

For land

III

1155E 57 Mr. Low

Chicago Ill

Tuesday Apr. 5. 1949

- Overnight exp-
 • culture of B₁₂ / 2 and - in dark and
 65 cc from PL in light overnight

~~100~~ from
 from dark I $\left\{ \begin{array}{l} 139 \\ 148 \end{array} \right. \times 10^7 \quad [0.4 \cdot 10^9]$
 $\frac{287}{2} = 143$

~~100~~ from
 from light I $\left\{ \begin{array}{l} 60 \\ 50 \end{array} \right. \times 10^6 \quad [5.5 \cdot 10^7]$

0.1% D I + T₇ $\left\{ \begin{array}{l} 214 \\ 212 \end{array} \right. \times 10 = [2.1 \cdot 10^3]$

$\frac{1}{2}$ L I + T₇ $\left\{ \begin{array}{l} 56 \\ 52 \end{array} \right. \times 2 \quad \cancel{6.4} 1.1 \cdot 10^2$

ratio of mutants / Bacteria
 the same for both!

(two days)
 B₁₂ in I given UV for 3 min
 and light reactivation for 1, 2, 3 hrs
 PL tested

after 1 hr PL $\left\{ \begin{array}{l} 1100 \times 2 \\ 3 \end{array} \right. \times 10^4 \rightarrow [6.6 \cdot 10^7]$
 $\frac{1}{2} + T_1 = 30$ } has counted

after 2 hrs PL $\left\{ \begin{array}{l} 731 \\ 720 \end{array} \right. \times 10^5 \quad [7.3 \cdot 10^7]$
 $\frac{1}{2} + T_1 = 27$

after 3 hrs PL $\left\{ \begin{array}{l} 753 \\ \end{array} \right. \times 10^5$
 $\frac{1}{2} + T_1 = 44$ } not counted

Wednesday
Apr 6

Plates from yesterday
F strain made for 2.5 min U.V.

$$\left. \begin{array}{l} \text{F strain} \\ \text{2.5 min U.V.} \end{array} \right\} \begin{array}{l} 269 \\ 246 \\ \hline 503 \\ \hline 2 = 251 \end{array} \times 3 \cdot 10^5 \quad [7.5 \cdot 10^7]$$

$$\left. \begin{array}{l} \text{F strain} \\ \text{2.5 min U.V.} \end{array} \right\} \begin{array}{l} 144 \\ 172 \\ \hline 316 \\ \hline 2 = 158 \end{array} \times 10^4 \quad [1.6 \times 10^3]$$

$$\left. \begin{array}{l} \text{2.5 min U.V. +} \\ \text{1 Plat. PL} \end{array} \right\} \begin{array}{l} 42 \\ 36 \\ \hline 78 \\ \hline 2 = 39 \end{array} \times 10^4 \quad [4 \times 10^5]$$

only
1 in 200
recovery

U.V. series with F strain

$$\left. \begin{array}{l} \text{1/2 min UV.} \\ \text{1 min U.V.} \end{array} \right\} \begin{array}{l} 574 \\ 355 \\ \hline 929 \\ \hline 2 = 464 \end{array} \times 10^5 \quad [4.6 \cdot 10^7]$$

$$\left. \begin{array}{l} \text{1.5 min UV.} \\ \text{2 min UV.} \end{array} \right\} \begin{array}{l} 285 \\ 324 \\ \hline 609 \\ \hline 2 = 304.5 \end{array} \times 10^5 \quad [2.8 \cdot 10^7]$$

$$\left. \begin{array}{l} \text{2.5 min UV.} \\ \text{2 min UV.} \end{array} \right\} \begin{array}{l} 324 \\ 65 \\ \hline 389 \\ \hline 2 = 194.5 \end{array} \times 10^4 \quad [3.2 \cdot 10^6]$$

$$\left. \begin{array}{l} \text{2.5 min UV.} \\ \text{2.5 min UV.} \end{array} \right\} \begin{array}{l} 65 \\ 130 \\ \hline 195 \\ \hline 2 = 97.5 \end{array} \times 10^3 \quad [6.5 \cdot 10^4]$$

$$\left. \begin{array}{l} \text{2.5 min UV.} \\ \text{2.5 min UV.} \end{array} \right\} \begin{array}{l} 130 \\ 130 \\ \hline 260 \\ \hline 2 = 130 \end{array} \times 10^3 \quad [1.3 \cdot 10^3]$$

about
1/3

array before read

(?)

$$\begin{cases} 121 \\ 175 \end{cases} \times 10^6$$

$$\frac{296}{2} = 148$$

$$H \quad [1.5 \cdot 10^8]$$

+ 3 min UV

$$\begin{cases} 320 \\ 330 \end{cases} \times 10$$

$$[3.3 \times 10^3]$$

~~at 30 hrs~~ reduction by $\sim 5/10^4$ reduced to $1/2$ of original array

on the basis of 30 hrs growth
 and average 2.5% per day or 1.65% per day
 1.1% per day

arrays (continued)

Lensiless W
50 hrs incub.

$$\begin{cases} 93 \\ 101 \end{cases} \times 5 \cdot 10^5$$

$$\frac{194}{2} = 97$$

$$[4.85 \cdot 10^7]$$

(at 20 hrs $[6 \cdot 10^7]$)

Pressureless W
50 hrs incub

$$\begin{cases} 368 \\ 371 \end{cases} \times 10^6$$

$$\frac{739}{2}$$

$$[3.7 \cdot 10^8]$$

Unlabeled lensless
50 hrs

$$\begin{cases} 73 \\ 83 \end{cases} \times 10^6$$

$$\frac{156}{2} = 78$$

$$[8 \cdot 10^7]$$

(at 30 hrs $[9 \cdot 10^7]$)

1 array. 1/2 growth period

2 1/2 min UV given to F and W
in future [for 5 hrs] Photocell "58"
light (PL) started 450 min

Programme for selection of numbers

~~10⁸ B/r~~ ~~10⁶ B/r~~

10⁸ B/r

10⁶ B/r

2 10³

2 10

2 10⁵

~~10~~

3 10⁵

10⁸ with 10³ numbers

only doctor 2.5 min
 full train 2.5 min

4

3 min $\left\{ \begin{array}{l} 82 \\ 55 \\ \hline 137 \\ 2 = 68 \end{array} \right. \times 10 \quad [7.10^3]$

W strain

down 4
 5
 10
 needs water
 to 1/2 at 10
 in 1/2
 2.5 min
 + 1 hr PL

array $\left\{ \begin{array}{l} 255 \\ (197) \\ \hline 452 \\ 2 = 225 \end{array} \right. 3 \times 10^5 [7.5 \times 10^7]$

2.5 min $\left\{ \begin{array}{l} 147 \\ 171 \\ \hline 318 \\ 2 = 159 \end{array} \right. \times 10 \quad [1.6 \times 10^3]$

2.5 min + 1 hr PL $\left\{ \begin{array}{l} 370 \\ 420 \\ \hline 790 \\ 2 = 395 \end{array} \right. \times 10^5 \sqrt{\frac{[4 \times 10^7]}{15}}$

tubules small as if light had made
 lag!

~~XXXXXXXXXXXXXXXXXXXX~~

Program

Mo night B/ze 3.5 min 4 min
 Wed 3 min 6 min 9 min
 rec locate with light [mangle overage
 on at 37° for
 1 min V.V. for RH II
 recieve light
 in the Tue
 morning

PWK on V.V. on Tuesday
 morning (mangle P also at 2 min)

The same for ~~beardless~~ W with limited
enrichment of leucine

UV + PL

} 43 x 10



with/out U.V.

or no spontaneous levels

mutations from "leucineless" (W)

} one or
two x 10

† strain shows no spontaneous level
mutations from "methionineless" (P)

Monday Apr 11th / 49

First backmutants exp. of.

H

W was given 2.5 min U.V. and 1 hr PL
+ 100 μ g/ml. on plate [excess of leucine]
of threonine [150 ~~100~~ μ g/ml]
(assay of April 6th shows titer after
2.5 min irradiation of $10^6 \cdot 10^3$, titer after PL
($4 \cdot 10^7$)

back mutation } P19
UV+PL of threonineless } $\times 10$ [P. 2 10^3]
with lin. enrich- }
ment. } or $2 \cdot 10^4 / 10^8$ b. mutant

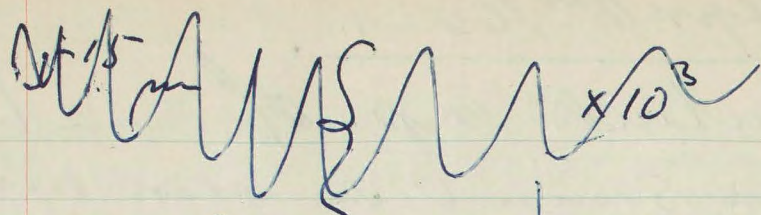
~~UV+PL without U.V.~~ } 26 $\times 10$ $\frac{260}{7.5 \cdot 10^7}$ or
natural back mutants }
per original number plates } $35 / 10^7$ back mutants

(10 μ /l ~~concentration~~ and 30 cc
300 10^{-6} μ g ; taking 2.5 μ g/ml 10^8
~~10⁻⁶ μ g colonies 3.7 $\times 10^7$ lumps in 50 hours~~
~~counted 4 $\times 10^7$ lumps in 30 hours~~
we have $\frac{300}{2.5} 10^8$ lumps giving 26 colonies
1.2 10^9 lumps give 26 colonies or
 $2 / 10^8$

There may have been more threonine though
because we have devalued but not
marked

with U.V. (no PL) } 9 $\times 2$
shows very many long }
colonies apparently on surface [reine.]

if all mutants had grown we would not get 200 colonies on plate, they seem more; could they have survived on surface?

At 15-  $\times 10^3$

$$5^{15} \mu\text{m} \left\{ \begin{array}{l} 240 \\ (370) \end{array} \right\} \times 10^3$$

$$5^{15} \mu\text{m} \left\{ \begin{array}{l} 111 \\ (27) \end{array} \right\} \times 10^2$$

$$6^{15} \mu\text{m} \left\{ \begin{array}{l} 498 \\ (370) \end{array} \right\} \times 10^3$$

$$6^{15} \mu\text{m} \left\{ \begin{array}{l} 167 \\ (27) \end{array} \right\} \times 10^2$$

$$8^{40} \mu\text{m} \left\{ \begin{array}{l} 373 \\ (37) \end{array} \right\} \times 10^4$$

$$8^{40} \mu\text{m} \left\{ \begin{array}{l} 55 \\ (27) \end{array} \right\} \times 10^3$$

$$10^{100} \mu\text{m} \left\{ \begin{array}{l} 84 \\ (37) \end{array} \right\} \times 10^5$$

$$10^{100} \mu\text{m} \left\{ \begin{array}{l} 113 \\ (27) \end{array} \right\} \times 10^3$$

or in Gauss at 37° rise from 300 to 6×10^6
 " 27° from 140 to 9×10^4

$$\approx \frac{2 \times 10^4}{6.4 \times 10^2}$$

$$\frac{\ln(370)}{\ln(270)} \approx \frac{1 + 4 \times 2.3}{2 + 2 \times 2.3}$$

$$\frac{1 + 9}{6.6} = \frac{10}{6.6} = 1.5$$

Tuesday Apr 12/48

Growth of *B. lutea* at 27° and 37° with *H. longus*

10³⁰ AM } 90
(37°) } x 10

10³⁰ AM } 134
(27°) } x 10

11³⁰ } 151
(37°) } x 10

11³⁰ } 122
(27°) } x 10

12 noon } 191
(37°) } x 10

12⁰⁰ noon } 122
(27°) } x 10

140 μm } 900
(37°) } x 10

140 μm } 180
(37°) } x 10

R₂ }
R₁ }

230 μm } 183
(37°) } x 10²

230 } 198
(27°) } x 10

3⁰⁰ μm } 293 x 10²
(37°) }

3⁰⁰ μm } 276 x 10²
(27°) }

10 } 93
4 μm } x 10³

4¹⁰ } 625 x 10
(27°) }

771
x 10²

58
x 10²

Wedn Apr 12 X-ray-light Exp I
18 min. X ray on B/r (in Saline
overnight from 4 pm to 8 pm) fish
has larvae; 7 cm tube from X-

ray tube; 565 r/min
put on P light 9:36 AM [slight
light exposure in tube - 3 lab.]
Out of light (larvae) later
groundy up dark " in 1:20 solution
and "light" "

Yesterday's experiment No 4
R, W, K12 were given 3 min dose VV 4
at Photocell 45 corresponding to 2.5 units OU
(at standard photocell value 60) "
ferry } 33 $\times 10^6$

Tuesday Apr 12/49

Exp 104

irrad. f, W. and K₁₂ for
" 2 1/2 min" and remove panel w with
P, L. and K₁₃ with Spot light
lungs were in balance for ~~2~~ hours at
Pemberton 45 order: f, W, K.

irrad 3 min 20 sec

irrad ended at 1145 AM

light started PL with K₁₂ W } 12 noon
distance from PL with K

edge of SL to center of tubes } SL with f + Mebrin + P₁₂ at 12¹⁰ pm

5 cc W + 5 cc f in incubator in the dark (road) at 12¹⁵ pm light given at 5 pm

2 samples from f, W, K taken at 1⁰⁵ pm
2 sample from f + Mebrin culture at 1²⁰ pm

Exp 4 put on PL at 3⁴⁴

Exp 7 3²⁰ see UV (Pemberton read 46) + light (PL)

samples for Exp 7 should be done at

404, 4¹⁴ 444 ||

2 min 30 min 1 hr

Thursday Apr 14

Cap No 2 from yesterday

$$\begin{array}{r} \text{B/r} \quad \text{avg} \quad \left\{ \begin{array}{l} 379 \\ 356 \end{array} \right. \times 3 \cdot 10^5 \\ \hline 735 \\ \hline 2 = 367 \times \end{array} \quad [1.1 \cdot 10^8]$$

4.5/10⁵

$$\left\{ \begin{array}{l} 3 \text{ min, } 20 \text{ sec UV} \\ \text{Machell 45} \end{array} \right. \left\{ \begin{array}{l} 117 \\ 349 \end{array} \right. \begin{array}{l} \times 2 \\ \\ \end{array} \begin{array}{l} [232] \\ \\ \end{array}$$

+ 1 hr PL

or about $\frac{1}{3}$ of original titer

$$\begin{array}{l} \times 10^5 \\ [3.5 \cdot 10^7] \end{array}$$

after 10 hours incubation at 37°
and overnight in rec-box light (PL
when today about noon
~~in~~

No 1 Cap from yesterday

1 min 20 sec U.V

$$\begin{array}{r} \text{Avg} \quad \left\{ \begin{array}{l} 236 \\ 223 \end{array} \right. \times 10^5 \\ \hline 459 \\ \hline 2 = 229 \end{array} \quad \begin{array}{l} (1.1 \cdot 10^8) \\ [2.3 \cdot 10^7] \end{array}$$

Wash Apr 13 B/r in saline
Exp. No 2 6 min 20 sec. UV. at Photocell 47
started 1 hr light PL at 1155 AM
" dark incubation at 1150 AM
(dark incubation without aeration)

~~started at 1150~~

Exp No 1

incubated 10 min
trans. cond. -

B/r given 1 min 20 sec UV. at
photocell 45+

6 min. sample incubated (at 7 to 20
darkness) at 150 min

20, 30, 60 min light (PL) given
to another sample, aliquots
withdrawn & incubated 1 hr 20 and in-
cubated. PL starts at 152 min
ends " 252 min

Exp No 3

3 min 20 sec

B/r is irradiated 3 min at Photocell 45
" " " 6 min 40 min " " "

then then given 1 hr PL light.
The 6 min 40 sec sample lost 2 cc amt of
vol by evaporation. — light started at 345 min

340-450-550

Exp No 2 from yesterday given
 1 1/2 hrs Plate now done
 Plated at 520 pm / sitting in room
 exposed to light between (245 pm and
 520 pm)

Exp 3 Plates from yesterday

3 min 20 sec } 58 X 10
 UV

3 min 20 sec } 328 x 2 [6.6 10²]
 UV

3 min 20 sec } 160
 UV + 1 hr PL } 145 x 10⁵ [1.5 x 10⁷]
 123
~~305~~
 134

~~3 min 20 sec~~
~~UV~~
~~3 min 20 sec~~
~~UV + 1 hr PL~~

6 min 40 sec } 20 X 2
 UV } 14

34
~~[1.1 x 10²]~~

6 min 40 sec } 61
 UV + 1 hr PL

10² [6 10³]

H

$$+ 20m PL \left\{ \begin{array}{l} 558 \\ \underline{547} \end{array} \right. \times 10^5 \quad [5.5 \cdot 10^7]$$

$$+ 30m PL \left\{ \begin{array}{l} 556 \\ \underline{506} \end{array} \right. \times 10^5 \quad [5.2 \cdot 10^7]$$

1 hr PL { new stake
 eroded
 plates

X-ray Crystal Exp No. 1 plates
 from yesterday

array

$$\left\{ \begin{array}{l} 346 \\ 329 \\ \underline{675} \\ \quad 2 \end{array} \right. \times 3 \cdot 10^5 \quad [1 \cdot 10^8]$$

$$= 337$$

after X-ray

$$\left\{ \begin{array}{l} 200 \\ 161 \\ \underline{361} \\ \quad 2 \end{array} \right. \times 10^5 \quad [1.8 \cdot 10^7]$$

$$= 180$$

no detect + PL
 within

$$\left\{ \begin{array}{l} 170 \\ 149 \end{array} \right. \times 10^5$$

$$\left[\begin{array}{r} 160 \\ 400 \\ \hline 200 \end{array} \right]$$

Weight
+ T₁
back
+ T₁

$$\left\{ \begin{array}{l} 68 \times 300 \\ [2 \times 10^4] \\ 1221 \\ 1055 \times 10 \downarrow \\ \hline 2276 \\ \times 2 = 1138 \end{array} \right. \quad [1.1 \times 10^4]$$

$$\boxed{1650 / 10^4}$$

No decrease in mutants
of 1 hr PL after X-ray
irradiation of prokaryotes
of B from saline

