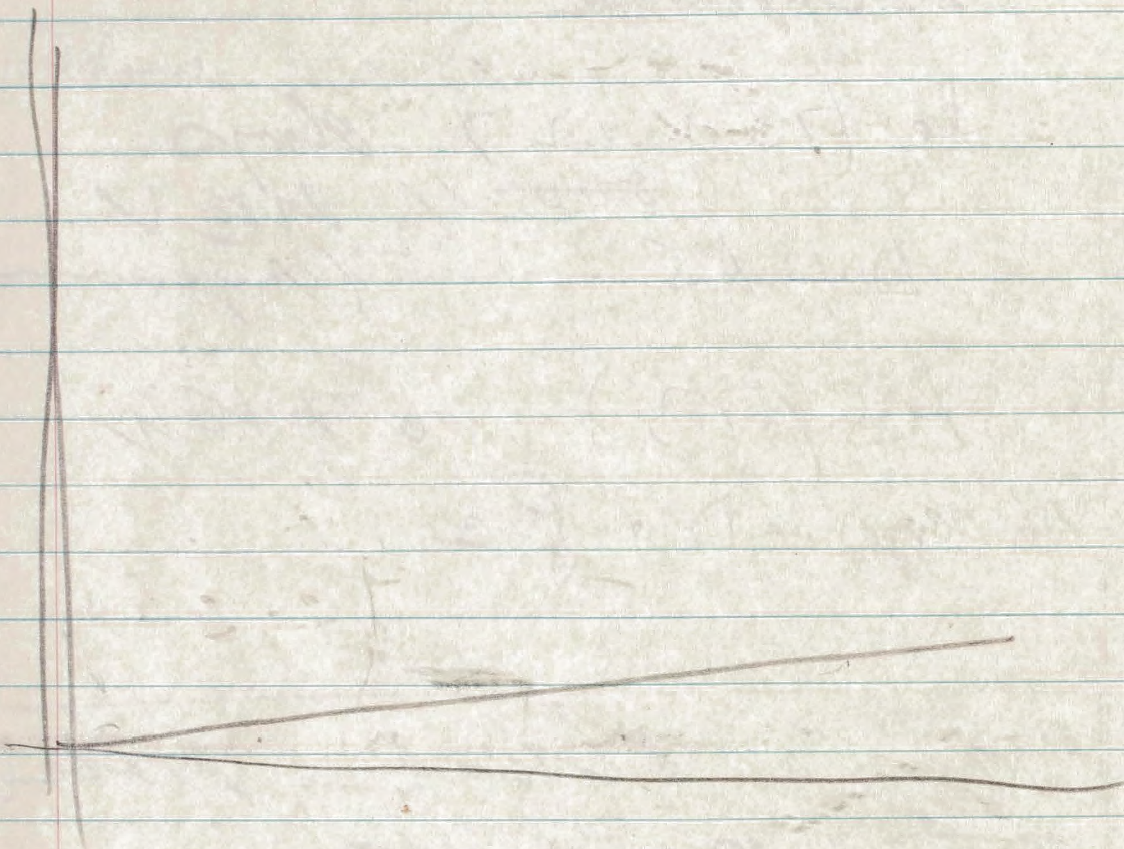
8 day iodine from
Te 130 m-s

Ruthenium ; fission
103 (60 day) ; β
106 (1 year) ; β

Jack Hubert in the organic
(Bones)

free

$\frac{\dot{A}K}{AK+1} = \frac{\text{Fixed}}{\text{hum}}$



Fall off experiments:

We may assume that for low c

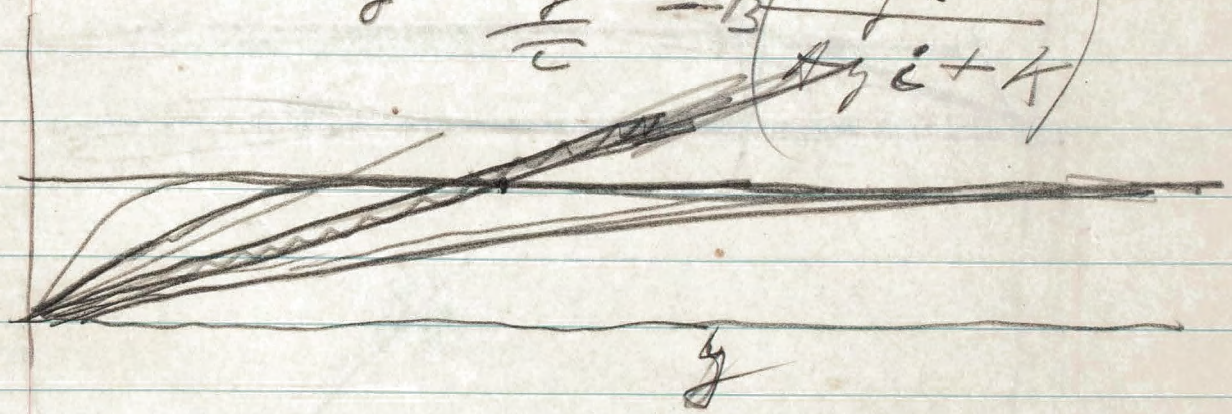
$y = y_i$ — external
i internal

$$\frac{dy_i}{dt} = \beta\left(\frac{y}{y+k}\right)^h - \frac{y_i}{\tau}$$

$f(y_i)$

$y = A y_i$

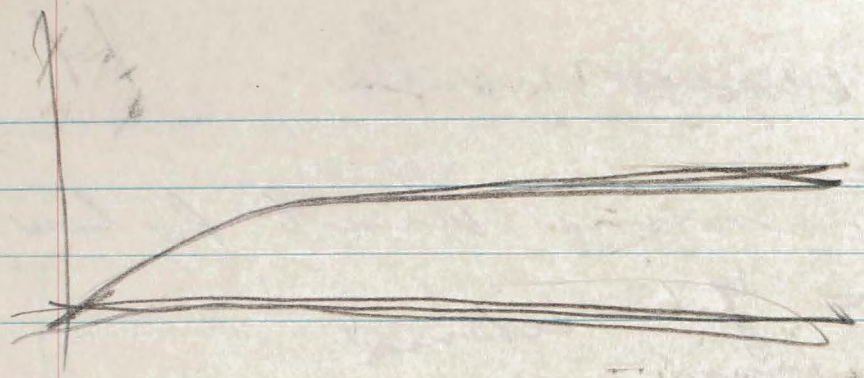
Stationary $\frac{y}{c} = \beta\left(\frac{A y_i}{A y_i + k}\right)^h$