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

Light grew up $\times 1600$
 $\times 500$ would be plenty

~~2000 would~~

back now $\times 670$

Day No 1 plates from
yesterday

(after X-ray)

back assay

$$\left\{ \begin{array}{l} 654 \\ 765 \times 10^6 \\ \hline 1419 [7 \times 10^6] \end{array} \right.$$

light assay

$$\left\{ \begin{array}{l} 458 \\ \times 10^6 [4.6 \times 10^6] \\ \text{unincubated} \end{array} \right.$$

Friday Apr 15

H

Exp No 2 plates from yesterday after this PL

array before exposure to light

$$\left. \begin{array}{l} 137 \\ \times 10^2 \end{array} \right\} \boxed{1.3 \cdot 10^4}$$

↓

$$\left. \begin{array}{l} 98 \times 110 \\ [200] \end{array} \right\}$$

for 10 hours ^{rest} at 37° reduces reaction activity

unchanged

this went up to $3.5 \cdot 10^7$ before rest

X-ray exp after repair:

Dark array

$$\left\{ \begin{array}{l} 717 \times 10^6 \\ 620 \end{array} \right. = [6.7 \cdot 10^8]$$

$$\frac{1337}{2} = 668$$

Light array

$$\left\{ \begin{array}{l} 514 \\ 538 \end{array} \right. \cdot 3 \cdot 10^6 = [1.6 \cdot 10^9]$$

$$\frac{1052}{2} = 526$$

Light + T1

$$\left\{ \begin{array}{l} 763 \times 30 \\ 825 \end{array} \right. = [24,000]$$

$$\frac{1588}{2} = 794$$

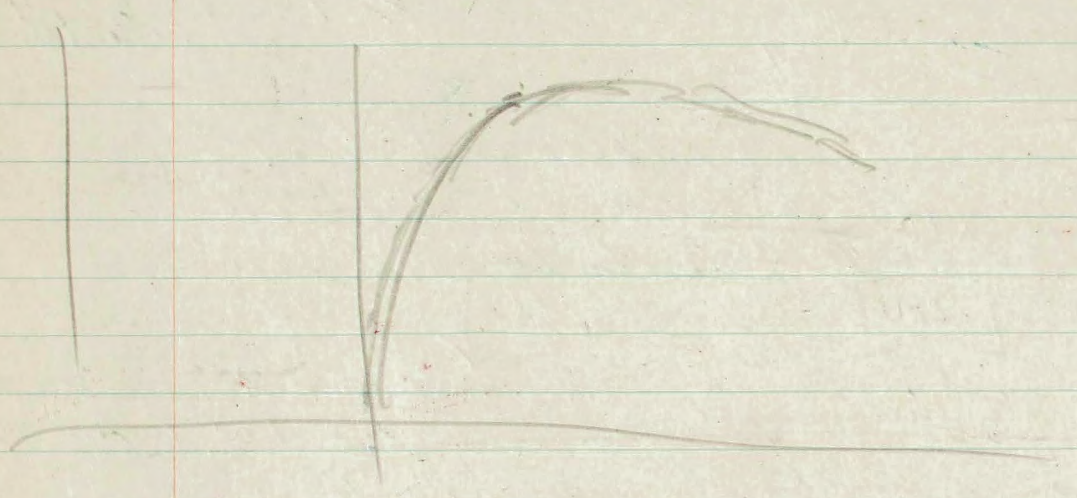
Dark + T1

$$\left\{ \begin{array}{l} 101 \\ \times 100 \end{array} \right. [10^4]$$

or $\boxed{1509 / 10^8}$

24000
162
153
150

less than factor 2 between T_1 and T_2 mutants! - This compares with natural mutation rate



Wednesday Apr 20

UV - Light mutation exp
on B/r in saline
plates from yesterday

B/r array $\left\{ \begin{array}{l} 164 \\ 165 \end{array} \right. \times 610^5 [1 \times 10^8]$

30 sec UV $\left\{ \begin{array}{l} 100 \\ \text{Dark} \end{array} \right. 610^5 [6 \times 10^7]$

50 sec UV $\left\{ \begin{array}{l} 239 \\ 220 \end{array} \right. \times 210^5 [4.5 \times 10^7]$
Dark

80 sec UV $\left\{ \begin{array}{l} 119 \\ 105 \end{array} \right. \times 210^5 [2.2 \times 10^7]$
Dark

Phenicol!
57

Exp 1 continued

W

one on 2

Light + T₁

$$476 \times 10$$

$$\left[4760 \right]$$

$$\text{or } \boxed{1000/10^8}$$

Dark

+ T₁

$$547$$

$$573$$

$$\times 100$$

$$\left[56,000 \right]$$

$$\frac{1120}{2} = 560$$

$$\text{or } \boxed{8000/10^8}$$

These have better response from 2.3×10^7 to 20×10^7 (D)

$$\rightarrow 4.6 \times 10^8 (4)$$

Dark by factor 600

Light by factor 400

Dark & lines as well in umbra as light (original paper drops due to UV. 4.8 ray: 5)

Exp No 1 continued

after repair:

Dark + T₂

$$\left\{ \begin{array}{l} 106 \times 1000 \\ \text{or } [1.4 \times 10^4 / 10^8] [10^5] \end{array} \right.$$

Light + T₂

$$\left\{ \begin{array}{l} 117 \times 100 [1.2 \times 10^4] \\ \text{or } [2.8 \times 10^3 / 10^8] \end{array} \right.$$

one in 5.5

Wednesday, cont.

Influence of light intensity
on B₁₂ reactivation of
plates from yesterday

B₁₂ 3 min UV
Dark $\left\{ \begin{array}{l} 299 \\ 351 \end{array} \right. \times 2 \quad [650]$

[Dose 1×10^8]

$$\frac{650}{2} = 325$$

3 min UV
1 hr SL at 24" (45 div)

$$\left\{ \begin{array}{l} 270 \\ 55 \end{array} \right. \times 6 \times 10^4 [1.6 \times 10^5]$$
~~$$\left\{ \begin{array}{l} 270 \\ 55 \end{array} \right. \times 3 \times 10^4 [1.1 \times 10^5]$$~~

1 hr SL at ~~44"~~
36" (23 div)

$$\left\{ \begin{array}{l} 400 \\ 310 \end{array} \right. \times 3 \quad [1.2 \times 10^6]$$

Optimales

L	L
0	0
210 ⁹	10 ⁹
30	30
10 ⁹	10 ⁹
50	50
10 ⁹	10 ⁹
80	80
510 ⁸	510 ⁸

5 1 hr SL at 16" (90 div)

5
6
0
5
0
11

$$\left\{ \begin{array}{l} 88 \\ 99 \\ 187 \end{array} \right. \times 3 \times 10^5$$

$$\frac{187}{2} = 93 \quad [2.5 \times 10^7]$$

511/10⁸

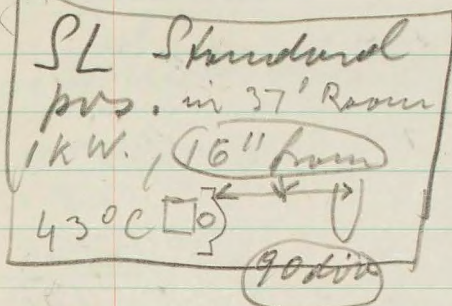
Wednesday cont.

No U.V

+ 1 hr SL

$$\begin{array}{r} 121 \\ 146 \\ \hline 267 \\ 2 \\ \hline = 133 \end{array} \quad \begin{array}{l} \times 610^5 [810^7] \\ \text{(full beam 164)} \end{array}$$

20%
off
comp



$$\begin{array}{r} 30 \text{ sec UV} \\ + 1 \text{ hr SL} \\ \hline 137 \\ 142 \\ \hline 279 \\ 140 \\ \hline \end{array} \quad \begin{array}{l} \times 610^5 [8.510^7] \end{array}$$

$$\begin{array}{r} 50 \text{ sec UV} \\ + 1 \text{ hr SL} \\ \hline 119 \\ 127 \\ \hline 246 \\ 2 \\ \hline = 123 \end{array} \quad \begin{array}{l} \times 610^5 [7.510^7] \end{array}$$

$$\begin{array}{r} 80 \text{ sec UV} \\ + 1 \text{ hr SL} \\ \hline 94 \\ 123 \\ \hline 217 \\ 2 \\ \hline = 108 \end{array} \quad \begin{array}{l} \times 610^5 [6.510^7] \end{array}$$

[after irradi. all the above were
obtained 1 to 20 in F medium
and incubated overnight, -] the
reproth are to be plated today
at 3 pm. -]

Apr 21

reprints!

$$30 \text{ sec UV } \left\{ \begin{array}{l} 217 \\ 199 \\ \hline 416 \\ 2 \end{array} \right. \times 610^6 \quad [1.25 \times 10^9]$$

(D)

$$30 \text{ sec } \left\{ \begin{array}{l} 95 \\ + T_1 \end{array} \right\} \times 100 \quad \boxed{750/10^8}$$

$$30 \text{ sec } \left\{ \begin{array}{l} 90 \\ + T_6 \end{array} \right\} \times 100 \quad [720/10^8]$$

$$30 \text{ sec } \left\{ \begin{array}{l} 448 \\ + T_7 \end{array} \right\} \times 100$$

$$\frac{44800}{12.5 \times 10^8}$$

$$= \boxed{\frac{3750}{10^8}}$$

$$30 \text{ sec UV } \left\{ \begin{array}{l} 243 \\ 203 \\ \hline 446 \\ 2 \end{array} \right. \times 610^6 \quad [1.35 \times 10^9]$$

(L)

$$30 \text{ sec } \left\{ \begin{array}{l} 184 \\ + T_7 \end{array} \right\} \times 20 \quad [270/10^8]$$

$$30 \text{ sec } \left\{ \begin{array}{l} 112 \\ \times 20 \\ \hline 2240 \\ 13.5 \times 10^8 \end{array} \right. = [165/10^8]$$

$$30 \text{ sec } \left\{ \begin{array}{l} 574 \\ + T_7 \end{array} \right\} \times 20 \quad \frac{11500}{13.5 \times 10^8} = \boxed{\frac{850}{10^8}}$$

B/r exp photocell reads [59]

W/Threonine exp hl

1 run 20 sec UV at [56.5]

PL started at 5:30 pm

Thursday Apr 21st

repeats [B/r] experiment

array 0 sec UV { 312 $\times 10^7$ [3.1 $\times 10^9$]
(D)

~~array~~ + T₁ { 1032 $\times 2$
(D) $\frac{2064}{31 \times 10^8} = [66.5 / 10^8]$

+ T₆ { 578 $\times 2$ $\frac{1156}{31 \times 10^8} = [37 / 10^8]$
(D)

+ T₇ { 286 $\times 20$ $\frac{5720}{31 \times 10^8} = [185 / 10^8]$

array 0 sec UV { 89 $\times 10^7$ [9 10^8]
(L)

+ T₁ { 400 $\times 2$ $\frac{800}{9} = [90 / 10^8]$
(L)

Apr 21

$$1 \text{ } \rho_0 \text{ sec } \left\{ \begin{array}{l} 334 \\ 353 \times 3 \cdot 10^6 \\ \frac{687}{2} = 343 \end{array} \right. [1 \times 10^9] \quad \rho_0 \text{ sec } \left\{ \begin{array}{l} 220 \\ \times 300 \\ [6600 / 10^8] \end{array} \right. + T_1$$

$$\rho_0 \text{ sec } \left\{ \begin{array}{l} 210 \\ \times 300 \\ [6300 / 10^8] \end{array} \right. + T_6 \quad \rho_0 \text{ sec } \left\{ \begin{array}{l} 1055 \\ \times 300 \\ [32000 / 10^8] \end{array} \right. + T_7$$

$$\rho_0 \text{ sec } \left\{ \begin{array}{l} 257 \\ 238 \times 3 \cdot 10^6 \\ \frac{495}{2} = 250 \end{array} \right. [7.5 \cdot 10^9] \quad \rho_0 \text{ sec } \left\{ \begin{array}{l} 100 \\ \times 50 \\ \frac{5000}{7.5 \times 10^8} \\ [670 / 10^8] \end{array} \right. + T_1$$

$$\rho_0 \text{ sec } \left\{ \begin{array}{l} 98 \\ \times 50 \\ [670 / 10^8] \end{array} \right. + T_6 \quad \rho_0 \text{ sec } \left\{ \begin{array}{l} 601 \\ \times 50 \\ \frac{30000}{7.5 \times 10^8} \\ = [4000 / 10^8] \end{array} \right. + T_7$$

Apr 21

H

retrams (cont:)

$$50 \text{ sec UV } \left\{ \begin{array}{l} 426 \\ 443 \end{array} \right\} \times 3 \times 10^6 \quad [1.3 \times 10^9]$$

$$D \left\{ \frac{869}{2} = 435 \times \right.$$

$$50 \text{ sec } \left\{ \begin{array}{l} 95 \\ + T_1 \end{array} \right\} \times 300$$

$$\frac{2.85 \times 10^4}{13 \times 10^8} = [2.2 \times 10^3 / 10^8]$$

$$+ T_6 \left\{ \begin{array}{l} 65 \\ 300 \end{array} \right\}$$

$$\frac{19500}{13 \times 10^8} = [1500 / 10^8]$$

$$T_7 \left\{ \begin{array}{l} 450 \\ \times 300 \end{array} \right\}$$

$$\frac{135000}{13 \times 10^8} = [104 / 10^8]$$

$$50 \text{ sec UV } \left\{ \begin{array}{l} 357 \\ 352 \end{array} \right\} \times 3 \times 10^6 \quad [1.1 \times 10^9]$$

$$L \left\{ \frac{709}{2} = 355 \right.$$

$$+ T_1 \left\{ \begin{array}{l} 287 \\ \times 300 \end{array} \right\}$$

$$\frac{8600}{11 \times 10^8} = [785 / 10^8]$$

$$+ T_6 \left\{ \begin{array}{l} 230 \\ \times 300 \end{array} \right\}$$

$$[630 / 10^8]$$

$$+ T_7 \left\{ \begin{array}{l} 1118 \\ \times 300 \end{array} \right\}$$

$$\frac{33500}{11 \times 10^8} = [3000 / 10^8]$$

Friday Apr 22nd

W/T exp
plates from two days ago

$$\begin{array}{r} \text{array} \left\{ \begin{array}{l} 35 \\ 42 \end{array} \right. \times 310^5 \\ \text{(birth plate)} \end{array} \quad \begin{array}{l} \\ \\ \hline - 38 \times 3 \end{array} \quad [1.0810^5]$$

$$\begin{array}{r} 1 \text{ min } 20 \text{ sec UV} \\ \text{(birth plate)} \end{array} \left\{ \begin{array}{l} 9 \\ 9 \end{array} \right. \times 10^5 \quad [2.10^5]$$

$$\begin{array}{r} 1 \text{ min } 20 \text{ sec UV} \\ \text{+ 1 hr SL} \end{array} \left\{ \begin{array}{l} 13 \\ 7 \\ \hline 20 \\ \hline 2 \end{array} \right. \times 310^5 \quad [2.310^6]$$

Mirrored plates not ready
set.

B/c exp continued

Plates of "reynow" at 80 sec UV

"Dark" show "complex"

instants

on $T_1 + T_6$

$$\left\{ \begin{array}{l} 12 \\ 18 \end{array} \right. \times 2$$

$T_1 + T_7$

$$\left\{ \begin{array}{l} 12 \\ 18 \end{array} \right. \times 2$$

$$\left. \begin{array}{l} \text{on } \left\{ \begin{array}{l} 25 \\ 25 \end{array} \right. \times 2 \\ T_6 + T_7 \end{array} \right\}$$

Apr 21

H

Exp ~~at~~ ~~each~~ W
UV inactivation

array { 37 310⁵
33 } [10⁷]

2.5 min { Dark 2.5 UV } { ~~33 (cont)~~ 4 x 10⁴ }
{ 2.5 UV + 1hr SL } { 33 x 310⁴ }
{ 2.5 UV } { 373 x 310³ }
{ 1hr SL } { [1.12 10⁵] }

3 min { Dark 3 min } { 4 x 2 [8] }
{ 3 min UV } { 227 x 10³ }
{ 1hr SL } { [2.3 10⁵] }

Short of B/r in S and F
 Experiment. 1 min 20 sec
 Plinkhoff 58

After V.V. irradiation about 1600 [2 cc into
 in F. [two tubes of F, 80 sec each] 2cc
 [1 tube in B/r, in S, 80 sec]

~~W/T~~ W/T light and dark
 repress experiments platings
 from yesterday

arrays:

W/T dark
 repress array { 157 6
 154 3 10 8
 [4.5 10⁸]

W/T light or
 repress array { 186 6
 221
 407 [6 10⁸]

Sunday Apr. 24th / 49

B/r in S and F / plates from
 yesterday:

array in S { 127 [6.3 10⁷] 5 10⁵
 127

array in F { 230 [1.15 10⁸] 5 10⁵
 cont.