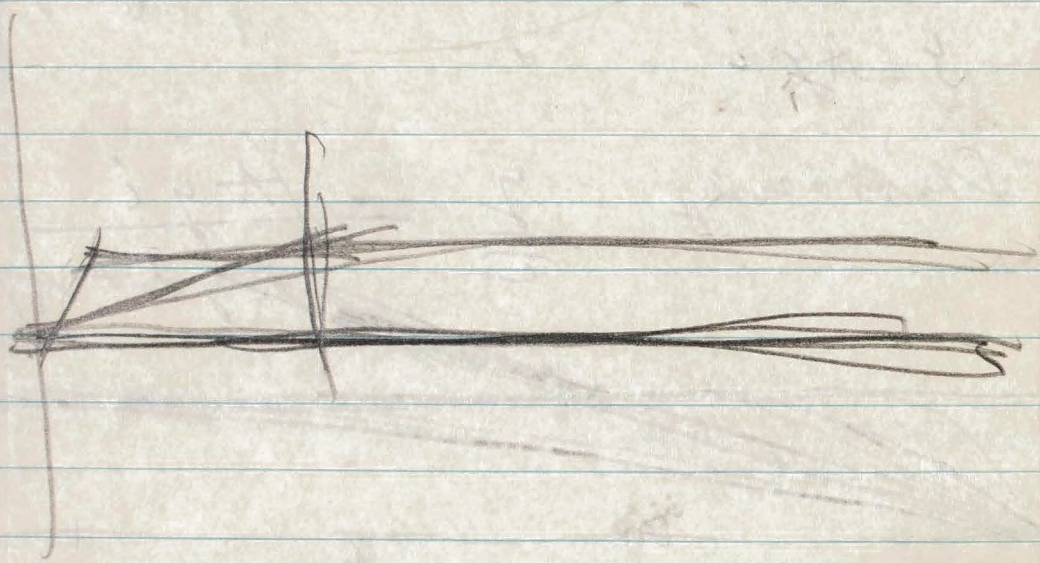


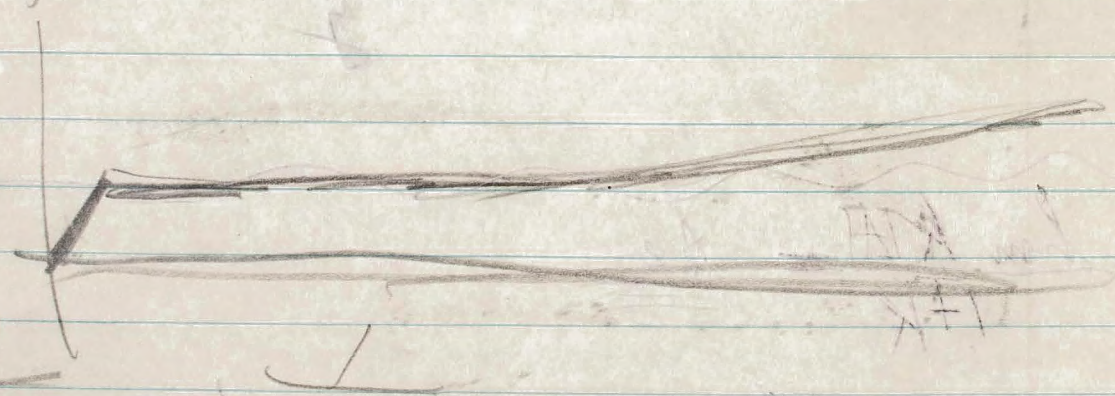
$$\frac{\ln K[A]}{1+K} = \frac{\Delta t}{}$$

$$A = \frac{}{k} \qquad \frac{\ln}{N} \quad \frac{1}{1+\frac{1}{\lambda}} = \Delta k$$

$$\frac{\ln}{[F]} = 1 + \frac{1}{AK} = \frac{AK+1}{AK}$$







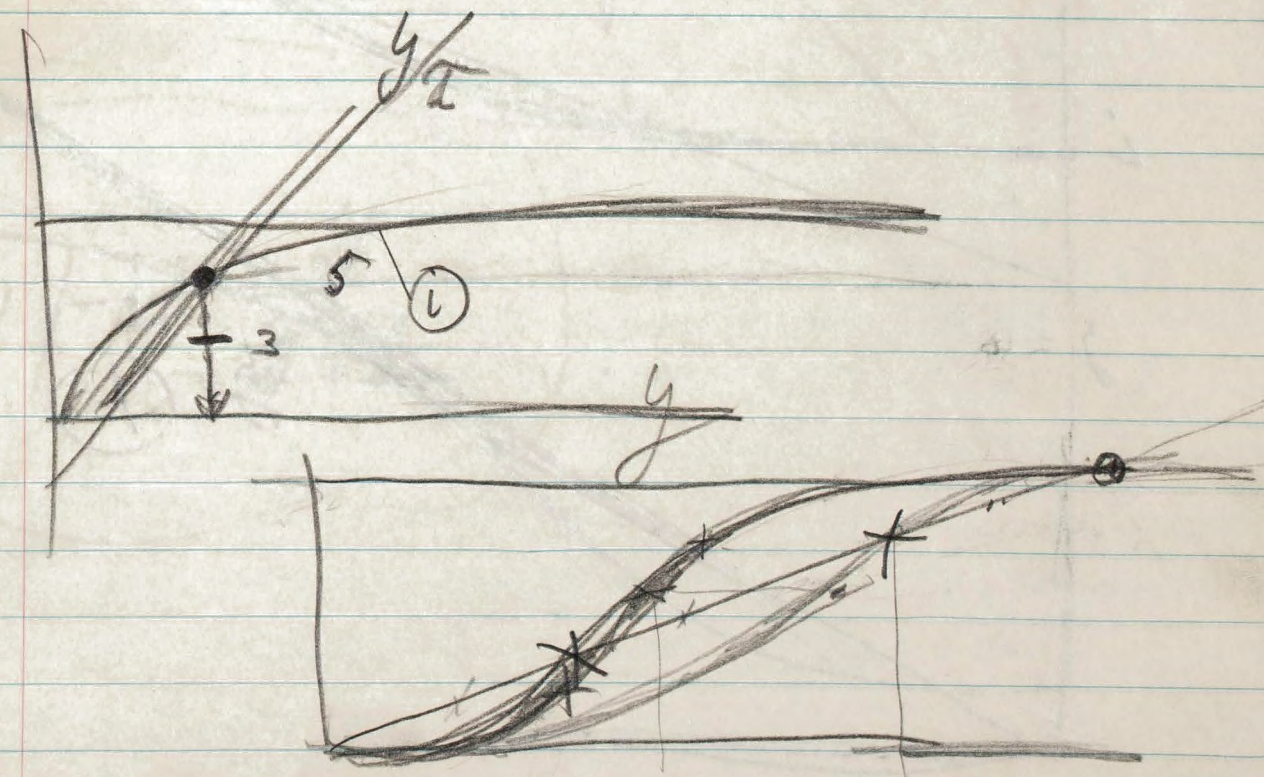
Novick papers

$$y' = S(yi) - \frac{y}{\tau}$$

$$\tau y' = \tau S(yi) - y$$

$$\frac{\tau y'}{y} = \tau \frac{S(yi)}{y} - 1$$

$$\frac{y'}{y} = \frac{S(yi)}{y} - \frac{1}{\tau}$$



November 2

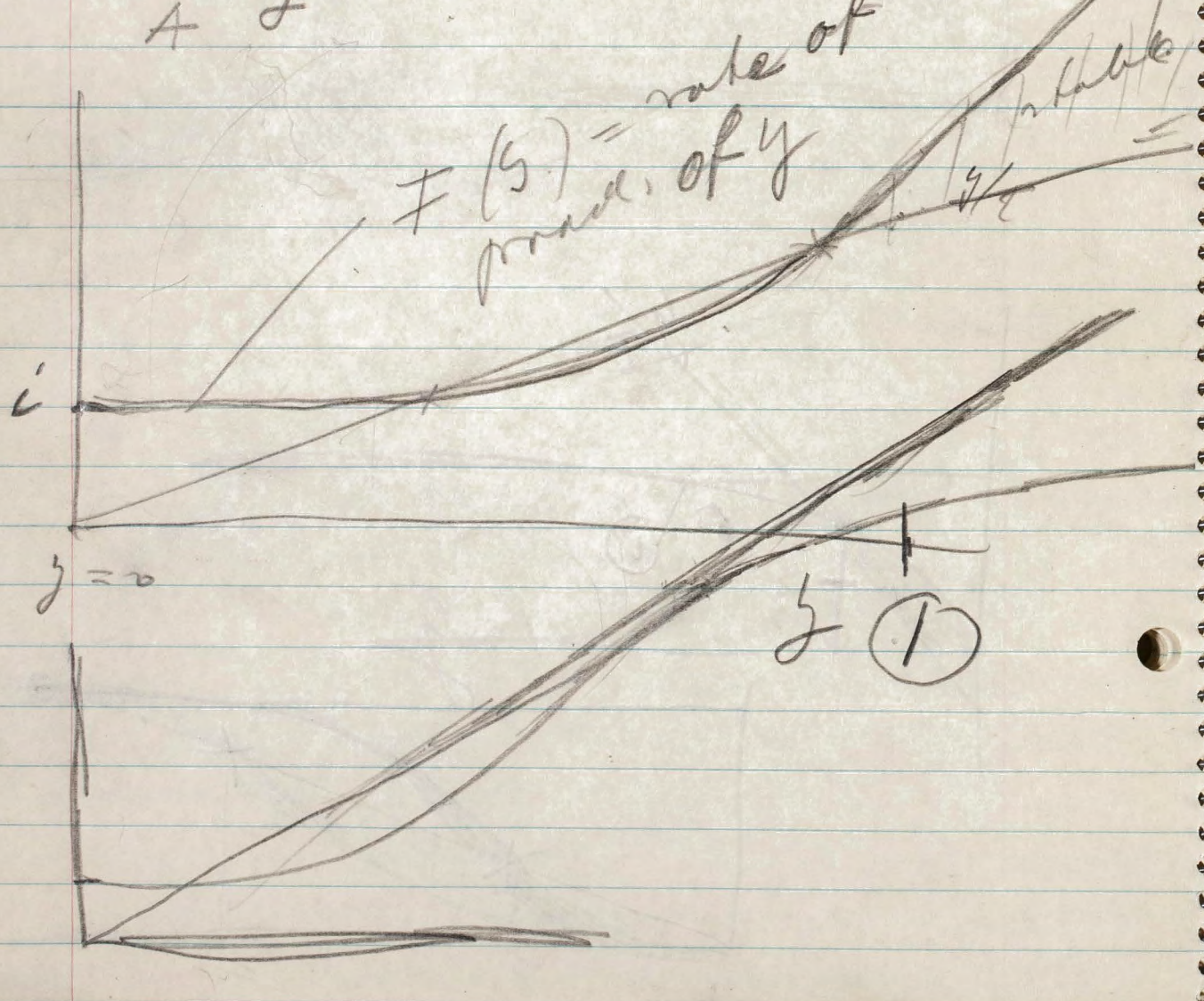
~~[illegible]~~

$B i y$ ~~[illegible]~~ $- A(y - i z) = 0$

~~[illegible]~~ =

$B i y + A i = A y$