Saturday, Apr 23 1951

HS

Plates (B/r repeat) from
yesterday

B/r repeats

$$\begin{array}{l} 50 \text{ sec repeat} \\ \textcircled{L} \end{array} \left\{ \begin{array}{l} 227 \\ 247 \\ \hline 474 \\ \hline 2 = 237 \end{array} \right. \times 570^6 \quad [1.2 \times 10^9]$$

This factor
to be then
multiplied
by T₁
before

$$\left\{ \begin{array}{l} 134 \\ 149 \\ \hline 283 \\ \hline 2 = 141 \end{array} \right. \times 30 \quad [4200]$$

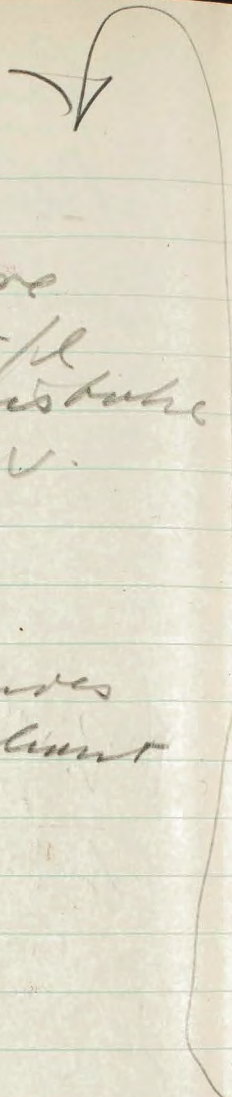
B/r repeats

$$\begin{array}{l} 80 \text{ sec repeat} \\ \textcircled{L} \end{array} \left\{ \begin{array}{l} 133 \\ 116 \\ \hline 249 \\ \hline 2 = 124 \end{array} \right. \times 5 \times 10^6 \quad [6.2 \times 10^8]$$

+ T₁

$$\left\{ \begin{array}{l} 80 \\ 87 \\ \hline 167 \\ \hline 2 = 83.5 \end{array} \right. \times 50 \quad [4500]$$

This indicates values in table
for 50 sec. in weight were
too high by factor $\frac{8600}{4200} \approx 2$



WIT Experiment continued
 regrow plates from Friday
 (we forgot to count plates, therefore
 all plates have about 0.03 mfu/l
 therefore by virtue of that mistake
 alone. We had (aiming to see UV.

plates: both regrow x 50
 light regrow x 70

have approx 10⁷ of microcalanoides
 on 3 mfu/l plates [each has about
 10⁷ bacteria planted]

Next time try 1 mfu/l !

counts uncertain because of small columns

0.3 mfu/l
 threonine
 (light)
 regrow } 201 x 70

0.3 mfu/l
 threonine
 (dark)
 regrow } 395 x 50

0.03 mfu/l
 light } 264 x 70

0.003 re-inoculated

0.03 mfu/l
 dark } 374 50

Sunny [6.3 10⁷]

F array [1.15 10⁸]

B/r in S 40 sec UV { 226
 — Dark { 212 x 2 10⁵ [4.4 10⁷]
 438
 2

in S 80 sec UV { 225 x 10⁵ [2.2 10⁷]
 — Dark { 219
 444 = 222
 2
 fall by
 factor
 2.8

in F 40 sec UV { 265 x 10⁵ [3 x 10⁷]
 — Dark { 335
 610 = 305
 2
 fall by
 factor 4

in F 80 sec UV { 383 x 5 10³ [1.95 10⁶]
 — Dark { 400
 783 = 391
 2
 fall by
 factor 50

Monday Apr 25th

After sunrise [B/r in F and S] arrays: exp, dark

40 sec in F { 339 x 5 10⁶
 — Dark { 309
 648 = 324 x 5 10⁶
 2
 [1.6 10⁹]

80 sec in F { 632 x 3 10⁵
 — Dark { 664
 1296 = 648
 2
 [1.95 10⁸]

80 sec in F { 524 x 3 10⁵
 — Dark { 488
 1012 = 506
 2

W/T experiments
red ink labeled
plates

0.003 micron { 2x857 x 50
Dark
medium

0.003 micron { 2x594 x 70
Light
medium

~~0.003 average~~
~~re-evaluated~~

B/r continued:
assays in F (re-examine bank)
40 sec [1.610⁹]

80 sec
tube I [2 x 10⁸] in \$
tube II [1.5 10⁸]

$\frac{T_2=3}{T_1}$	40 sec { 581 x 100	40 sec { 112
	+ T ₁ { reime	+ T ₁ { 90 500
	in \$	$\frac{210}{2}$ [50 000]
	40 sec { 291 x 500	40 sec { 81
	+ T ₇ {	+ T ₇ { 80 x 2000
	in \$ [150 000]	$\frac{160}{2}$ [160 000]

I tube	80 sec { 182 x 100 [18 200]	{ 16900 18200 34500 2
	+ T ₁ { mean taken [17 000]	
in F		
II tube	80 sec { 163 x 100 [16,300]	{ 16900 18200 34500 2
	+ T ₁ {	
in \$		

I tube	80 sec { 60 x 600	{ 344 x 100
	+ T ₇ {	
in F		[34,400]
II tube	80 sec { 57 x 600	
	+ T ₇ {	

$$\begin{array}{l} (40 \text{ sec}) \\ \text{repro } D \\ \int + T_1 \end{array} \left\{ \begin{array}{l} 468 \\ 452 \\ \hline 920 \\ 2 \end{array} \right. \begin{array}{l} \times 200 \\ \\ \end{array} [92000]$$

$$\begin{array}{l} 40 \text{ sec} \\ \text{repro } D \\ \int + T_2 \end{array} \left\{ \begin{array}{l} 274 \\ \text{repro } 244 \text{ (thunder)} \end{array} \right. \begin{array}{l} \times 10^3 \\ \\ \end{array} [274000]$$

~~repro in breath 80 sec~~

$$\begin{array}{l} \text{repro in breath } 80 \text{ sec} \\ \int + T_1 \end{array} \left\{ \begin{array}{l} 93 \\ 101 \\ \hline 194 \\ 2 \end{array} \right. \begin{array}{l} \times 10^3 \\ \\ \end{array} [97000]$$

$$\begin{array}{l} \text{repro in breath } 80 \text{ sec} \\ \int + T_2 \end{array} \left\{ \begin{array}{l} 98 \\ \text{repro } 1 \\ \text{thunder} \end{array} \right. \begin{array}{l} \times 5000 \\ \\ \end{array} [50000]$$

$$\begin{array}{l} \text{repro } 80 \text{ sec} \\ \int + T_1 \end{array} \left\{ \begin{array}{l} 397 \\ 350 \\ \hline 747 \\ 2 \end{array} \right. \begin{array}{l} \times 10^3 \\ \\ \end{array} [373500]$$

$$\begin{array}{l} \text{repro } 80 \text{ sec} \\ \int + T_2 \end{array} \left\{ \begin{array}{l} 160 \\ \text{repro } 170 \text{ (thunder)} \end{array} \right. \begin{array}{l} \times 5000 \\ \\ \end{array} [800000]$$

Start of a complete
WIT experiment

H

UV. 56 drawings
possec irrad.

Tuesday Apr 26/49

Second half of B/r in
Sandt exp.

infrared plates from yesterday

D reprints: \int array $\left\{ \begin{array}{l} (40\text{mc UV}) \\ D \end{array} \right\} 984 \times 10^7$ [9.8 10^9]

reprint in brush array $\left\{ \begin{array}{l} 178 \\ 180 \end{array} \right\} \times 10^7$ [1.8 10^9]

(80mc) array $\left\{ \begin{array}{l} 706 \times 10^7 \\ 702 \end{array} \right\}$ [7 10^9]

80 sec UV

0.003 micron thick

} x 3
} remove

4

} 356 x 60
}

W/ No UV

Sprink. mounts back

+ thickness 1 micron / on plates
marked x 3 and x 10 are payed
with rulers calibrates
next time put less bugs on

+ 0.01 micron
thickness } 85 x 3

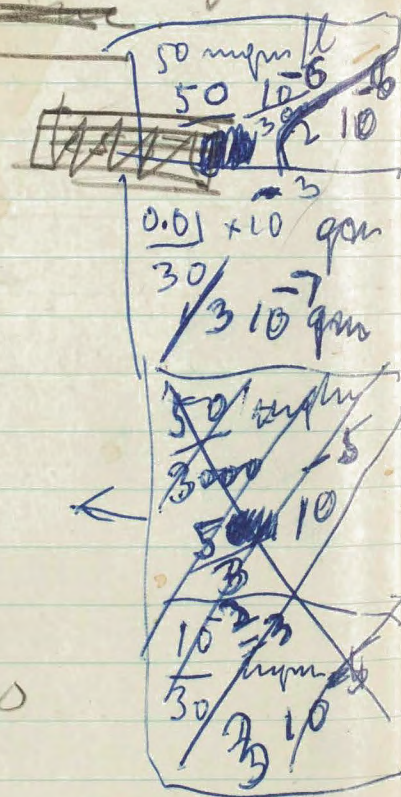
" } 58 x 10
} remove

+ 0.01 micron } 20 x 3

" } 23 x 10

1 micron } 110 x 3

} 169 x 10 less dense
} fog



Wednesday Apr 27th / 49
W/T "complete" of tubes from
Monday (25th). —

array { 24 x 5 10⁶ [1.25 10⁷]

POUV { 2 x 5 10⁵ [1.5 10⁶]
5

$\frac{7}{2} = 3.5$

assume drop of tubes by 10

Thursday Apr 28th W/T continued:

W/T. POUV {
+ 0.1 mpm/l then } x 3

// { 50 } x 10

POUV
0.3 mpm/l then { x 3

// { 300 } x 10

at 250 μ m Phorboll 56
 220 sec and 270 sec UV and 1 hr PL
 in cuvet. temp same at 37°
 [20 cc irradiated in 6 inch Petri dish]
 light started at 3:15 pm

B/r 4 plus culture in PL diluted
 into saline per irradiation 1 to 30

B/r with 220 sec UV and 270 sec UV
 given 1 hr PL and plated
 incubated for review at 445 μ m
 10 cc into 150 cc and 10 cc into 150 cc

Demimurstrubans exp, plates from
 yesterday (B/r)

$$\begin{array}{r}
 \text{array} \left\{ \begin{array}{l} \text{III} \\ \text{98} \end{array} \right. \begin{array}{l} 5 \\ 10 \end{array} \\
 \text{before} \left\{ \begin{array}{l} \text{III} \\ \text{98} \end{array} \right. \begin{array}{l} 5 \\ 10 \end{array} \\
 \hline
 209 = 204
 \end{array}
 \left. \vphantom{\begin{array}{l} \text{array} \\ \text{before} \end{array}} \right\} 2.5 \text{ min UV} \left[\begin{array}{l} 229 \times 10^2 \\ 212 \\ \hline 441 = 220 \\ 2 \end{array} \right]$$

This checks with $[5 \cdot 10^4]$

Friday Apr 29th / 49

Yesterday exp start: regrow of
W/T exp. ^{afternoon}

~~Yesterday~~ ~~to~~ ~~from~~ Yesterday
Demonstration exp. start

2 1/2 min UV on B/r in saline for
~~over~~ for 10 days

W/T ^v cases complete "
regrow

~~3.7 x 10⁶~~

$$\begin{array}{r} 369 \\ 345 \times 10 \\ \hline 714 = 357 \\ 2 \end{array} \quad \left[3.6 \times 10^6 \right]$$

B/r UV series start:

B/r in saline overnight (11 hrs)
Irrad with 15, 30, 50, 100 and 160 sec (160)
UV, — plated and regrows started ^{at} noon
all in dark | Protocol 57 |

Apr 30

Blow to 220 sec UV
light react 1 hrs (P4)
in 370 room
Plates from yesterday

$$\left. \begin{array}{l} 535 \\ 586 \end{array} \right\} \times 3 \times 10^3 = [1.7 \times 10^6]$$
$$\frac{1121}{2} = 560$$

22
00

220 UV

$$\left. \begin{array}{l} 156 \\ 176 \end{array} \right\} \times 10^4 \text{ o.k.}$$

270 UV

$$\left. \begin{array}{l} 133 \\ 115 \end{array} \right\} \times 10^4 \quad [1.2 \times 10^6]$$
$$\frac{248}{2} = 124$$
$$\left. \begin{array}{l} 505 \\ 467 \end{array} \right\} \times 3 \times 10^3 = [1.45 \times 10^6]$$
$$\frac{972}{2} = 486$$

avg for above
before U.V.

$$\left. \begin{array}{l} 111 \\ 136 \end{array} \right\} \times 10^6$$
$$\frac{247}{2} = 123 \quad [1.23 \times 10^6]$$

Saturday Apr 30th/49

H

B/r UV Series (in Salina) plates
(overnight)

from
Yesterday

$$\begin{array}{l} \text{avg} \left\{ \begin{array}{l} 116 \\ 148 \end{array} \right. \times 10^6 \\ \hline 264 = 132 \end{array} \quad [1.3 \cdot 10^8]$$

15 sec UV

$$\begin{array}{l} \left\{ \begin{array}{l} 140 \\ 108 \end{array} \right. \times 10^6 \\ \hline 248 = 124 \end{array} \quad [1.24 \cdot 10^8]$$

$$\begin{array}{l} 30 \text{ sec UV} \left\{ \begin{array}{l} 296 \\ 286 \end{array} \right. \times 4 \cdot 10^5 \\ \hline 582 = 291 \end{array} \quad [1.16 \cdot 10^8]$$

$$\begin{array}{l} 80 \text{ sec UV} \left\{ \begin{array}{l} 146 \\ 162 \end{array} \right. \times 3 \cdot 10^5 \\ \hline 308 = 154 \end{array} \quad [4.6 \cdot 10^7]$$

$$\begin{array}{l} 160 \text{ sec UV} \left\{ \begin{array}{l} 344 \\ \text{(cont)} \end{array} \right. \times 200 \quad [6.9 \cdot 10^4] \end{array}$$

$$\begin{array}{l} 160 \text{ sec UV} \left\{ \begin{array}{l} 84 \\ 78 \end{array} \right. \times 800 \\ \hline 162 = 81 \end{array} \quad [6.5 \cdot 10^4]$$

$$\begin{array}{r}
 160 \text{ sec} \\
 \text{VV} \\
 \left\{ \begin{array}{l} 18 \\ 19 \\ \hline 37 \end{array} \right. \quad \begin{array}{l} \times 1 \times 2 \times 10^3 \\ 31 \\ \hline [1.2 \times 10^3] \end{array}
 \end{array}$$

~~XXXXXXXXXX~~

2 Plates with $T_1 + T_6$ are class X

Sunday May 1st

Apr VV Series regions:

$$\begin{array}{r}
 \text{VVV} \left\{ \begin{array}{l} 98 \\ 88 \\ \hline 186/2 = 93 \end{array} \right. \quad \begin{array}{l} \times 3 \times 10^6 \\ \\ \\ \end{array} \quad [2.9 \times 10^8] \\
 + T_6 \left\{ \begin{array}{l} 9 \\ 9 \\ \hline \end{array} \right. \quad \begin{array}{l} \times 10 \\ \\ \\ \end{array} \quad \frac{85}{2.9/10^8} = [30/10^8] \\
 + T_1 \left\{ \begin{array}{l} 105 \\ 099 \\ \hline 204 \\ 2 \end{array} \right. \quad \begin{array}{l} \times 2 \\ \\ \\ \end{array} \quad \frac{204}{2.9/10^8} = [70/10^8]
 \end{array}$$

Ammonium

Apr 30

B/r 48 hrs culture in Mg SW into ^{sub} 20
UV series, plates from yesterday

array

$$\left\{ \begin{array}{l} 42 \\ 34 \end{array} \right. \times 10^6$$

$$\frac{76}{2} = 38 \quad [3.8 \cdot 10^7]$$

higher dilution

$$\left\{ \begin{array}{l} 52 \\ 58 \end{array} \right. \times 3 \times 10^7 \quad [1.65 \cdot 10^9]$$

$$\frac{110}{2} = 55$$

$$\frac{165}{31} \cdot 10^7 = [5.3 \cdot 10^7]$$

50 sec UV

$$\left\{ \begin{array}{l} 45 \\ 50 \end{array} \right. \times \frac{1}{31} \cdot 10^7 \quad [1.5 \cdot 10^7]$$

$$\frac{95}{2} = 47$$

80 sec UV

$$\left\{ \begin{array}{l} 110 \\ 92 \end{array} \right. \times \frac{1}{31} \times 10^6$$

$$\frac{202}{2} = 101 \quad [3.26 \times 10^6]$$

120 sec UV

$$\left\{ \begin{array}{l} 73 \\ 51 \end{array} \right. \times \frac{1}{31} \times 10^5$$

$$\frac{124}{2} = 62 \quad [2 \cdot 10^5]$$

$$80 \text{ UV} \left\{ \begin{array}{l} 103 \\ 113 \\ \hline 216 = 108 \\ 2 \end{array} \right. \times 3 \times 10^6 \left[3.24 \times 10^8 \right]$$

$$+ T_6 \left\{ \begin{array}{l} 17 \\ 20 \\ \hline \end{array} \right. \times 10^3 = \frac{18500}{3.24} = \left[\frac{5700}{100} \right]$$

$$+ T_1 \left\{ \begin{array}{l} 96 \\ 95 \\ \hline 191/2 \end{array} \right. \times 200 = \frac{19100}{3.24} \left[\frac{6000}{100} \right]$$

$$160 \text{ UV} \left\{ \begin{array}{l} 89 \\ 88 \\ \hline 177 = 88 \\ 2 \end{array} \right. \times 3 \times 10^4 \left[2.64 \times 10^4 \right] \quad \begin{array}{l} 262 \\ 279 \\ \hline \end{array} \times 10^4 \quad \left[\text{diff} \right]$$

$$+ T_6 \left\{ \begin{array}{l} 129 \\ 115 \\ \hline 244 = 122 \\ 2 \end{array} \right. \times 10 \quad \begin{array}{l} 24 \\ 26 \\ \hline \end{array} \times 50 \quad \left[\text{diff} \right]$$

$$+ T_1 \left\{ \begin{array}{l} 157 \\ 174 \\ \hline 331 = 165 \\ 2 \end{array} \right. \times 10 \quad \frac{165000}{2.64} = \left[\frac{46000}{100} \right]$$

$T_1 + T_6$ test on : 0 sec clear | 80 sec clear
 15 sec clear | 160 sec clear
 30 sec clear

regrows

15 sec UV

$$\left\{ \begin{array}{l} 108 \\ \frac{117}{225} = 112 \end{array} \right\} \times 3 \times 10^6 \quad [3.4 \times 10^8]$$

row

$$\left[\frac{132}{10^8} \right]$$

+ T₆

$$\left\{ \begin{array}{l} 26 \\ \frac{209}{55/2} \end{array} \right\} \times 20$$

$$\frac{550}{3.4 \times 10^8} = \left[\frac{162}{10^8} \right]$$

$$\left[\frac{94}{10^8} \right]$$

row

+ T₁

$$\left\{ \begin{array}{l} 149 \\ \frac{129}{278/2} \end{array} \right\} \times 4$$

$$\frac{556}{3.4 \times 10^8} = \left[\frac{164}{10^8} \right]$$

to

30 sec UV

$$\left\{ \begin{array}{l} 136 \\ \frac{173}{309} = 154 \end{array} \right\} \times 3 \times 10^6 \quad [4.62 \times 10^8]$$

row

$$\left[\frac{512}{10^8} \right]$$

+ T₆

$$\left\{ \begin{array}{l} 21 \\ \frac{30}{51} = 25 \end{array} \right\} \times 100$$

$$\frac{2500}{4.62 \times 10^8} = \left[\frac{542}{10^8} \right]$$

$$\left[\frac{540}{10^8} \right]$$

row

T₁

$$\left\{ \begin{array}{l} 140 \\ \frac{141}{281} \end{array} \right\} \times 20$$

$$\frac{2810}{4.62} = \left[\frac{610}{10^8} \right]$$

repeat neyrams:

$$160 \text{ sec UV} \left\{ \begin{array}{l} 183 \\ 218 \\ \hline 401 \end{array} \right. \times 310^4 \quad [6 \times 10^6]$$
$$\frac{401}{2} = 200$$

$$+T_4 \left\{ \begin{array}{l} 207 \\ 220 \\ \hline 427 \end{array} \right. \times 50 \quad \frac{1.060,000}{6}$$
$$\frac{427}{2} = 213 \quad [175,000 / 10^8]$$

$$30 \text{ sec UV} \left\{ \begin{array}{l} 199 \\ 172 \\ \hline 371 \end{array} \right. \times 310^6 \quad [5.5 \times 10^8]$$
$$\frac{371}{2} = 185$$

$$[3790 / 10^8] \text{ kmr} + T_4 \left\{ \begin{array}{l} 237 \\ 223 \\ \hline 460 \end{array} \right. \times 100 \quad [4160 / 10^8]$$
$$\frac{460}{2} = 231$$

$$\begin{array}{r} 4160 \\ 370 \\ \hline 3790 \end{array}$$

repeat neurons

H

$$0 \text{ UV array } \left\{ \begin{array}{l} 96 \\ 112 \\ \hline 218 \\ \hline 2 \\ \hline 109 \end{array} \right. \times 3 \cdot 10^6 \quad [\text{~~3.3~~ } 3.3 \cdot 10^6]$$

$$+T4 \left\{ \begin{array}{l} 113 \\ 132 \\ \hline 245 \\ \hline 2 \\ \hline 122 \end{array} \right. \times 10 \quad [370 / 10^8]$$

$$15 \text{ sec UV } \left\{ \begin{array}{l} 111 \\ 110 \\ \hline \end{array} \right. 3 \cdot 10^6 [3.3 \cdot 10^8]$$

$$[1280 / 10^8]^{\text{hom}} +T4 \left\{ \begin{array}{l} 208 \\ 241 \\ \hline 449 \\ \hline 2 \\ \hline \end{array} \right. \times 20 [1350 / 10^8]$$

$$80 \text{ sec UV } \left\{ \begin{array}{l} 103 \\ 115 \\ \hline 218 \\ \hline 2 \\ \hline 109 \end{array} \right. \times 3 \cdot 10^6 [3.3 \cdot 10^8]$$

$$+T4 \left\{ \begin{array}{l} 178 \\ 186 \\ \hline 364 \\ \hline 2 \\ \hline 182 \end{array} \right. \times 10^3 [55000 / 10^8]$$

(see Wednesday Apr 27th)

1.5×10^6 turkeys and gave
ms 200 cubes or $\frac{200 \times 100}{1.5} / 10^8 =$

$$= \frac{20000}{1.5} = [13000 / 10^8]$$

Monday May 2nd 1948

H

W/T neopros:

(array of Friday Apr 23 shows $[3.6 \cdot 10^8]$)

neopros on unimodal
+ linear + fluorescence
1 $\mu\text{m}/\text{l}$ 1 $\mu\text{m}/\text{l}$

(this has $\frac{3.6}{3} \cdot 10^6$ lumps on)

41 $\times 3000$
[120000]

many small
dots also

227 $\times 1000$
[227000]

Ther. left because not recent ref.
[could give 10^8 lumps
on plate]

many small
dots also

261 $\times 300$
[80000]

avg: $\frac{120000}{3.6} / 10^8 =$

for 80 sec UV

$[33000 / 10^8]$

on $\times 3000$ plate 14 micrometres per μm square

$90 \times 90 \cdot \frac{\pi}{4} = 8100 = 6350 \times 14 = 90000$

about ~~15~~ lumps put on
120000

Tuesday May 3rd

Find UV irradiance for 20 sec
and 270 sec to check previous
one and 1 hr PL.

0 UV
~~UV~~ array

$$\left\{ \begin{array}{l} 208 \\ 199 \\ \hline 407/2 \end{array} \right. 510^5 [1 \times 10^8]$$

270 UV
Photocell 56 + 1 hr PL
in 37° Room

$$\left\{ \begin{array}{l} 351 \\ \text{count} \end{array} \right. \times 10^4 [3.5 \times 10^6]$$

or 3.5% of
original filter

220 UV
1 hr PL

$$\left\{ \begin{array}{l} 1434 \\ \end{array} \right. \times 10^4 [1.4 \times 10^7]$$

Monday
~~Wednesday~~ May 2nd / 49

Plates from yesterday

Plates from yesterday. requires:

270 UV
1 hr PL

$$\left\{ \begin{array}{l} 186 \\ 171 \end{array} \right. \times 3 \cdot 10^5 \quad [5.36 \cdot 10^7]$$
$$\underline{\quad \quad \quad} = 179$$

$$+ T_1 \left\{ \begin{array}{l} 145 \\ 129 \end{array} \right. \times 60 \quad \frac{82000}{5.36} = [15,400 / 10^8]$$
$$\underline{\quad \quad \quad} = 137$$

$$+ T_6 \left\{ \begin{array}{l} 84 \\ 104 \end{array} \right. \times 60 = \frac{56500}{5.36} = [10,500 / 10^8]$$
$$\underline{\quad \quad \quad} = 94$$

$$T_7 \left\{ \begin{array}{l} 112 \\ 116 \end{array} \right. \times 300 = \frac{3.42 \cdot 10^4 \cdot 10}{5.36}$$

[T₁ + T₆ O.K.]

$$[6.85 \cdot 10^4 / 10^8]$$

Light requirements for this level based
on the amount $1.3 \cdot 10^6$ which corresponds
to the requirements of factor 100

for this point expected 13,500
for both T₁ and T₆ mutants
extrapolated from 80 sec value

$$l = 126 \text{ sec}$$

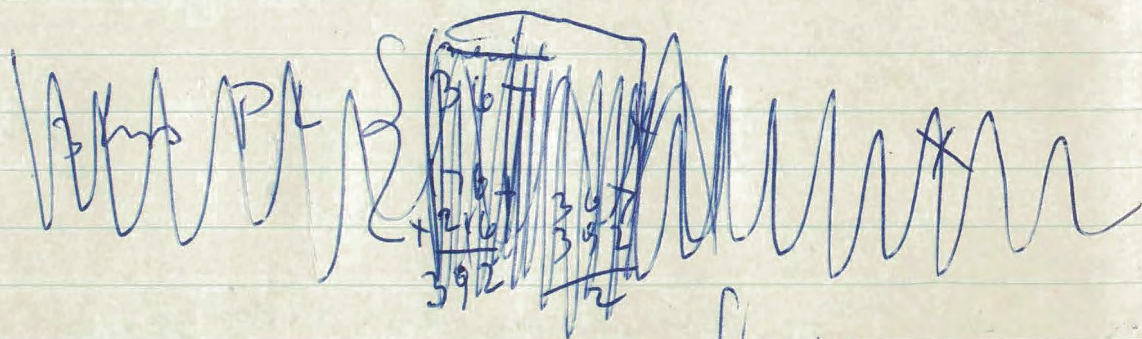
Wednesday May 5th / 49

Working by light (plates from
yesterday)

0 light $\left\{ \begin{array}{l} 182 \\ 173 \end{array} \right. \times 510^5$

1 hr PL $\left\{ \begin{array}{l} 113 \\ 161 \end{array} \right. \times 510^5$
37° room

2 hrs PL $\left\{ \begin{array}{l} 65 \\ 66 \end{array} \right. \times 510^5 \left\{ \begin{array}{l} 367 \\ 392 \end{array} \right. \times 10^5$
37° room



3 hrs PL $\left\{ \begin{array}{l} 6 \\ 4 \end{array} \right. \times 510^5 \left\{ \begin{array}{l} 212 \\ 220 \end{array} \right. \times 10^5$

plates from yesterday

may 3

array $[1 \times 10^8]$

H

dark 270VV $\left\{ \begin{array}{l} 29 \\ 49 \end{array} \right\} \begin{array}{l} \times 2 \\ [78] \end{array}$

dark 220VV $\left\{ \begin{array}{l} 65 \\ 85 \end{array} \right\} \times 2 [150]$

(repeats)

80 sec $\left\{ \begin{array}{l} 170 \\ 144 \\ \hline 314 \\ 2 \end{array} \right\} \begin{array}{l} 5 \\ 210 \\ [3.10^7] \end{array}$

repeat 160 sec $\left\{ \begin{array}{l} 273 \\ 284 \\ \hline 557 \end{array} \right\} \begin{array}{l} \times 200 \\ 55700 \\ [5.57 10^4] \end{array}$

These will be repeated.

~~These will be repeated.~~

160 UV
regrow
+ T1

$$\left\{ \begin{array}{r} 127 \\ 150 \\ \hline 277 \\ 2 \end{array} \right. = 138$$

x 10

$$[1.4 \cdot 10^3]$$

$$\frac{14 \cdot 10^4}{4.4} / 10^8 = [32000 / 10^8]$$

80 sec UV
regrow
+ T6

$$\left\{ \begin{array}{r} 278 \\ + 94 \\ \hline 372 \\ 152 \\ + 12 \\ \hline 166 \\ 330 \end{array} \right. \times 200$$

$$[70,200]$$

$$\frac{70,200}{12} / 10^8 =$$

$$[5,000]$$

~~28000~~

100 sec UV
regrow
+ T6

$$\left\{ \begin{array}{r} 128 \\ 120 \end{array} \right.$$

x 10

$$\frac{124000}{4.4} / 10^8$$

$$[28000 / 10^8]$$

reprints from 80 sec UV and 1/4
 60 sec UV, plates from yesterday:

~~Repeat repeat~~

This is a check experiment on the

this is a second experiment to check
 on lost area:

80 sec UV reprints $\left\{ \begin{array}{l} 398 \\ \end{array} \right. \times 3 \cdot 10^6 [1.2 \cdot 10^9]$

60 sec UV reprints $\left\{ \begin{array}{l} 88 \\ 94 \\ \hline 182 = 91 \\ \hline 2 \end{array} \right. \times 5 \cdot 10^4 \left. \right\} \begin{array}{l} 212 \\ \\ \\ \end{array} \times 2 \cdot 10^4$

4.5×10^6 $4.25 \cdot 10^6$

$[4.4 \cdot 10^6]$

80 sec UV reprints + T₁ $\left\{ \begin{array}{l} 234+ \\ 188 \\ \hline 420 \\ 223 \\ 224 \\ \hline 447 \end{array} \right. \times 2 \cdot 10^2 \frac{84000}{12}$

$\frac{420}{447} \frac{867}{867}$ $\frac{86,700}{12} \frac{110^8}{110}$

$[7,200 / 10^8]$

Monday May 9th 1949 0.05N cell²
 New light setup with cell holder
 (20 volt magpul (no current
 voltmeter yet), voltage measured,
 at electrodes from lamp center
 (to photocell line) with hole (1) Photo-
 cell No 2 gives with 500 band filter (Photovolt
 with filter No 9883 (Photovolt

~~Mon~~ Tuesday May 10th 1949

Light Volting in above position
 plates from secondary

0 light $\left\{ \begin{array}{l} 270 \\ 266 \\ \hline 536 = 268 \end{array} \right. \times 510^5$

1 hr light $\left\{ \begin{array}{l} 244 \\ 240 \end{array} \right. \times 510^5$

2 hr light $\left\{ \begin{array}{l} 266 \\ 271 \end{array} \right. \times 510^5$

3 hr light $\left\{ \begin{array}{l} 278 \\ 243 \end{array} \right. \times 510^5$

Control $\left\{ \begin{array}{l} 264 \\ 261 \end{array} \right. \times 510^5$
 with 370
 none
 (dark)

no light

H

90 sec VV
 repeat
 + T₄

$$\left\{ \begin{array}{l} 285 \\ 324 \end{array} \right. \times 10^3 \quad \left[3 \cdot 10^5 \right]$$

$$\frac{609}{2} = 304 \quad 2.5 \cdot 10^4$$

50
 59.5

160 sec VV
 repeat
 T₄

$$\left\{ \begin{array}{l} 117 \\ 137 \end{array} \right. \times 40 \quad \left\{ \begin{array}{l} 47 \\ 75 \end{array} \right. \times 100$$

$$\frac{254}{2} = 127 \quad \frac{122}{2} = 61 \quad 6100$$

$$\left[5.1 \cdot 10^3 \right]$$

$$\frac{127 \times 4}{508}$$

These plates were counted one day later and were very mature

Monday May 8th
 old re-irradiated plates

B/r repeat 160 VV
 + T₁

$$\left\{ \begin{array}{l} 39 \\ 39 \end{array} \right. \times 40 = [1560]$$

$$\frac{78}{2}$$

(~~just~~ 10% higher) checks

Wednesday May 11 / 49

Time - light exp. plates from yesterday

$$\text{array} \left\{ \begin{array}{l} 192 \\ 177 \\ \hline 389 \end{array} \right. \times 10^5 \left[1.85 \cdot 10^7 \right]$$

$$\frac{389}{2} = 195$$

270 UV
1 hr light

$$\left\{ \begin{array}{l} 498 \\ 452 \\ \hline 0 \end{array} \right. \times 10^3 \left[5 \cdot 10^5 \right]$$

$$\left[2.7 \cdot 10^6 / 10^8 \right]$$

270 UV
1 hour dark
1 hour light

$$\left\{ \begin{array}{l} 87 \\ 76 \\ \hline 163 \end{array} \right. \times 10^3 \text{ time } \left[4.4 \cdot 10^5 / 10^8 \right]$$

$$\frac{163}{2} = 82$$

270 UV
2 hours light

$$\left\{ \begin{array}{l} 120 \\ 116 \end{array} \right. 5 \cdot 10^3$$

270 UV
1 hrs light

$$\left\{ \begin{array}{l} 102 \\ 107 \end{array} \right. 5 \cdot 10^3$$

270 UV
2 hrs light

$$\left\{ \begin{array}{l} 575 \end{array} \right. \text{not counted}$$

This is interpreted as a change of Q by factor $\frac{120}{140}$ or implied 2.5, $\alpha = 2.5 \cdot \frac{120}{140} = 2.15$

Time - light exp.

Plates from yesterday Effect of 738

160 sec UV

+ 1 hr light

no folder

$$\left\{ \begin{array}{l} 194 \\ 202 \end{array} \right. \quad 310^5$$

$$\underline{396} = 198$$

with 738

$$\left\{ \begin{array}{l} 193 \\ 180 \end{array} \right. \quad 310^5$$

$$\underline{373} = 187$$

160 sec UV
no light

$$\left\{ \begin{array}{l} 238 \\ 243 \end{array} \right.$$

x 300

$$\left[\begin{array}{l} 72400 \\ 54000/10^8 \end{array} \right]$$

$$\frac{481}{2} = 241$$

Prog exp. B/r in Saline (since evening of May 6th)

light, 115 Volt measured at that, 151.5 on Photocell with hole I and 9003

UV Photocell reads 63

Little exp. B/r in Saline for a week Photocell reads 63.7

we shall install a range for UV with 270 sec. and ~~keep a sample and~~ ~~leave in dark one hour~~

sample a.) 1 hr light } start 257 pm

sample b.) 2 hrs light

sample c.) 1 hour dark / 1 hour light

5 days old B/r used for this! (made on May 4th)

Time - light exp

$$\begin{array}{l}
 \cancel{500} \text{ UV} \\
 475 \\
 + \text{light}
 \end{array}
 \left\{
 \begin{array}{l}
 304 \\
 309 \\
 \hline
 613 \\
 2
 \end{array}
 \right.
 \times 2
 \left\{
 \begin{array}{l}
 [613] \\
 [760/10^8]
 \end{array}
 \right.$$

$$\begin{array}{l}
 \cancel{575} \text{ UV} \\
 + \text{light} \\
 557
 \end{array}
 \left\{
 \begin{array}{l}
 10 \\
 10 \\
 \hline
 20 \\
 2
 \end{array}
 \right.
 \times 2
 \left\{
 \begin{array}{l}
 [20] \\
 [25/10^8]
 \end{array}
 \right.$$

UV - no light

$$\text{Army}
 \left\{
 \begin{array}{l}
 121 \\
 131 \\
 \hline
 252 = 126 \\
 2
 \end{array}
 \right.
 5 \times 10^5
 [6.3 \times 10^7]$$

$$30 \text{ sec}
 \left\{
 \begin{array}{l}
 98 \\
 120 \\
 \hline
 218 = 109 \\
 2
 \end{array}
 \right.
 \times 5 \times 10^5
 \left\{
 \begin{array}{l}
 [5.45 \times 10^7] \\
 [8.65 \times 10^7 / 10^8]
 \end{array}
 \right.$$

$$\begin{array}{l}
 80 \text{ sec} \\
 76
 \end{array}
 \left\{
 \begin{array}{l}
 103 \\
 114 \\
 \hline
 217 \\
 2
 \end{array}
 \right.
 2 \times 10^5
 \left\{
 \begin{array}{l}
 [2.17 \times 10^7] \\
 [3 \times 10^7 / 10^8]
 \end{array}
 \right.$$

Wednesday May 11

By exp. of yesterday

0 ~~4000~~ UV (no light) $\left\{ \begin{array}{l} 176 \\ 148 \\ \hline 324 \end{array} \right. \times 5 \cdot 10^5 \left[8.1 \cdot 10^7 \right]$
 $\frac{324}{2} = 162$