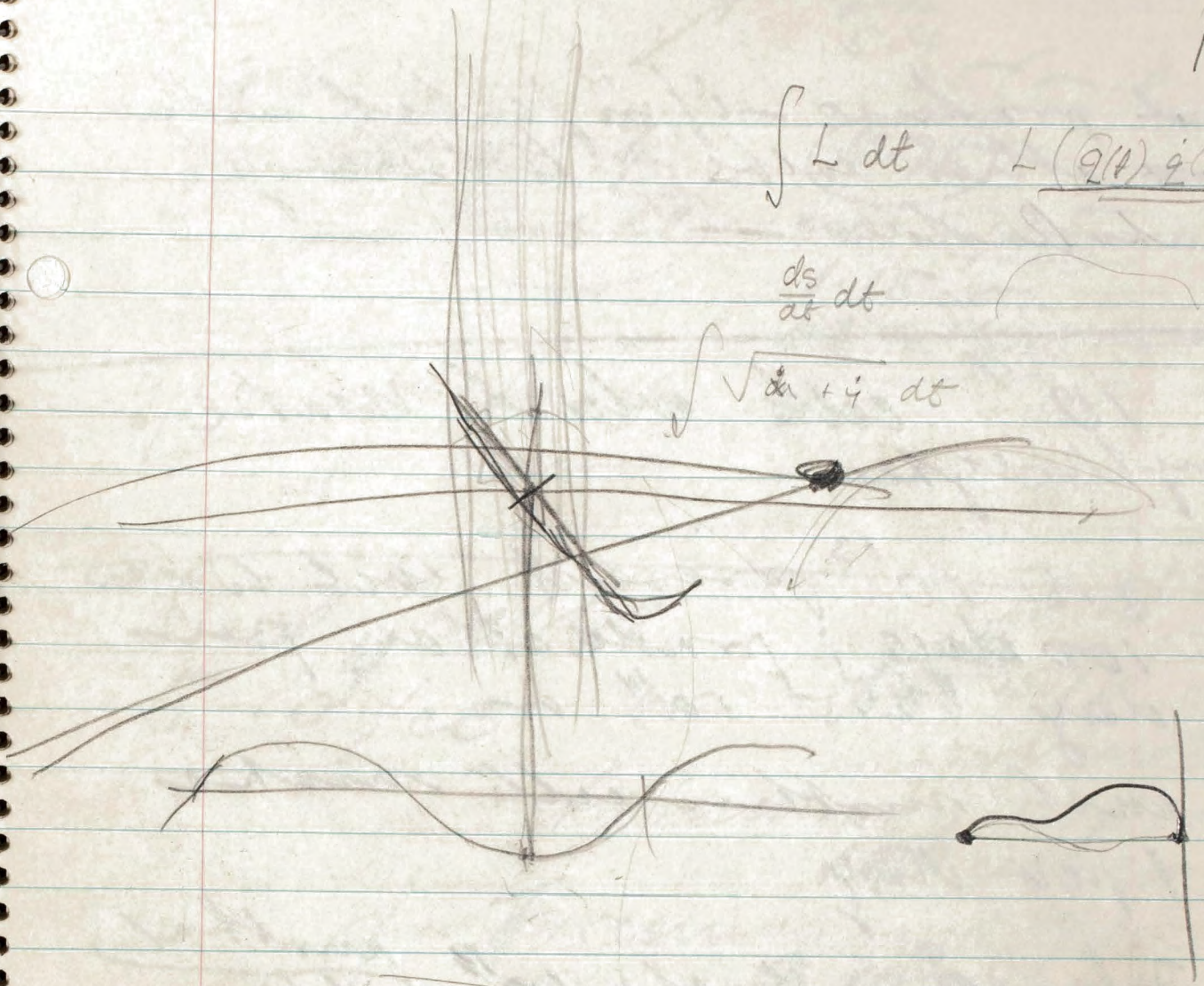
$\frac{B}{A} i y + i = y$



$\int L\,dt \qquad L(q(t)\,\dot{q}(t)\,\ddot{q})$

$\frac{ds}{dt}\,dt$

$\int \sqrt{\dot{x} + \dot{y}}\,dt$



$F(3) = \frac{y}{y+k}$

~~not~~ produce — if injected into ~~our~~ other cells the "wrong" antibodies. —

10^{11} cells which make erythrocytes

2.5 10^{13} present each times 100 days; production per day 2.5 10^{11} or each mother cell make 1 per day