~~200~~ UV flight 190 $\left\{ \begin{array}{l} 124 \\ 111 \\ \hline 235 \end{array} \right. \times 2 \cdot 10^5 \left[2.35 \cdot 10^7 \right]$
 $\frac{235}{2} =$
 $\left[2.9 \cdot 10^7 / 10^8 \right]$

~~300~~ UV flight 285 $\left\{ \begin{array}{l} 171 \\ 150 \\ \hline 321 \end{array} \right. \times 2 \cdot 10^4 \left[3.21 \cdot 10^6 \right]$
 $\frac{321}{2} =$
 $\left[4 \cdot 10^6 / 10^8 \right]$

~~400~~ UV ~~300~~ ~~425~~ flight + light $\left\{ \begin{array}{l} 500 \\ 356 \\ \hline 856 \end{array} \right. \times 200 \left[8.56 \cdot 10^4 \right]$
 $\frac{856}{2} =$
 $\left[1.06 \cdot 10^5 / 10^8 \right]$

~~450~~ UV ~~425~~ + light $\left\{ \begin{array}{l} 392 \\ 434 \\ \hline 826 \end{array} \right. \times 20 \left[8.26 \cdot 10^3 \right]$
 $\frac{826}{2} =$
 $\left[1.02 \cdot 10^4 / 10^8 \right]$

$$4500V \left\{ \begin{array}{l} 1 \\ 5 \end{array} \right. \times 2 \quad [3]$$

$$5000V \left\{ \begin{array}{l} 1 \\ 1 \end{array} \right. \times 2 \quad [1]$$

$$5750V \left\{ \begin{array}{l} 0 \\ 1 \end{array} \right. \times 2 \quad [0]$$

Time delays were

0	0 sec	In this experiment
30	30 "	reynolds began at 12 ³⁰ pm
80	26 "	yesterday; at 2 AM all of them
120	114 "	went into see ^{between 1 pm and}
160	152 "	between 1 AM and 2 AM night
180	170 "	They went into see box [90°]
200	190 "	today at 11 AM they came out
300	285 "	
400	380 "	
450	425 "	
575	551 "	

$$\begin{array}{l}
 \text{100 sec UV} \\
 \text{4114}
 \end{array}
 \left\{
 \begin{array}{l}
 179 \\
 127 \\
 \hline
 306 \\
 2
 \end{array}
 \right.
 \times 2^{10^4}
 \left.
 \begin{array}{l}
 H \\
 [3.06 \cdot 10^6] \\
 [4.85 \cdot 10^6 / 10^8]
 \end{array}
 \right\}$$

$$\begin{array}{l}
 \text{160 sec UV} \\
 152
 \end{array}
 \left\{
 \begin{array}{l}
 282 \\
 290 \\
 \hline
 572 \\
 2
 \end{array}
 \right.
 \times 200
 \left.
 \begin{array}{l}
 [5.72 \cdot 10^4] \\
 [9.1 \cdot 10^4 / 10^8]
 \end{array}
 \right\}$$

(2)
1

$$\begin{array}{l}
 \text{180 sec UV} \\
 170
 \end{array}
 \left\{
 \begin{array}{l}
 342 \\
 292 \\
 \hline
 634 \\
 2
 \end{array}
 \right.
 \times 20
 \left.
 \begin{array}{l}
 [6.34 \cdot 10^3] \\
 [1 \cdot 10^4 / 10^8]
 \end{array}
 \right\}$$

$$\begin{array}{l}
 \text{200 sec UV} \\
 190
 \end{array}
 \left\{
 \begin{array}{l}
 219 \\
 193 \\
 \hline
 412 \\
 2
 \end{array}
 \right.
 \times 2
 \left.
 \begin{array}{l}
 [412] \\
 [6.5 \cdot 10^3 / 10^8]
 \end{array}
 \right\}$$

$$\begin{array}{l}
 \text{300 UV} \\
 205
 \end{array}
 \left\{
 \begin{array}{l}
 33 \\
 35 \\
 \hline
 68 \\
 2
 \end{array}
 \right.
 \times 2
 \left.
 \begin{array}{l}
 [68] \\
 [1.08 \cdot 10^2 / 10^8]
 \end{array}
 \right\}$$

$$\begin{array}{l}
 \text{400 UV} \\
 300
 \end{array}
 \left\{
 \begin{array}{l}
 3 \\
 3 \\
 \hline
 6 \\
 2
 \end{array}
 \right.
 \times 2
 \left.
 \begin{array}{l}
 [9.5] \\
 [10^8]
 \end{array}
 \right\}$$

Dark Repairs:

0 UV array [9.7×10^8]

$$+ T_6 \left\{ \begin{array}{r} 132 \\ 149 \\ \hline 281 \\ 2 \end{array} \right. \times 2 \quad \frac{281}{97} = [29/10^8]$$

$$+ T_1 \left\{ \begin{array}{r} 245 \\ 269 \\ \hline 514 \\ 2 \end{array} \right. \times 2 \quad [53/10^8]$$

$$+ T_4 \left\{ \begin{array}{r} 206 \\ 201 \\ \hline 407 \\ 2 \end{array} \right. \times 10 \quad \frac{2030}{97} [210/10^8]$$

$\frac{407}{2} = 203$

30 UV

array [10^9]

$$D \quad + T_6 \left\{ \begin{array}{r} 260 \\ 275 \\ \hline 535 \\ 2 \end{array} \right. \times 20 \quad \frac{5.35 \times 10^3}{10} [5.35 \times 10^2/10^8]$$

[$506/10^8$]*

same for every bucket!

$$[766/10^8] T_1 \left\{ \begin{array}{r} 449 \\ 400 \\ \hline 819 \\ 2 \end{array} \right. \times 20 \quad \frac{8190}{10} = [819/10^8]$$

$\frac{819}{766}$

$$[2550/10^8] T_4 \left\{ \begin{array}{r} 261 \\ 291 \\ \hline 552 \\ 2 \end{array} \right. \times 100 \quad \frac{27600}{10} [2760/10^8]$$

$\frac{552}{2} = 276$

$\frac{2760}{210}$

Thursday May 12

H

log exp:

regrw arrays:

Dark 0 UV $\begin{cases} 474 \\ 500 \end{cases} \times 2 \cdot 10^6$
 $\begin{cases} 974 \\ 2 \end{cases} [9.7 \cdot 10^8]$

~~80~~

80 UV $\begin{cases} 280 \\ 281 \end{cases} 5 \cdot 10^6$
 $\begin{cases} 561 \\ 2 \end{cases} = 280$
 [1.4109]

120 UV $\begin{cases} 421 \\ 425 \end{cases} 5 \cdot 10^5$
 $\begin{cases} 846 \\ 2 \end{cases} = 423$
 [2.110⁸]

30 UV $\begin{cases} 492 \\ 507 \end{cases} \times 2 \cdot 10^6$
 $\begin{cases} 999 \\ 2 \end{cases} [10^9]$

80 UV $\begin{cases} 280 \\ 281 \end{cases} 5 \cdot 10^6$
 $\begin{cases} 561 \\ 2 \end{cases} = 280$
 [1.4109]

160 UV $\begin{cases} 64 \\ 82 \end{cases} 2 \cdot 10^4$
 $\begin{cases} 146 \\ 2 \end{cases} [1.4610^6]$

light

200 UV $\begin{cases} 439 \\ 467 \end{cases} \times 2 \cdot 10^6$
 $\begin{cases} 906 \\ 2 \end{cases} [5.0610^8]$

[2.4510⁸]

300 UV $\begin{cases} 512 \\ 467 \end{cases} \times 5 \cdot 10^5$
 $\begin{cases} 979 \\ 2 \end{cases} = 489$
 490

400 UV $\begin{cases} 352 \\ 363 \end{cases} \times 2 \cdot 10^4$
 $\begin{cases} 715 \\ 2 \end{cases} [7.1510^6]$

450 UV $\begin{cases} 306 \text{ cont} \\ 230 \end{cases} \times 2 \cdot 10^3$
 $\begin{cases} 536 \\ 2 \end{cases} = 268 \sim 260$
 [5.210⁵]

160 UV

array $[1.46 \cdot 10^6]$

$$+T_6 \left\{ \begin{array}{l} 39 \\ 34 \\ \hline 73 \\ 2 \end{array} \right.$$

x4

$$\frac{146 \times 100}{1.46} = [10^4 / 10^8]$$

D

$$+T_1 \left\{ \begin{array}{l} \text{array} \\ \text{array} \end{array} \right. \quad x4$$

$$+T_7 \left\{ \begin{array}{l} 97 \\ 104 \end{array} \right. \quad x20$$

light arrays

200 sec ~~array~~

L

array $[5.06 \cdot 10^8]$

$$+T_6 \left\{ \begin{array}{l} 225 \\ 206 \times 200 \\ \hline 431 \\ 2 \end{array} \right.$$

$$\frac{4.31 \cdot 10^4}{5.06}$$

$$[8.5 \cdot 10^3 / 10^8]$$

$$+T_1 \left\{ \begin{array}{l} 282 \\ 273 \times 200 \\ \hline 555 \\ 2 \end{array} \right.$$

$$\frac{5.55 \cdot 10^4}{5.06}$$

$$[1.08 \cdot 10^4 / 10^8]$$

$$+T_4 \left\{ \begin{array}{l} 172 \\ 200 \times 10^3 \\ \hline 372 = 186 \\ 2 \end{array} \right.$$

$$\frac{1.86 \cdot 10^5}{5.06}$$

$$[3.68 \cdot 10^4]$$

dark reprints

80 UV array (1000) $[1.4 \cdot 10^9]$

$$+T_6 \left\{ \begin{array}{l} 199 \\ 218 \times 400 \\ \hline 417 = 208 \end{array} \right. \quad \frac{8.35 \cdot 10^4}{14} = \left[6 \cdot 10^3 / 10^8 \right]$$

$$+T_1 \left\{ \begin{array}{l} 245 \\ 217 \times 400 \\ \hline 462 = 231 \end{array} \right. \quad \frac{9.25 \cdot 10^4}{1.4} = \left[6.7 \cdot 10^3 \right]$$

$$-T_4 \left\{ \begin{array}{l} 185 \\ 174 \times 2000 \\ \hline 359 = \end{array} \right. \quad \frac{359000}{14} = \left[25000 \right]$$

4

dot no array

$$\left\{ \begin{array}{l} 237 \times 40 \\ 231 \\ \hline 468 = 234 \\ \hline 2 \left[9.35 \cdot 10^3 \right] \end{array} \right.$$

$$\left\{ \begin{array}{l} 298 \left[12000 \right] \\ 343 \times 40 \\ \hline 641 = 320 \end{array} \right.$$

$$\left\{ \begin{array}{l} 241 \\ 231 \quad 200 \\ \hline 472 = \left[47200 \right] \\ \hline 2 \end{array} \right.$$

120 UV

array $[2.1 \cdot 10^8]$

$[1.46 \cdot 10^4 / 10^8]$

$$+T_6 \left\{ \begin{array}{l} 318 \\ 296 \times 10^2 \\ \hline 614 = 307 \end{array} \right. \quad \frac{3.07 \cdot 10^4}{2.1} = \begin{array}{r} 144 \\ 318 \\ \hline 296 \end{array}$$

$$+T_1 \left\{ \begin{array}{l} 470 \\ 430 \times 10^2 \\ \hline 500 = 250 \end{array} \right. \quad \frac{25000}{2.1} = \left[1.19 \cdot 10^4 \right]$$

$$+T_4 \left\{ \begin{array}{l} 284 \\ 270 \times 5 \cdot 10^2 \\ \hline 554 = 277 \end{array} \right. \quad \frac{1390 \times 100}{2.1} = \left[6.6 \cdot 10^4 \right]$$

light rays

wednesday

450 sec

array $[5.2 \times 10^5]$

L + T₁ \int ~~73x~~ ~~206~~ ~~431~~

$$\frac{4 \times 10^4 \times 10^3}{10^8}$$

$$\frac{1.76 \times 10^3}{5.2} = \frac{2.8 \times 10^4}{10^8}$$

+ T₁ \int ~~array~~ $\times 2$

+ T₂ \int ~~array~~ $\times 2$

In hallway time - light rays

Voltage noted from 117.5V to 116 Volts

VV, 80 sec, 125 sec, 160 sec, 300 sec
350 sec, 400 sec

a) 1 hour light

b) 1 hour dark + 1 hr light.

light neptunes

H

300 sec

array $[2.45 \cdot 10^8]$

L

$$+ T_6 \left\{ \begin{array}{l} 171 \\ 167 \\ \hline 338 \\ 169 \end{array} \right\} \times 100 \quad \frac{6.70 \cdot 10^4}{2.45} \left[\frac{7 \times 10^3}{10^8} \right]$$

$$+ T_1 \left\{ \begin{array}{l} 254 \\ 217 \\ \hline 471 \end{array} \right\} \times 100 \quad \frac{4.71 \cdot 10^4}{2.45} \left[\frac{9.6 \cdot 10^3}{10^8} \right]$$

$$+ T_7 \left\{ \begin{array}{l} 200 \\ 157 \\ \hline \end{array} \right\} + 500 \quad 10^5 \quad [4.07 \cdot 10^4]$$

400 sec

array $[7.15 \cdot 10^6]$

L

$$+ T_6 \left\{ \begin{array}{l} 137 \\ - \\ \hline \end{array} \right\} \times 4 \quad \frac{550 \times 100}{7.15} = \left[\frac{7.7 \cdot 10^3}{10^8} \right]$$

$$T_1 \left\{ \begin{array}{l} 226 \\ - \\ \hline \end{array} \right\} \times 4 \quad \frac{905 \times 100}{7.15} \left[1.27 \cdot 10^4 \right]$$

$$T_4 \left\{ \begin{array}{l} 171 \\ 164 \\ \hline 335 \\ 2 \end{array} \right\} \times 20 \quad \frac{3350 \times 100}{7.15} \left[4.7 \cdot 10^4 \right]$$

both

$$\text{avg} [1028 \cdot 10^8]$$

$$\text{power} \left\{ \begin{array}{r} 174 \\ 170 \\ \hline 344 \\ \hline 2 \end{array} \right.$$

$$\times 2 \cdot 10^5$$

$$\left[\begin{array}{l} 3.44 \cdot 10^7 \\ 2.68 \cdot 10^7 / 10^8 \end{array} \right]$$

125 sec

$$\left\{ \begin{array}{r} 84 \\ 77 \\ \hline 161 \\ \hline 2 \end{array} \right.$$

$$\times 2 \cdot 10^4$$

$$\left[1.61 \cdot 10^6 \right]$$

$$\left[1.26 \cdot 10^6 / 10^8 \right]$$

160 sec

$$\left\{ \begin{array}{r} 236 \\ - \\ \hline \end{array} \right.$$

$$\times 2 \cdot 10^2$$

$$\left[4.7 \cdot 10^4 \right]$$

$$\left[3.68 \cdot 10^4 / 10^8 \right]$$

N₁

300 sec

$$\left\{ \begin{array}{r} 20 \\ 176 \\ \hline \end{array} \right.$$

$$\times 2$$

$$\left[\begin{array}{l} 20 \\ 2 \end{array} \right]$$

2

350

$$\left\{ \begin{array}{r} 24 \\ 33 \\ \hline 57 \\ \hline 2 \end{array} \right.$$

$$\times 2$$

$$\left[57. \right]$$

Friday May 13 13/2 in 5 overnight
~~Thursday~~ plates from yesterday
 light gray II.

$$\text{0VV} \left\{ \begin{array}{l} 286 \\ 227 \end{array} \right. \times 510^5 \left[1.28 \times 10^8 \right] \\
 \frac{513}{2} = 257$$

$$\begin{array}{l} 80 \text{ UV} \\ \text{no delay} \\ 1 \text{ hr L} \end{array} \left\{ \begin{array}{l} 343 \\ 319 \end{array} \right. \times 310^5 \left[10^8 \right] \\
 \frac{662}{2} = 331 \left[7.8 \times 10^7 / 10^8 \right]$$

$$\begin{array}{l} 125 \text{ UV} \\ \text{no delay} \\ 1 \text{ hr L} \end{array} \left\{ \begin{array}{l} 376 \\ 391 \end{array} \right. \times 210^5 \left[7.67 \times 10^7 \right] \\
 \frac{767}{2} \left[6 \times 10^7 / 10^8 \right]$$

$$\begin{array}{l} 160 \text{ UV} \\ \text{no delay} \\ 1 \text{ hr L} \end{array} \left\{ \begin{array}{l} 310 \\ 346 \end{array} \right. \times 210^5 \left[6.56 \times 10^7 \right] \\
 \frac{656}{2} = \left[5.13 \times 10^7 / 10^8 \right]$$

$$\begin{array}{l} 300 \text{ UV} \\ \text{no delay} \\ 1 \text{ hr L} \end{array} \left\{ \begin{array}{l} 187 \\ 173 \end{array} \right. \times 10^4 \left[1.8 \times 10^6 \right] \\
 \frac{360}{2} = 180 \left[1.4 \times 10^6 / 10^8 \right]$$

$$\begin{array}{l} 350 \\ \text{no delay} \\ 1 \text{ hr L} \end{array} \left\{ \begin{array}{l} 66 \\ 67 \end{array} \right. \times 210^3 \left[1.33 \times 10^5 \right] \\
 \frac{133}{2} \left[1.04 \times 10^5 / 10^8 \right]$$

$$\begin{array}{l} 400 \\ \text{no delay} \\ 1 \text{ hr L} \end{array} \left\{ \begin{array}{l} 78 \\ 74 \end{array} \right. \times 210^2 \left[1.52 \times 10^4 \right] \\
 \frac{152}{2} \left[1.185 \times 10^4 / 10^8 \right]$$

Friday May 13 4/40
rep. of big exp.

UV
no light
rep. (repeat)

$$160 \text{ sec} \left\{ \begin{array}{l} 102 \\ 109 \\ \hline 211 \end{array} \right. \times 5 \times 10^4 \quad [5.25 \times 10^6]$$
$$\frac{211}{2} = 105$$

$$+T_6 \left\{ \begin{array}{l} 80 \\ 89 \\ \hline 169 \end{array} \right. \times 10 \quad [850]$$
$$\frac{169}{2} = 85 \quad \frac{850 \times 100}{5.25} \quad [1.6 \times 10^4 / 10^8]$$

$$+T_1 \left\{ \begin{array}{l} 186 \\ 180 \\ \hline 366 \end{array} \right. \times 10 \quad \frac{1830 \times 100}{5.25} \quad [3.5 \times 10^4 / 10^8]$$
$$\frac{366}{2} = 183$$

$$+T_4 \left\{ \begin{array}{l} 131 \\ 97 \\ \hline 228 \end{array} \right. \times 50 \quad [5.7 \times 10^3]$$
$$\frac{228}{2} = 114 \quad [1.1 \times 10^5 / 10^8]$$

array [1.28 10⁸]

kl

80 sec
delay
1 hr L.

$$\left\{ \begin{array}{l} 254 \\ 256 \end{array} \right. \times 10^5 \quad \left[\begin{array}{l} 7.65 \times 10^7 \\ 6 \times 10^7 / 10^8 \end{array} \right]$$
$$\frac{510}{2} = 255$$

160 sec
delay
1 hr light

$$\left\{ \begin{array}{l} 195 \\ 188 \end{array} \right. \times 2 \times 10^5 \quad \left[\begin{array}{l} 3.83 \times 10^7 \\ 3 \times 10^7 / 10^8 \end{array} \right]$$
$$\frac{383}{2}$$

125 sec
delay
1 hr light

$$\left\{ \begin{array}{l} 304 \\ 289 \end{array} \right. \times 2 \times 10^5 \quad \left[\begin{array}{l} 5.93 \times 10^7 \\ 4.63 \times 10^7 / 10^8 \end{array} \right]$$
$$\frac{593}{2}$$

300 sec
delay
1 hr light

$$\left\{ \begin{array}{l} 196 \\ 175 \end{array} \right. \times 2 \times 10^3 \quad \left[\begin{array}{l} 3.71 \times 10^5 \\ 2.9 \times 10^5 / 10^8 \end{array} \right]$$
$$\frac{371}{2}$$

350
delay
1 hr light

$$\left\{ \begin{array}{l} 107 \\ \text{[scribble]} \end{array} \right. \times 2 \times 10^2 \quad \left[\begin{array}{l} 2 \times 10^4 \\ 1.64 \times 10^4 / 10^8 \end{array} \right]$$

200
delay
1 hr light

$$\left\{ \begin{array}{l} 109 \\ \text{[scribble]} \end{array} \right. \times 2 \quad \left[\begin{array}{l} 201 \\ 157 / 10^8 \end{array} \right]$$

$$\text{ans} [6.4 \times 10^8]$$

$$\begin{array}{l} 1070 \\ + T_6 \end{array} \left\{ \begin{array}{l} 223 \\ 232 \times 210^2 \\ \hline 455 \end{array} \right. \begin{array}{l} [4.55 \times 10^4] \\ [7.1 \times 10^3 / 10^8] \end{array}$$

$$\begin{array}{l} + T_1 \end{array} \left\{ \begin{array}{l} 299 \\ 334 \\ \hline 633 \end{array} \right. \begin{array}{l} 210^2 \quad 6.33 \times 10^4 \\ [9.9 \times 10^3 / 10^8] \end{array}$$

$$\begin{array}{l} + T_4 \end{array} \left\{ \begin{array}{l} 205 \\ 197 \\ \hline 402 = 201 \end{array} \right. \begin{array}{l} \times 10^3 [2 \times 10^5] \\ [3.1 \times 10^4] \end{array}$$

$[T_1 + T_6] \text{OK}$

$$\begin{array}{l} 300 \\ + T_6 \end{array} \left\{ \begin{array}{l} 112 \\ 124 \times 210^2 \\ \hline 236 \end{array} \right. \begin{array}{l} [2.36 \times 10^4] \\ [1.07 \times 10^4 / 10^8] \end{array} \quad \text{ans} [2.21 \times 10^8]$$

$$\begin{array}{l} + T_1 \end{array} \left\{ \begin{array}{l} 132 \\ 127 \times 210^2 \\ \hline 259 \end{array} \right. \begin{array}{l} [2.59 \times 10^4] \\ [1.17 \times 10^4 / 10^8] \end{array}$$

$$\begin{array}{l} + T_4 \end{array} \left\{ \begin{array}{l} 89 \\ 107 \\ \hline 196 = 98 \end{array} \right. \begin{array}{l} \times 10^3 [9.8 \times 10^4] \\ [4.43 \times 10^4 / 10^8] \end{array}$$

$[T_1 + T_6] \text{OK}$

repeat
light
arrays
arrays :

$$190 \left\{ \begin{array}{l} 321 \\ 318 \\ \hline 639 \\ \hline 2 \end{array} \right. \times 210^6 \quad [6.4 \cdot 10^8] \quad \text{A}$$

$$300 \left\{ \begin{array}{l} 213 \\ 229 \\ \hline 442 \\ \hline 2 \end{array} \right. \times 10^6 \quad [2.21 \cdot 10^8]$$

$$400 \left\{ \begin{array}{l} 229 \\ 234 \\ \hline 463 \\ \hline 2 \end{array} \right. \times 410^4 \quad [9.3 \cdot 10^8]$$

$$450 \left\{ \begin{array}{l} 267 \\ 285 \\ \hline 552 \\ \hline 2 \end{array} \right. \times 310^3 \quad [8.3 \cdot 10^5]$$

Wednes. May 10th/49

Distances for Intensity exp.

Pinch 11.3 inch
16 inch

22.6 inch

32 inch

45 inch

Thus delay exp. plates from
yesterday 15/12 in 2 overnight

UV curve (dark)

$$0 \left\{ \begin{array}{l} 217 \\ 223 \\ \hline 440 \end{array} \right. \times 5 \cdot 10^5 \quad [1.1 \cdot 10^8]$$

$$50 \left\{ \begin{array}{l} 375 \\ 344 \\ \hline 719 \end{array} \right. \times 2 \cdot 10^5 \quad [7.2 \cdot 10^7] \quad [6.55 \cdot 10^7 / 10^8]$$

$$80 \left\{ \begin{array}{l} 391 \\ 377 \\ \hline 768 \end{array} \right. = 384 \quad \times 10^5 \quad [3.84 \cdot 10^7] \quad [3.5 \cdot 10^7 / 10^8]$$


$$125 \left\{ \begin{array}{l} 495 \\ 448 \\ \hline 943 \end{array} \right. = 471 \quad \times 10^4 \quad [4.71 \cdot 10^6] \quad [4.3 \cdot 10^6 / 10^8]$$

array [9.3 10⁶]

H

400

$$+ T_6 \begin{cases} 60 \\ 48 \end{cases} \times 10 \quad [540]$$

perLOUR $\frac{108}{2} = 54$ $\frac{540 \times 100}{9.3} [5.8 \frac{10^3}{10^8}]$ 

$$+ T_1 \begin{cases} 130 \\ 146 \end{cases} \times 10 \quad [1380]$$

$\frac{276}{138}$ $1380 \times 100 = 13.80 \times 10^4$

~~1.5~~ $[1.5 \times 10^4 / 10^8]$

$$+ T_4 \begin{cases} 98 \\ 92 \end{cases} \times 40 \quad [3800]$$

$\frac{190}{2}$ $3800 \times 100 = 3.800 \times 10^4$

$[41000 / 10^8]$

$[T_1 + T_6]$ OK.

array [8.3 10⁵]

450

$$+ T_6 \begin{cases} 65 \\ 91 \end{cases} \times 2 \quad [156]$$

perLOUR $\frac{156}{2}$ $\frac{156 \times 1000}{8.3}$

$[1.8 \frac{10^4}{10^8}]$

$$+ T_1 \begin{cases} 103 \\ 92 \end{cases} \times 2 \quad [195]$$

$\frac{195}{2}$ $\frac{195 \times 10000}{8.3}$

$[2.35 \frac{10^4}{10^8}]$

$$+ T_4 \begin{cases} 87 \\ 75 \end{cases} \times 10 \quad [810]$$

$\frac{162}{2} = 81$ $\frac{810 \times 1000}{8.3}$

$[9.75 \frac{10^4}{10^8}]$
 $[T_1 + T_6]$ OK.

$$k220 \left\{ \begin{array}{l} 154 \\ 153 \\ \hline 307 - 153 \\ \hline 2 \end{array} \right. 5 \times 10^3 \left[7.65 \times 10^5 \right] \\ \left[6.95 \times 10^5 / 10^8 \right]$$

$$k190 \left\{ \begin{array}{l} 176 \\ 167 \\ \hline 343 \\ \hline 2 \end{array} \right. 2 \times 10^4 \left[3.43 \times 10^6 \right] \\ \left[3.12 \times 10^6 / 10^8 \right]$$

$$250 \left\{ \begin{array}{l} 485 \\ 475 \\ \hline 960 = 480 \\ \hline 2 \end{array} \right. \times 500 \left[2.4 \times 10^5 \right] \\ \left[2.18 \times 10^5 / 10^8 \right]$$

$$300 \left\{ \begin{array}{l} 1080 \\ 1045 \\ \hline 2125 = 1062 \\ \hline 2 \end{array} \right. \times 10 \left[1.06 \times 10^4 \right] \\ \left[9.65 \times 10^3 / 10^8 \right]$$

2hr delay

$$200 \left\{ \begin{array}{l} 239 \\ 196 \\ \hline 435 \frac{1}{2} = 217 \\ \hline 2 \end{array} \right. \times 10^4 \left[2.17 \times 10^6 \right] \\ \left[1.97 \times 10^6 / 10^8 \right]$$

$$250 \left\{ \begin{array}{l} 163 \\ 126 \\ \hline 289 = 144 \\ \hline 2 \end{array} \right. \times 5 \times 10^3 \left[7.2 \times 10^5 \right] \\ \left[6.55 \times 10^5 / 10^8 \right]$$

array $[1.1 \times 10^8]$

H

$$150 \left\{ \begin{array}{l} 1152 \\ 1157 \\ \hline 2309 = 1154 \end{array} \right. \times 10^2 \quad [5.77 \times 10^5] \quad [5.25 \times 10^5 / 10^8]$$

$$180 \left\{ \begin{array}{l} 1233+ \\ 1270 \\ \hline 2503 \end{array} \right. \times 10 \quad [1.5 \times 10^4] \quad [1.365 \times 10^4 / 10^8]$$

(contains 2 (many more))

3 hr delay

$$125 \left\{ \begin{array}{l} 220 \\ 192 \\ \hline 412 = 206 \end{array} \right. \times 10^5 \quad [2.06 \times 10^7] \quad [1.875 \times 10^7 / 10^8]$$

466 on 1/2 plate

$$125 \left\{ \begin{array}{l} \\ \\ \hline \end{array} \right. \times 210^4$$

$$150 \left\{ \begin{array}{l} 225 \\ 77+ \\ \hline 302 \end{array} \right. \times 510^4 \quad [1.12 \times 10^7] \quad [1.02 \times 10^7 / 10^8]$$

$\frac{446}{2} = 223$

Thursday May 19th

UV curve (same B1r in 1st which was used one day earlier in 3 hour delay experiment)

$$0 \left\{ \begin{array}{l} 211 \\ 188 \end{array} \right. \times 5 \cdot 10^5$$

$$50 \left\{ \begin{array}{l} 210 \\ 242 \end{array} \right. \times 3 \cdot 10^5$$

$$80 \left\{ \begin{array}{l} 333 \\ 298 \end{array} \right. \times 10^5$$

$$100 \left\{ \begin{array}{l} 319 \\ 357 \end{array} \right. \times 5 \cdot 10^4$$

$$125 \left\{ \begin{array}{l} 368 \\ 395 \end{array} \right. \times 10^4$$

$$150 \left\{ \begin{array}{l} 963 \\ 828 \end{array} \right. \cdot 5 \cdot 10^2$$

$$190 \left\{ \begin{array}{l} 291 \\ 342 \end{array} \right. \times 30$$

B1r tested with T1+T6 gives no colonies (1/10 cc plated)

avg [1.6 x 10⁸]

1 hr delay
300

$$\left\{ \begin{array}{l} 120 \\ 140 \\ \hline 260 \\ \hline 2 \end{array} \right. \times 2 \cdot 10^3 [2.6 \times 10^5]$$

H

$$[2.46 \cdot 10^5 / 10^8]$$

No delay
250

$$\left\{ \begin{array}{l} 184 \\ 146 \\ \hline 330 \\ \hline 2 = 165 \end{array} \right. \times 5 \cdot 10^4 [8.25 \cdot 10^6] [7.5 \cdot 10^6 / 10^8]$$

300

$$\left\{ \begin{array}{l} 134 \\ 145 \\ \hline 279 \\ \hline 2 = 139 \end{array} \right. \times 10^4 [1.4 \cdot 10^6] [1.27 \cdot 10^6 / 10^8]$$

~~290 sec UV~~
~~1 hr light~~
~~8" 3~~

$$\left(\frac{1}{16}\right) 32'' \left\{ \begin{array}{l} 157 \\ 141 \\ \hline 298 = 149 \end{array} \right. \times 3 \times 10^4 \quad [4.5 \times 10^6]$$

$$\left(\frac{1}{32}\right) 45'' \left\{ \begin{array}{l} 511 \\ 486 \\ \hline 997 = 498 \end{array} \right. \times 3 \times 10^3 \quad [1.5 \times 10^6] \quad L = 135 \text{ sec}$$

150 sec
9 hours light

$$22.5'' \left\{ \begin{array}{l} 13 \\ 22 \\ \hline 35 = 17.5 \end{array} \right. \times 10^5 \quad [1.8 \times 10^6] \quad ?!$$

$$32'' \left\{ \begin{array}{l} 124 \\ 100 \\ \hline 224 = 112 \end{array} \right. \times 3 \times 10^4 \quad [3.36 \times 10^6] \quad ?!$$

$$45'' \left\{ \begin{array}{l} 152 \\ \hline \end{array} \right. \times 10^4 \quad [1.5 \times 10^6] \quad L = 135 \text{ sec}$$

Monday

H

150 sec UV

1 hr light

at p" behind filter cu

$$\left\{ \begin{array}{l} 236 \\ 214 \end{array} \right\} \times 210^5 = 4.50 \times 10^7$$

$$11.5'' \left\{ \begin{array}{l} 327 \\ 360 \end{array} \right\} \times 10^5 = 3.44 \times 10^7$$

$$\frac{687}{2} = 344$$

$$16'' \left\{ \begin{array}{l} 253 \\ 263 \end{array} \right\} \times 510^4 = 1.29 \times 10^7 \quad \frac{L}{D} = \frac{10^7 \text{ sec}}{150} = 0.686$$

$$\frac{516}{2} = 258$$

$$22.5'' \left\{ \begin{array}{l} 105 \\ 111 \end{array} \right\} \times 310^4 = 3.24 \times 10^6$$

$$32'' \left\{ \begin{array}{l} 533 \\ 455 \end{array} \right\} \times 310^3 = 1.48 \times 10^6$$

$$45'' \left\{ \begin{array}{l} 964 \\ 880 \end{array} \right\} \times 10^3 = 9.22 \times 10^5 \quad L = 142 \text{ sec}$$

$$\infty'' \left\{ \begin{array}{l} 863 \\ 835 \end{array} \right\} \times 510^2 = 4.24 \times 10^5 \quad L = 150 \text{ sec}$$

Dark

150 sec

2 hrs light

$$22.5'' \left\{ \begin{array}{l} 249 \\ 223 \end{array} \right\} \times 510^4 \quad [1.18 \times 10^7]$$

$$\frac{472}{2} = 236$$

(1/8)

$$\left(\frac{1}{8}\right) \quad 22.5'' \quad \left\{ \begin{array}{l} 387 \\ 414 \\ \hline 801 \end{array} \right. \times 10^3 \quad [4 \cdot 10^5] \quad L = 152 \text{ sec}$$

$$\left(\frac{1}{16}\right) \quad 32'' \quad \left\{ \begin{array}{l} 151 \\ 157 \\ \hline 308 \\ \hline 2 \end{array} \right. \times 2 \cdot 10^2 \quad [3.1 \cdot 10^4] \quad L = 175 \text{ sec}$$

$$\left(\frac{1}{32}\right) \quad 45'' \quad \left\{ \begin{array}{l} 200 \times 30 \\ 210 \\ \hline 410 \\ \hline 2 \end{array} \right. \quad [6.1 \cdot 10^3] \quad L = 192 \text{ sec}$$

200 sec 9 hours light.

$$16'' \quad \left\{ \begin{array}{l} 1 \\ 1 \end{array} \right. \times 10^5 \quad [10^5]$$

$$22.5'' \quad \left\{ \begin{array}{l} 4 \\ 2 \end{array} \right. \times 10^4 \quad [8 \cdot 10^4]$$

$$32'' \quad \left\{ \begin{array}{l} 94 \\ 94 \end{array} \right. \times 10^3 \quad [10^5]$$

$$45'' \quad \left\{ \begin{array}{l} 85 \\ 85 \end{array} \right. \times 2 \cdot 10^2 \quad [1.7 \cdot 10^4] \quad L = 182$$

Thursday

H

200 sec UV

1 hr light

$$(11) \quad \rho'' \left\{ \begin{array}{l} 216 \\ 180 \times 10^5 \end{array} \right. = 1.98 \times 10^7$$

$$\left(\frac{1}{2}\right) \quad 11.3'' \left\{ \begin{array}{l} 120 \\ 122 \\ \hline 242 \end{array} \right. \times 5 \times 10^4 = 6.05 \times 10^6$$

$242/2 = 121$

$$\left(\frac{1}{4}\right) \quad 16'' \left\{ \begin{array}{l} 108 \\ 131 \\ \hline 239 \end{array} \right. \times 5 \times 10^3 = 6.00 \times 10^5 \quad \frac{L}{D} = \frac{147}{200} = 0.734$$