If 10 out of 10^{11} mother cells are mutants we would only produce ~~a level of~~ 1000 ~~sm~~ mutant cells in the blood each 100 days

If 10^{4} or [one ~~in~~ 10^{7}] produce mutant cells we should produce 10^{6} mutant red cells in 100 days.
This is enough; but 100 times less is not enough. —

Tax

90 debt 6% 5.4

~~tax~~ not 1.1

income
gets
5.4
35 (in 10 3 1/2)

5.75

gets 2.25
~~1.10~~
1.15 in
10 dollars invest

4 fold but limited
to 3% per annum

Red cells 2.5 10^{13}

$5 \; 10^{9}$/cc or ~~5x5~~ 25×10^{12} cells present

for immune reaction: 10^{6} cells needed

for forcemm antigen: one in $3 \; 10^{7}$ is enough

Experiment

Take cow blood. Immunize calf.
Absorbent with cow's blood antibodies produced. ~~Take another titer of same~~ Add this + complement
to cow's blood; this should lyse "wrong" ~~blood~~ red cells. ~~on~~
Remaining the red cells should no longer be able to

1 Kg cells in bone marrow
or $6\ 10^{12}$ cells

of these 2% divides or thereupon

of cells, which without further
division become either
red cells or white cells. —

white cells lose a day maybe

10^4 per (mm/mm)^2 in blood

A.H. takes lots of trouble
~~He goes to much trouble~~
to prove that ours is the best
of all possible world but
he wants to say what an
impossible world it is.

What you want to do is to go
out and try to ~~ctr~~ catch a
girl but I must admit
it is not ~~not~~ ~~eay~~ easy
to ~~ctr~~ catch girls because
before you can catch them
they catch you.

The Pergamon Press London
The Journal for nuclear engineering
The Surjet

which would of an
the air every twenty
minutes & they would
begin to appear as soon after
~~the last campaign~~ the campaign
was as the campaign has
been wound up formally
by a speech by Pres. Lee and
address Thereupon

The text of these next
announcements need not
be given under the last
minute. However 3 texts
may be contemplated
Text 1 would be pro de-
mocratic and would
be developed to counter
act a Republican assertion
Text 2 might be as follows
May we have your attention
This is a very important
announcement. The Rumor
that Pres Eisenhower suffered
a heart attack after his speech
last night (or last night) was

Alexander S. Wiener
1943 Blood groups and Transfusion.

N and M not producing to immune antibodies
p. 262 (lower half)
"only extremely rarely stimulates the formation of" also 267 (middle) 118

P occasional natural iso agglut and rarely immune iso agg.
p. 256

Anti A1 p. 45
Anti A2 or anti O

A and B are good antigens in man 267

118
anti A1; anti A2 (or anti O)

Important:
Possession of anti P agglutinin in the rabbit is inherited as a mendelian recessive. (270 bottom)
Stuart, Sawin, Wheeler and Battey, Jour. Immunology 31: 25 / 36
Extra agglutinin 1 seem to be inherited in man as a Mendelian Dominant.
270

Experiment: Assuming that N → M mutation high:
Immunize rabbit with human (NN) blood. — Use Rabbit serum to (absorbed with MM) lyse (MN) blood; some red cells will remain; these should be MM cells. — ~~No good!~~
These cells ~~[illegible]~~ be divided into 2 portions (N) unable to evoke anti-N in Rabbit but able to evoke anti M. These numbers should be reasonable

Names: Extra agglutinine 1 is anti-P. (266)

Rabbit have natural isoagglutinine against their own A antigen — 339 bottom

M and N in Old World monkeys 343 top

M and N in chimpanzee 345

Immune isoagglutinines can be produced in dogs, cats, rabbits, cattle, sheep, chicken, monkeys 346

According to most investigators etc isoagglutination, occasionally of marked intensity occurs

~~[illegible]~~ 50% | 6 min | H

1:250.000 dil

Chimpanzees all A or O (333)

~~[illegible]~~ Orang Utang all A or B

rhesus monkey

Vervet monkey (334)

have isoh. also agg. against antigen not occurring in organs.