$239/2 = 120$

$$\left(\frac{1}{8}\right) \quad 22.5'' \left\{ \begin{array}{l} 145 \\ 136 \end{array} \right. \times 2 \times 10^2 = 2.80 \times 10^4 \quad L = 177$$

$$\left(\frac{1}{16}\right) \quad 32'' \left\{ \begin{array}{l} 241 \\ 223 \end{array} \right. \times 30 = 6.96 \times 10^3 \quad L = 191$$

$$\left(\frac{1}{32}\right) \quad 45'' \left\{ \begin{array}{l} 372 \\ 355 \end{array} \right. \times 10 = 3.64 \times 10^3 \quad L = 196$$

$$\infty \quad \text{dark} \left\{ \begin{array}{l} 251 \\ 251 \end{array} \right. \times 10 = 2.51 \times 10^3 \quad L = 200$$

2 hrs light

$$\left(\frac{1}{4}\right) \quad 16'' \left\{ \begin{array}{l} 137 \\ 115 \end{array} \right. \times 5 \times 10^4 = 6.30 \times 10^6 \quad L = 116 \text{ sec}$$

3×10^4

~~116 sec~~

Thursday May 19/49

4

200 sec UV

+ light at 811 helioid filter

after 5 min $\left\{ \begin{array}{l} 39 \\ 39 \end{array} \right. \times 10^2 [4 \cdot 10^3]$
 (~~4.15 min~~) $L = 195$

10 min $\left\{ \begin{array}{l} 14 \\ 12 \\ \hline 26\frac{1}{2} \end{array} \right. \times 10^3 [1.3 \cdot 10^4]$
 (~~8.3 min~~) $L = 184$

15 min $\left\{ \begin{array}{l} 15 \\ \hline 10 \\ \hline 25 = 12.5 \end{array} \right. \times 10^4 [1.25 \cdot 10^5]$
 (~~12.5 min~~) $L = 163$

20 min $\left\{ \begin{array}{l} 9 \\ 12 \\ \hline 21\frac{1}{2} = 10.5 \end{array} \right. \times 10^4 [2.1 \cdot 10^5]$
 (~~16.6 min~~) $L = 157$

25 min $\left\{ \begin{array}{l} 20 \\ 15 \\ \hline 35 = 19.5 \end{array} \right. \times 10^4 [8.75 \cdot 10^5]$
 (~~20.8 min~~) $L = 142.5$

30 min $\left\{ \begin{array}{l} 20 \\ 22 \end{array} \right. \times 10^5 [2.1 \cdot 10^6]$
 (~~25 min~~) $L = 132.5$

We have to determine how much
 filter absorbs in order to compare
 with values on preceding pages;

We found filter with filter 9PP3

galvanometer drop from 62 to 47 $\left[\frac{15}{62} \right]$

and with filter 5443 from 80 to 71.5 $\left[\frac{8.5}{80} \right]$

or between 0.757 and 0.894 transmission
 through cell filter take mean value

of $\frac{0.757}{0.894} \frac{16.51}{2} = 0.825$ or 0.83 transmission

19.5
12.5
163

May 25

Wednesday After Spousors

Begin of II intensity nonrubover
and X experiment

$$\left. \begin{array}{r} 408 \\ 368 \end{array} \right\} 510^5 \quad |$$

$$\frac{776}{2} = 388$$

After transf. into Saline
at 9 pm
ment into Saline at 6 pm

$\frac{1}{32}$ 9 18 pm
 $\frac{1}{16}$ 9 19 pm

$\frac{1}{8}$

$\frac{1}{4}$

$\frac{1}{2}$

1 9 23

Thursday

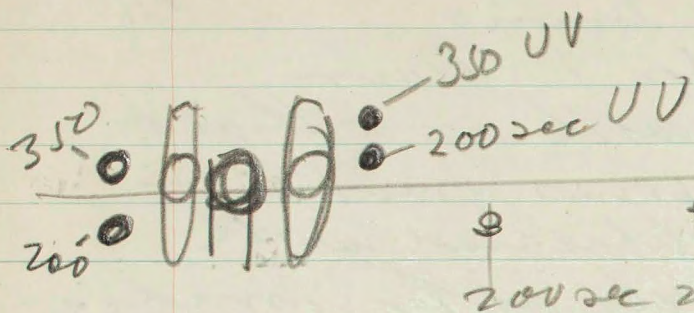
Experiment to see if leaving
UV irradiated B₁₂ for 1 hour
in saline solution [with or without
dissolving 1:100] gives greater
activity than obtained with
plating immediately after irradiation.
[we left 1 hour in 37° bath
without bubbling air through it.]

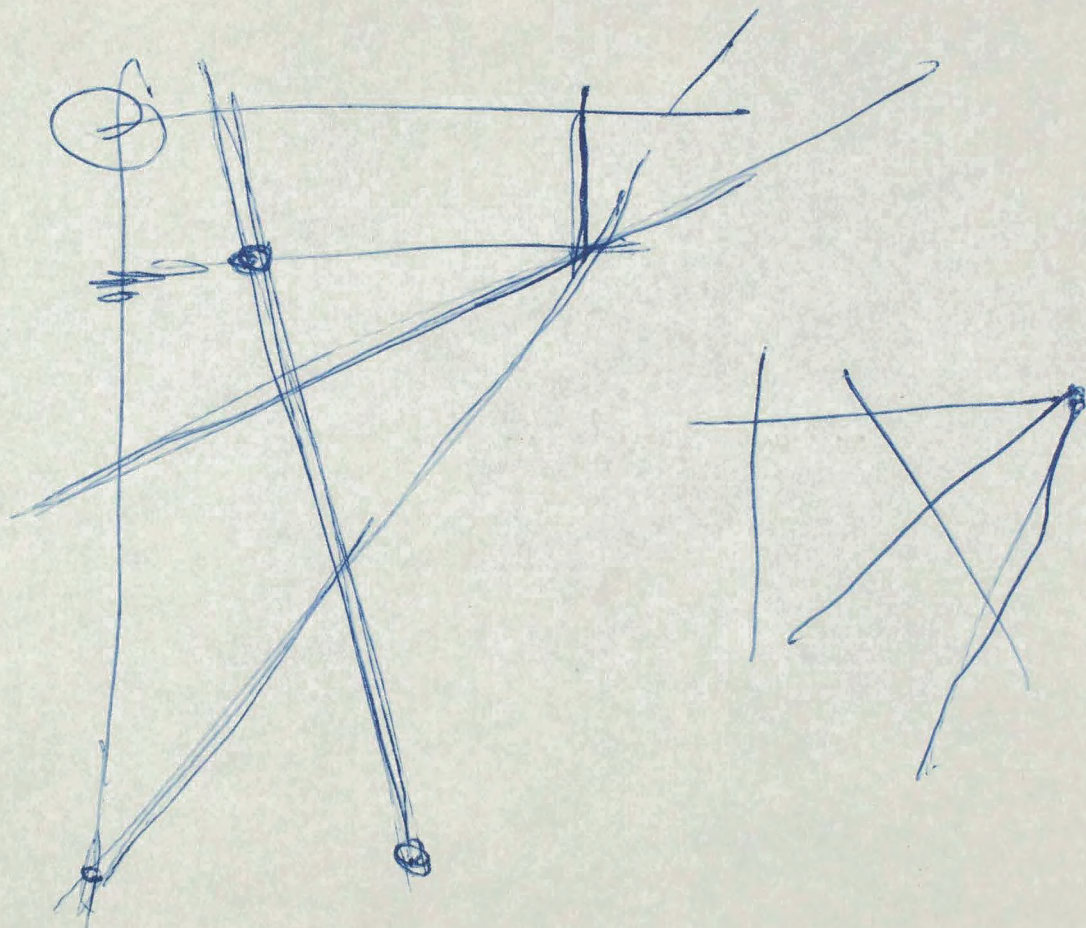
150 sec U.V. { 297 $\times 10^3$
immediate
plating

150 sec UV { 271 $\times 10^3$
1 hour at 37

150 sec U { 245 $\times 10^3$
1 hour at 37
at 1:100 dilution

This shows no effect of
remaining 1 hour at 37°
in saline prior to plating
(after 150 sec U.V.)





THE QUADRANGLE CLUB
CHICAGO



Thursday May 26th

17

distances measured

I $5\frac{1}{4} + 2\frac{1}{2} = 8$ " Measured
2:2 $23\frac{1}{4} + 2\frac{1}{2} = 5\frac{1}{4}$ " 1070

1	$5\frac{1}{2} + 2\frac{1}{2} = 8$ "		535 to 565
1/2	$9 + 2.5$	11.5"	317'
1/4	$13.5 + 2.5$	16"	155
1/8	$20 + 2.5$	22.5"	80.5
1/16	$29\frac{3}{8} + 2.5$	31.78"	40.0
1/32	$42.5 + 2.5$	45"	20.5

Bft on line from 6 pm Tuesday
for plating of UV series at 9:30 Wedn.
are about 24 hours

200 sec UV

5.35" { 228
1 hr L { 217

$$\times 10^5 = 2.22 \times 10^7$$
$$Norm = 4.67 \times 10^7$$
$$L = 70 \mu$$

8" { 184
1 hr L { 180

$$\times 10^5 = 1.82 \times 10^7$$
$$Com = 3.83 \times 10^7$$
$$L = 80 \mu$$

350 sec UV

5.35" { 599
1 hr L {

$$\times 510^3 = 3 \times 10^6$$
$$Com = 6.31 \times 10^6$$
$$L = 123 \mu$$

8" { 542
1 hr L { 130
561

$$\times 10^3 = 5.80 \times 10^5$$
$$Com = 1.22 \times 10^6$$
$$L = 143$$

200 sec UV

5.35" { 233
1.5 hr L { 198

$$\times 10^5 = 2.18 \times 10^7$$
$$Norm = 4.6 \times 10^7$$
$$L = 70 \mu$$

8" { 201
1.5 hr L { 172

$$\times 10^5 = 1.88 \times 10^7$$
$$Norm = 3.96 \times 10^7$$
$$L = 79 \mu$$

5.35" { 275
1.5 hr L {

$$\times 10^4 = 2.75 \times 10^6$$
$$Com = 5.79 \times 10^6$$
$$L = 124 \mu$$

8" { 269
1.5 hr Light {

$$510^3 = 1.35 \times 10^6$$
$$Com = 2.84 \times 10^6$$
$$L = 134 \mu$$

200 sec UV
2 hr delay

5.35" { 136
1 hr L { 104

$$\times 510^4 [6 \times 10^6]$$
$$Com = 1.26 \times 10^7$$
$$L = 110 \mu$$

5.35" { 565
1 hr L { 489

$$\times 10^4 [5 \times 10^6]$$
$$\frac{1054}{2} = 5027$$

$$Com = 1.05 \times 10^7$$
$$115 \mu$$

$$L = 112.5 \mu$$

Thursday May 26th 1969

UV Senses

Electro
array
3 hours
after begin

0

$$\left\{ \begin{array}{l} 117 \\ 83 \end{array} \right\} \times 5 \times 10^5$$

$$4.75 \times 10^7 \quad \text{Con} = 10^8$$

$$\left\{ \begin{array}{l} 96 \\ 94 \end{array} \right\} \times 5 \times 10^5$$

$$50 \left\{ \begin{array}{l} 63 \\ 54 \end{array} \right\} \times 5 \times 10^5$$

$$2.90 \times 10^7 \quad \text{Con} = 6.10 \times 10^7$$

$$80 \left\{ \begin{array}{l} 91 \\ 90 \end{array} \right\} \times 2 \times 10^5$$

$$1.30 \times 10^7 \quad \text{Con} = 3.79 \times 10^7$$

$$100 \left\{ \begin{array}{l} 119 \\ 100 \end{array} \right\} \times 10^5$$

$$1.10 \times 10^7 \quad \text{Con} = 2.31 \times 10^7$$

$$125 \left\{ \begin{array}{l} 144 \\ 126 \end{array} \right\} \times 2 \times 10^4$$

$$2.70 \times 10^6 \quad \text{Con} = 5.68 \times 10^6$$

$$150 \left\{ \begin{array}{l} 143 \\ 155 \end{array} \right\} \times 2 \times 10^3$$

$$2.98 \times 10^5 \quad \text{Con} = 6.26 \times 10^5$$

$$180 \left\{ \begin{array}{l} 100 \\ 80 \end{array} \right\} \times 50$$

$$4.50 \times 10^3 \quad \text{Con} = 9.7 \times 10^3$$

200
no light

$$\left\{ \begin{array}{l} 575 \\ 553 \end{array} \right\} \times 10 = 5640$$

$$\text{Con} = 1.19 \times 10^4$$

Schakne

And 3 60 50

Con. 6 pm 10 PM

Randolph MOR

at 8" pressure ~~(10)~~ 200 sec UV L

$$10 \text{ min} \left\{ \begin{array}{l} 192 \\ 510^2 \end{array} \right. \quad 9.60 \times 10^4 \quad \text{Con} = 2.02 \times 10^5 \\ L = 161 \text{ sec}$$

$$15 \text{ min} \left\{ \begin{array}{l} 369 \\ 417 \end{array} \right. \times 10^3 \quad 3.93 \times 10^5 \quad \text{Con} = 8.27 \times 10^5 \\ L = 147 \text{ sec}$$

$$20 \text{ min} \left\{ \begin{array}{l} 185 \\ \end{array} \right. \times 10^4 \quad 1.85 \times 10^6 \quad \text{Con} = 3.90 \times 10^6 \\ L = 130 \text{ sec}$$

$$25 \text{ min} \left\{ \begin{array}{l} 156 \\ \end{array} \right. \times 2.5 \times 10^4 \quad 3.90 \times 10^6 \quad \text{Con} = 8.22 \times 10^6 \\ L = 119 \text{ sec}$$

$$30 \text{ min} \left\{ \begin{array}{l} 122 \\ \end{array} \right. \times 5 \times 10^4 \quad 6.10 \times 10^6 \quad \text{Con} = 1.28 \times 10^7 \\ L = 110 \text{ sec}$$

$$\left. \begin{array}{l} 35 \text{ min} \left\{ \begin{array}{l} 97 \\ \end{array} \right. \times 10^5 \\ 35 \left\{ \begin{array}{l} 512 \\ 450 \end{array} \right. \times 2 \times 10^4 \end{array} \right\} 9.65 \times 10^6 \quad \text{Con} = 2.03 \times 10^7 \\ L = 101 \text{ sec}$$

Sunday May 29th / 48

Exp for UV no delay, 1 hr delay, ^{one} 2 hr delay
~~Dark~~ 0 UV }
~~UV~~ no delay } [4.5 10⁷]

125 UV } 15
no delay } 28 x 410³

~~135 UV~~ } 35
no delay } 33 x 10³

155 } 29 x 100
no delay } 31

175 } 30 x 10
no delay } 37

125 } 23 410³
1 hr delay } 32

135 } 50
1 hr delay } 37 x 10³

200 sec UV 2 hr L

$$16'' \left\{ \begin{array}{l} 215 \\ 227 \end{array} \times 310^4 = 6.63 \times 10^6 \right. \quad \text{Corr} = 1.40 \times 10^7 \quad L = 107$$

$$22.5'' \left\{ \begin{array}{l} 283 \\ 510 \end{array} \times 10^3 = 1.42 \times 10^6 \right. \quad \text{Corr} = 2.99 \times 10^6 \quad L = 134$$

$$32'' \left\{ \begin{array}{l} 284 \\ 510 \end{array} \times 10^2 = 1.42 \times 10^5 \right. \quad \text{Corr} = 2.99 \times 10^5 \quad L = 158$$

$$45'' \left\{ \begin{array}{l} 280 \\ 279 \end{array} \times 30 = 8.40 \times 10^3 \right. \quad \text{Corr} = 1.77 \times 10^4 \quad L = 184$$

T1 + T6 test O.K.