Gorillas; ~~vervet~~ vervet and rhesus monkey has each only one blood factor. 337

"If gene O appeared by mutation..." nonsense! p. 337

~~not every~~

"The probable reason for this (low incidence of erythroblastosis) as well as well as the low incidence of intragroup hemolytic reactions due to the Rh factor in patients receiving repeated transfusions is that not every Rh+ individual will produce antibodies to Rh factor. p 372

see also: Wiener Am. Journ. Clin Path 12, 241, 1942

~~E~~Experiment: Cows blood ~~and~~ could be hemolysed with anti G leaving FH cell intact. These few cells should be enough to produce iso immune iso antibody in ~~AB~~ (F S) type calf, and should be lysed by the said calf serum. ~~[illegible]~~

Chicken p. 352

Lancet Apr. 28/56

In white pop. 85 are Rh^+ or $\frac{4}{10}$ of genes is rh and $\frac{6}{10}$ Rh^+

assume $\frac{1}{100}$ children ~~in pop the of mixed marriage~~ of "potential" dic.

If ~~X~~ is fraction of negatives
X^2 negative mothers
$2Xy$ heterozygote fathers
and y^2 homo fathers

H

in sheep, pig, cattle
horses
not according to most
investigators in
lower monkeys, rabbits,
guinea pigs, dogs, cats, mice
and fish [rare or absent]

(346)

Antisera were produced by
weekly transfusion of 1 liter
of blood from a calf to her dam
In a few instances the immunized
animals developed potent type
specific antibodies not
absorbable, and therefore probably
arising from the donor's cells
(349 Wolkam) Ferguson Stormont
and Irwin Jour, Immunol. 44
147. 1942.

Wadell

can not form anti H.

Cow F E   g → H mutant FH

Calf B J

anti H not absorbable by FE

X sh negative gene frequency

fraction of dangerous marriages

$x + y = 1$

~~$x^2 \times (y^2 + 2xy)$~~

~~$\frac{1}{4}\frac{1}{4} x^2 y^2$ ‖ p = Probability of offspring in danger 100%~~ 100%

$\frac{1}{4} x^2 xy$ ‖ $p = 50\%$

Thus deaths of gene. $= \frac{2}{f} \left\{ \frac{1}{16} x^2 y^2 + \frac{1}{8} x^2 xy \right\} = \delta$

$f = 100$

~~loss in x = loss in y~~

loss in x per generation:

~~$(x+y-\delta)$~~ $d\frac{x}{x+y} =$

$\frac{dx\,(x+y) - x\,(dx + dy)}{(x+y)^2}$

$= dx - x\,dx - x\,dy$

to neg

$\lambda \to$

$\frac{\Delta x}{\text{gen}} = \frac{\delta - 2x\delta}{(1-2x)\delta}$

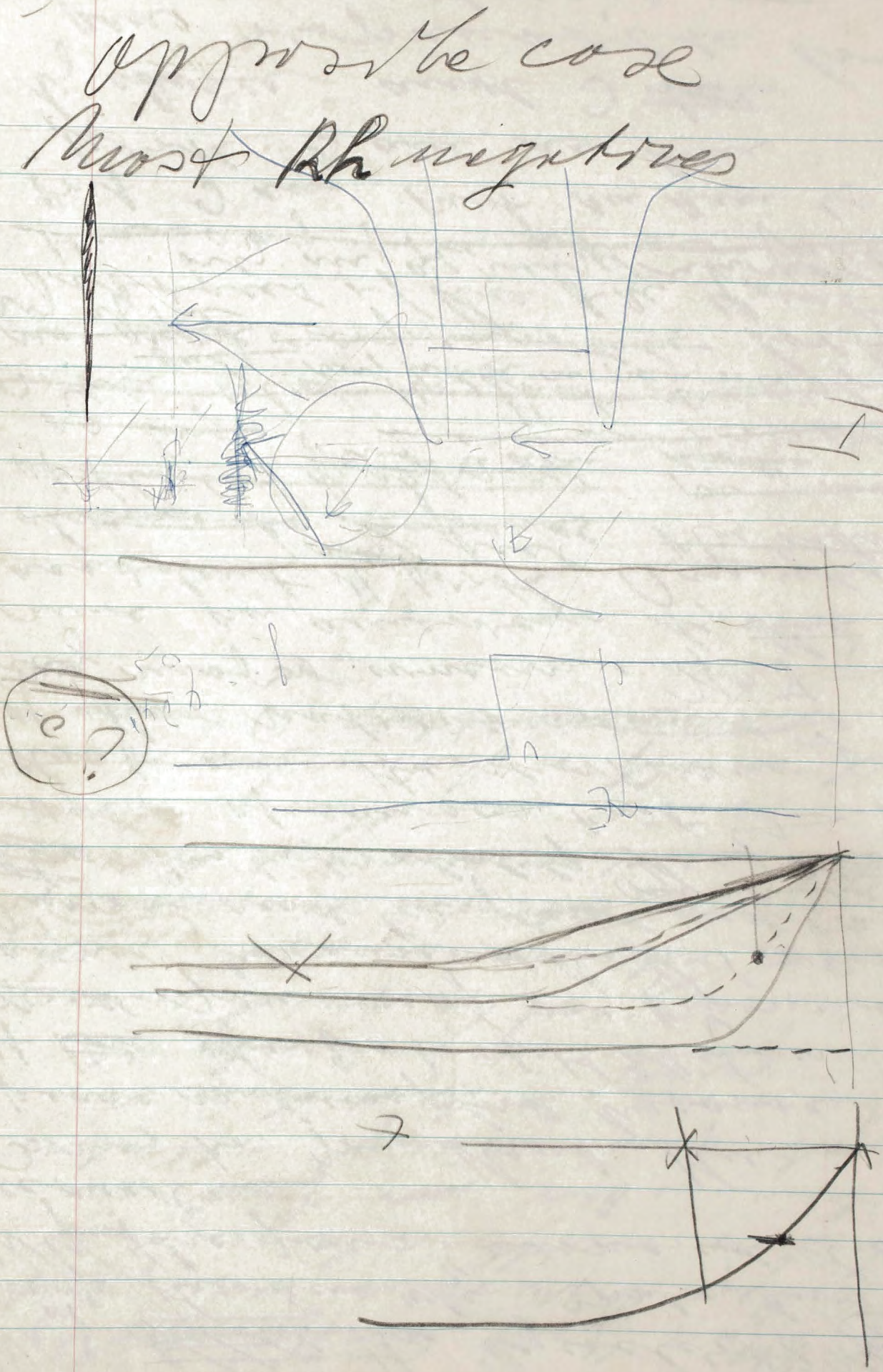
~~If $15/16 = x^2$ ... $\frac{1}{6}\frac{2}{f}\frac{1}{16} \cong$~~

$x = 10\%$

$\frac{2}{f}\frac{1}{16} x^2 \cong \lambda$ mut rate

$x \cong \sqrt{8 f \lambda}$

$\lambda = 10^{-5}$


1
2

~~If~~ Other groups ~~are~~ may not be any better than our own, but that is neither here nor there. Our own group is not good enough — that is the issue. — And there is no ~~good~~ valid reason why it should not be good enough. ~~And~~ Moreover it is impossible to improve matters unless we are determined to avoid one thing above all — self righteousness.

~~Because that~~ I have spoken. —

"Why ~~[illegible]~~ the cyclists?" (14)
said the one who spoke first.
"Why the Jews" answered the
second. —

If I say to you that the
peace is being lost because
of ~~the~~ the fault of the U.S. — as I do —
~~and~~ you may say "Yes we
agree because of the U.S., and
Russia and England and France".
~~The~~ Truth probably ~~they are~~ may would be
right of course. But ~~I~~
~~don't care~~ the shortcoming
of other nations are not
my major concern. If I
were an American by ~~the~~ the
accident of birth I might
~~[illegible]~~ ~~defend~~ feel ~~the interests~~
~~of the U.S. — as~~ ~~that I am~~ ~~[illegible]~~
~~as large~~ ~~in any way as possi-~~
~~ble what they [illegible]~~ very little responsibility
~~no [illegible] responsible~~ for the
any of the actions of the U.S. but
~~[illegible]~~ only in a very minor way
But I am not an Am by
birth I am an Am
by choice and I ~~[illegible]~~
am responsible to
my choice. —

J'accuse.

~~Since I am going to talk about serious matters and perhaps about matters that are tragic it is fitting to start and~~

about the ~~talk~~ title.

It is an unwritten rule that he ~~R~~ who talks about really serious matters ~~about~~ matters ~~but~~ bordering ~~on~~ perhaps the tragic must not ~~pass up a jest if a jest presents itself~~ go out of his way ~~to~~ for the sake of making a joke nor ~~pass~~ must he one up if it crosses his path. After the first world war — so the story goes — one German said to another "We lost the war because of the Jews" ~~and~~ the other nodded and said "Yes I agree because of the Jews and the ~~bicyclist~~ ~~bycicl~~ bycicilists"

65212 0 4