UV Series

$$\left. \begin{matrix} 89 \\ 90 \end{matrix} \right\} \times 5 \times 10^5 \quad [4.5 \cdot 10^7]$$

$$\text{UV 45} \left\{ \begin{matrix} 84 \\ 73 \end{matrix} \right\} \times 3 \cdot 10^5 \quad [2.34 \cdot 10^7] \\ [5.2 \cdot 10^7 / 10^8]$$

$$\text{UV 60} \left\{ \begin{matrix} 79 \\ 76 \end{matrix} \right\} \times 2 \cdot 10^5 \quad [1.56 \cdot 10^7] \\ [3.48 \cdot 10^7 / 10^8]$$

$$\text{UV 85} \left\{ \begin{matrix} 39 \\ 38 \end{matrix} \right\} \cdot 10^5 \quad [4 \cdot 10^6] \\ [8.9 \cdot 10^6 / 10^8]$$

$$\text{UV 100} \left\{ \begin{matrix} 35 \\ 33 \end{matrix} \right\} \cdot 4 \cdot 10^4 \quad [1.36 \cdot 10^6] \\ [3.13 \cdot 10^6 / 10^8]$$

$$\text{UV 115} \left\{ \begin{matrix} 24 \\ 29 \end{matrix} \right\} \cdot 10^4 \quad [2.7 \cdot 10^5] \\ [6 \cdot 10^5 / 10^8]$$

$$\text{UV 135} \left\{ \begin{matrix} 21 \\ 33 \end{matrix} \right\} \cdot 10^3 \quad [2.7 \cdot 10^4] \\ [6 \cdot 10^4 / 10^8]$$

$$\text{UV 155} \left\{ \begin{matrix} 20 \\ 21 \end{matrix} \right\} \cdot 10^3 \quad [2 \cdot 10^3] \\ [4.45 \cdot 10^3 / 10^8]$$

$$\text{UV 175} \left\{ \begin{matrix} 60 \\ 28 \end{matrix} \right\} \cdot 10 \quad [4.3 \cdot 10^2] \\ [8.6 \cdot 10^2 / 10^8]$$

D

$$155 \left\{ \begin{array}{l} 25 \\ 30 \end{array} \right. \times 100$$

H

$$175 \left\{ \begin{array}{l} 45 \\ 50 \end{array} \right. \times 10$$

$$D \quad 175 \left\{ \begin{array}{l} 41 \\ 52 \end{array} \right. \times 10$$

$$155 \left\{ \begin{array}{l} 28 \\ 33 \end{array} \right. \times 10^2$$

$$135 \left\{ \begin{array}{l} 61 \\ 61 \end{array} \right. \times 10^3$$

1h 40m delay

$$125 \left\{ \begin{array}{l} 43 \\ 32 \end{array} \right. \times 10^3$$

1h 35m delay

June 1, 1949

αI expt.

$$0 \text{ UV } \left\{ \begin{array}{l} 290 \\ 280 \end{array} \right\} \times 5 \times 10^5 = 1.43 \times 10^8$$

$$175 \text{ UV } \left\{ \begin{array}{l} 288 \\ 308 \end{array} \right\} \times 10 = 2980 \quad ??$$

Intensity				Normalized
Intensity	2 1/2 min	17 x 10	170	117
"	5 min	23 x 10	230	160
"	10 min	{ 26 x 20	520	360
"	17 min	{ 51 x 80	4080	2820
"	20 min	{ 40 x 4 x 10 ²	1.60 x 10 ⁴	1.10 x 10 ⁴
"	25 min	{ 80 x 8 x 10 ² 13 x 4 x 10 ³	6.40 x 10 ⁴	4.42 x 10 ⁴
"	30 min	{ 12 x 2 x 10 ⁴ 64 x 4 x 10 ³	2.56 x 10 ⁵	1.77 x 10 ⁵
"	60 min	{ 74 84 x 10 ⁵	7.9 x 10 ⁶	5.5 x 10 ⁶

1145

J" 155 UV } 113
 1 hr light } 120 2×10^5

H

J" 175 UV } 99
 1 hr light } 79 2×10^5

Wednesday June 1, 1949

UV series				Normalized
0 UV	{ 304 285	5×10^5	1.47×10^8	1.0×10^8
40 UV	{ 538 514	2×10^5	1.05×10^8	7.15×10^7
60 UV	{ 353 407	2×10^5	7.60×10^7	5.15×10^7
80 UV	{ 398 361	$\times 10^5$	3.80×10^7	2.58×10^7
100 UV	{ 324 —	2×10^4	6.48×10^6	4.41×10^6
130 UV	{ 156 151	$\times 10^3$	1.54×10^5	1.05×10^5
150 UV	{ 123 106	$\times 50$	5.7×10^3	3.88×10^3
175 UV	{ 27 ...	$\times 10$		

Intensity $\frac{1}{16}$

60m 107 x 10
120m { 94 x 10
200
240m 8 x 200

Intensity $\frac{1}{32}$

60m 70 x 10
120m { 18 100
13
240m 32 x 20

Intensity $\frac{1}{8}$

60m 243 x 10
160m 199 x 10
240m { 211 x 10
190

June 1, 1949

H

Intensity $\frac{1}{2}$

5 min 27 x 10
 10 min 22 x 10
 20 min 22 x 20
 30 min 31 x 80
 40 min $46 \times 4 \times 10^2$
 $\frac{28 \times 2 \times 10^3}{91 \times 8 \times 10^2}$
 50 min
 60 min $45 \times 4 \times 10^3$

Normalized 2

Intensity $\frac{1}{4}$

10 min 19 x 10
 20 min 22 x 10
 40 min 34 x 20
 60 min 65 x 80
 80 min $62 \times 4 \times 10^2$
 100 min $110 \times 8 \times 10^2$
 120 min $52 \times 4 \times 10^3$

Intensity $\frac{1}{8}$

20 min 20 x 10
 40 min 27 x 10
 60 min 18 x 20
 80 min 172 x 80
 80 min 6 x 400
 120 min 6 x 400
 160 34 x 400
 207 28 x 10³
 240 9 x 410³

Saturday June 4 / 49

Plates from yesterday

UV series

$$0 \left\{ \begin{array}{l} 224 \\ 246 \\ \hline 470 = 235 \end{array} \right. \times 5 \times 10^5 \quad [1-17 \times 10^2]$$

$$60 \left\{ \begin{array}{l} 108 \\ 108 \times 3 \end{array} \right. \times 10^5$$

$$80 \left\{ \begin{array}{l} 70 \\ 72 \end{array} \right. \times 2 \times 10^5$$

$$90 \left\{ \begin{array}{l} 65 \\ 75 \end{array} \right. \times 10^5$$

$$100 \left\{ \begin{array}{l} 85 \\ 77 \end{array} \right. \times 3 \times 10^4$$

$$110 \left\{ \begin{array}{l} 68 \\ 80 \end{array} \right. \times 10^4$$

$$130 \left\{ \begin{array}{l} 117 \\ 117 \end{array} \right. \times 5 \times 10^2$$

$$150 \left\{ \begin{array}{l} 75 \\ 70 \end{array} \right. \times 30$$

$$170 \left\{ \begin{array}{l} 21 \\ 17 \end{array} \right. \times 10$$

see later

$$175 \left\{ \begin{array}{l} 49 \\ 15 \end{array} \right. \times 10$$

} 2
1

Delay experiment

H

275 sec UV

5" probe beam ($I = 2I_0$)

0 delay } 91 $\times 10^4$
1 hr height } 84

{ 454 $\times 2 \times 10^3$

1 hr delay } 104 $\times 400$
1 hr height } 11 $\times 20000$

{ 14

{ 7 10^4

2 hr delay } 86 $\times 20$
1 hr height }

3 hr delay } 23 $\times 10$
1 hr height }

{ 9 $\times 20$
{ 12

$T_1 + T_6$ best O.K.

1752cc experiment (part)

$$\begin{array}{l} \text{Book} \\ \text{Oldone} \end{array} \left\{ \begin{array}{l} 97 \\ 116 \end{array} \right. \times 10 \quad [1065] \\ \hline (213\frac{1}{2} = 106.5) \quad [910/10^2]$$

Intensity I

$$10 \text{ min} \left\{ \begin{array}{l} 53 \\ \end{array} \right. \times 10$$

$$15 \text{ min} \left\{ \begin{array}{l} 211 \\ 175 \end{array} \right. \times 10$$

$$20 \text{ min} \left\{ \begin{array}{l} 123 \\ 106 \end{array} \right. \times 10^2$$

$$25 \text{ min} \left\{ \begin{array}{l} 286 \\ 306 \end{array} \right. \times 210^2$$

$$30 \text{ min} \left\{ \begin{array}{l} 455 \\ 470 \end{array} \right. \times 10^2$$

$$35 \text{ min} \left\{ \begin{array}{l} 272 \\ 275 \end{array} \right. \times 10^3$$

$$40 \text{ min} \left\{ \begin{array}{l} 344 \\ 350 \end{array} \right. \times 10^3$$

$$60 \text{ min} \left\{ \begin{array}{l} 84 \\ 62 \end{array} \right. \times 10^5$$

$$90 \text{ min} \left\{ \begin{array}{l} 126 \\ 112 \end{array} \right. \times 10^5$$

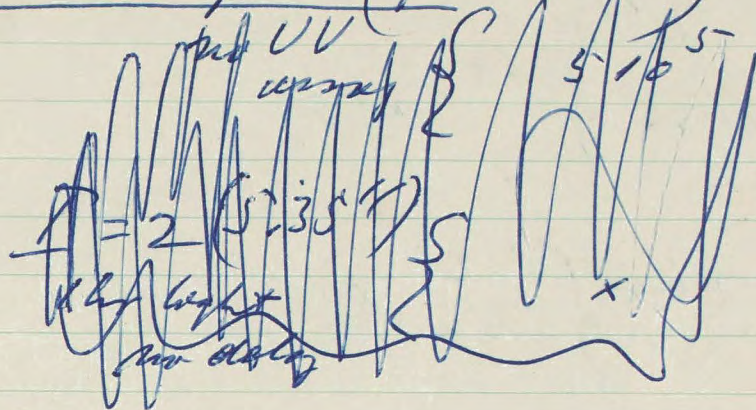
$$120 \text{ min} \left\{ \begin{array}{l} 134 \\ 145 \end{array} \right. \times 10^5$$

~~22/3~~
~~22~~
~~8/8~~
~~4~~

Saturday June 4th

4

250 second exp (for 1)



no UV array

$$\left\{ \begin{array}{l} 246 \\ 219 \end{array} \right\} 5 \times 10^5 \quad [1.18 \times 10^8]$$

$$\frac{465}{2} = 233$$

$\frac{5.35}{2} = 2$

1hr light
 no del

$$\left\{ \begin{array}{l} 106 \\ 100 \end{array} \right\} 2 \times 10^4$$

1hr light
 1hr delay

$$\left\{ \begin{array}{l} 451 \\ 429 \end{array} \right\} \times 10^3$$

1hr light
 2hrs delay

$$\left\{ \begin{array}{l} 118 \\ 538 \\ 618 \end{array} \right\} \times 5 \times 10^2$$

1hr light
 3hr delay

$$\left\{ \begin{array}{l} 509 \\ \cancel{309} \\ \cancel{713} \\ 626 \end{array} \right\} \times 20$$

175 sec Exp

Intensity 1/8

$$1 \text{ hr } \left\{ \begin{array}{l} 63 \\ \end{array} \right. \times 10$$

$$2 \text{ hr } \left\{ \begin{array}{l} 622 \\ 596 \end{array} \right. \times 10$$

$$3 \text{ hr } \left\{ \begin{array}{l} 1091 \\ 1098 \end{array} \right. \times 30$$

$$4 \text{ hr } \left\{ \begin{array}{l} 137 \\ \end{array} \right. \times 510^2 \quad \left\{ \begin{array}{l} 672 \\ \end{array} \right. \times 10^2$$

Intensity 1/16

$$1 \text{ hr } \left\{ \begin{array}{l} 32 \\ \end{array} \right. \times 10$$

$$4 \text{ hr } \left\{ \begin{array}{l} 224 \\ 125 \end{array} \right. \times 10$$

$$1470$$

$$294 \times 5$$

$$1470 \times 10^5$$

1052

760

159
80

648

229
114
57

5700

60
30
22

298
1596
288
308
596

1093
32810
672 78
685 159

31.1
9.3

21.8

0.0318

- at
e

1.91/hr

$\frac{\ln 2}{T_{1/2}}$

$\frac{0.693}{21.8}$

$$\begin{array}{r} 62 \\ 16 \\ \hline 46 \text{ min} \end{array}$$

$$\frac{0.693}{0.766} = 0.905/\text{hr}$$

$$= \frac{1}{2} \alpha + 0.15$$

$$\frac{1}{2} \alpha = 0.905 - 0.15$$

$$= 0.755$$

$$\alpha = 1.60$$

175 Exp (for 2)

H

Inventy ~~W~~ 114

30 min { 33 x 10

60 min { 851 x 10
muller?

90 min { 159 x ~~10~~ 510²

100 { 109 x 1.510³ { 636 x 310²

120 { 104 x 510³ { 450 x 10³

140 { 220 310³
195

160 { 124 5 x 10³
165

Tuesday June 7th /48

Crop of campylobacter again $I=1$
and $I=4$

plates from yesterday:

$I=1$

15 min } 671 $\times 10$

20 min } 515 $\times 10^2$
 } 458

25 min } 846 $\times 2 \times 10^2$

30 min } 503 $\times 10^3$

35 min } 565 $\times 2 \times 10^3$

120 min } 176 $\times 10^5$ [1.89×10^7]
 } 202
 } $\frac{378}{2}$

Saturday June 4/49

175 sec exp

Intensity 0

H

Dark 1 hr $\left\{ \begin{array}{l} 14 \\ 12 \end{array} \right. \times 10$

Dark 4 hr $\left\{ \begin{array}{l} 8 \\ 6 \end{array} \right. \times 10$

P₁ + T₆ test OK.

$I = 1/4$ no air

$$60 \left\{ \begin{array}{l} \\ \\ \end{array} \right. \times 10$$

$$80 \left\{ \begin{array}{l} 144 \\ 500 \end{array} \right.$$

$$80 \left\{ \begin{array}{l} 508 \\ 512 \\ \hline 1020 \\ \hline 2 \end{array} \right. = 510 \quad \begin{array}{l} \times 10^2 \\ [510 \ 4] \end{array}$$

$$100m \left\{ \begin{array}{l} 299 \\ \\ \end{array} \right. \times 10^3$$

$$120m \left\{ \begin{array}{l} 107 \\ \\ \end{array} \right. \times 5 \times 10^3$$

$$\left\{ \begin{array}{l} 536 \\ \\ \end{array} \right. \times 10^3$$

$$140m \left\{ \begin{array}{l} 105 \\ \\ \end{array} \right. \times 10^4$$

$$140m \left\{ \begin{array}{l} 546 \\ 541 \end{array} \right. \times 10^3$$

$$160 \left\{ \begin{array}{l} 422 \\ 466 \end{array} \right. \times 10^3$$

$\Pi = 114$ airbed

H

$$\text{pdm} \left\{ \begin{array}{l} 110 \\ \end{array} \right. \times 500$$

$$\left\{ \begin{array}{l} 511 \\ 475 \end{array} \right. \times 10^2$$

$$\begin{array}{r} 803 \\ - 500 \\ \hline 303 \end{array}$$

$$120 \left\{ \begin{array}{l} 92 \\ \end{array} \right. \times 5 \times 10^3$$

$$120 \left\{ \begin{array}{l} \del{36} \\ 412 \\ 423 \end{array} \right. \times 10^3 \quad [4.710^5]$$

$$140 \left\{ \begin{array}{l} 71 \\ \end{array} \right. \times 10^4$$

$$\left\{ \begin{array}{l} 385 \\ 375 \end{array} \right. \times 10^3$$

$$100m \left\{ \begin{array}{l} 214 \\ \end{array} \right. \times 10^3$$

$$160 \left\{ \begin{array}{l} 327 \\ 297 \end{array} \right. \times 4 \times 10^3$$

250 UV

no delay

1 hr Light at 5.3"

} 318
303 $\times 10^4$

250 UV wind

at 150 sec

no light

} 73
66 $\times 20$

VV Series:

H

$$0 \left\{ \begin{array}{l} 217 \\ 178 \end{array} \right. \quad 510^5$$

$$60 \left\{ \begin{array}{l} 142 \\ 147 \end{array} \right. \quad \times 210^5$$

$$90 \left\{ \begin{array}{l} 127 \\ 96 \end{array} \right. \quad 510^4$$

$$110 \left\{ \begin{array}{l} 134 \\ 148 \\ \hline 282 \end{array} \right. \quad \times 510^3$$

$$130 \left\{ \begin{array}{l} 154 \\ 94 \end{array} \right. \quad 310^2$$

$$150 \left\{ \begin{array}{l} 169 \\ 134 \end{array} \right. \quad \times 20$$

$$160 \left\{ \begin{array}{l} 182 \\ 135 \end{array} \right. \quad \times 10$$

$$175 \left\{ \begin{array}{l} 431 \\ 468 \end{array} \right. \quad \times 2$$

$$21 \text{ min} \left\{ \begin{array}{l} 73 \\ 115 \end{array} \right. \times 310^4 \left\{ \begin{array}{l} 493 \\ 610 \end{array} \right. 3$$

$$a) 60 \left\{ \begin{array}{l} 185 \\ 204 \end{array} \right. \times 10^5$$

$$b) 60 \left\{ \begin{array}{l} 221 \\ 201 \end{array} \right. \times 10^5$$

$$I = \frac{1}{4}$$

$$40 \text{ min} \left\{ \begin{array}{l} 146 \\ 169 \end{array} \right. \times 10$$

$$60 \text{ min} \left\{ \begin{array}{l} 316 \\ 356 \end{array} \right. \times 50$$

$$80 \text{ min} \left\{ \begin{array}{l} 1039 \\ 1074 \end{array} \right. \times 10^2$$

$$100 \text{ min} \left\{ \begin{array}{l} 416 \end{array} \right. \times 10^3$$

~~120~~

$$120 \left\{ \begin{array}{l} 856 \\ 792 \end{array} \right. \times 10^3$$

$$140 \left\{ \begin{array}{l} 148 \end{array} \right. \times 10^4$$

$$\left\{ \begin{array}{l} 696 \\ 210 \end{array} \right. 3$$

Thursday June 9/49

H

Exp comparing $\bar{I} = 2$ and $\bar{I} = 1/4$
also after - effect of light

Plates from yesterday

$\bar{I} = 2$

3 min } ⁸ 35 x 10

6 min } 121 x 20

9 min } ¹⁹⁰ x 200

12 min } 71 x 310³

15 min } ²⁰⁵ 238 x 2 10³

18 } ²⁵ 210⁴

{ 413 x 410³
363

776 = 388 3/8

V V Series

$$0 \left\{ \begin{array}{l} 168 \\ 199 \end{array} \right\} 5 \times 10^5 \approx [10^8]$$

$$60 \left\{ \begin{array}{l} 316 \\ 316 \end{array} \right\} 10^5$$

$$90 \left\{ \begin{array}{l} 144 \\ 180 \end{array} \right\} 3 \cdot 10^4$$

$$110 \left\{ \begin{array}{l} 278 \\ 243 \end{array} \right\} 3 \cdot 10^3$$

$$130 \left\{ \begin{array}{l} 248 \\ 265 \end{array} \right\} 2 \cdot 10^2$$

$$150 \left\{ \begin{array}{l} 279 \\ 254 \end{array} \right\} \times 10$$

$$160 \left\{ \begin{array}{l} 93 \\ 111 \end{array} \right\} \times 10$$

$$175 \left\{ \begin{array}{l} 120 \\ 83 \end{array} \right\} \times 2$$

essay 6 min

$$\left\{ \begin{array}{l} 196 \\ 218 \end{array} \right. 5 \times 10^5 = [10^8]$$

15 min

$$\left. \begin{array}{l} \text{ant } I = 2 \\ \text{O delay but} \\ \text{plotting} \end{array} \right\} \left\{ \begin{array}{l} 205 \\ 198 \end{array} \right. \times 2 \times 10^3$$

$$\left. \begin{array}{l} \text{same} \\ \text{but 20} \\ \text{min} \\ \text{delay} \\ \text{before} \\ \text{plotting} \end{array} \right\} \left\{ \begin{array}{l} 218 \\ \text{constant} \end{array} \right. \times 2 \times 10^3$$

No effect

Muddy orange

Dickiey

