

U.V. 10/5/51

Culture R

811

Exp I

Morse

(1)

Inoculated culture from — from unadapted culture. I.C. aerated —
 hours at 37C. Prev. titer 1.5×10^8 . Diluted 1:10.0 with Penassay broth. 11 ml vol.
 Shaker set at 30 -

Dose (sec)	Dilutions	Plates	Approx Col. Count	Survival
0	100, 10 →	R-0- 3	3000	3×10^7 1.0
20	100 ↓ 10 →	R-20-3	400	4×10^6 0.133
		R-20-4		
40	100 → 10 ↓ →	R-40-3	400	4×10^6 0.133
		R-40-4		
60	100 → 10 ↓ →	R-60-3	300 *	3×10^6 0.10
		R-60-4		
80	100 → 10 ↓ → 10 ↓ →	R-80- 3 2	150 *	1.8×10^6 0.06
		R-80-3		
		R-80-4		
100	10 → 10 ↓ → 10 ↓ →	R-100-2	100 *	1.0×10^6 0.03
		R-100-3		
		R-100-4		

* one lysed colony -

TEAR FROM NO. BQ-13F L. 1.

(S18)

EXPT (2)

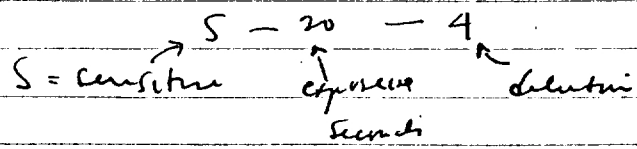
U.V. 10/5/51

Culture S

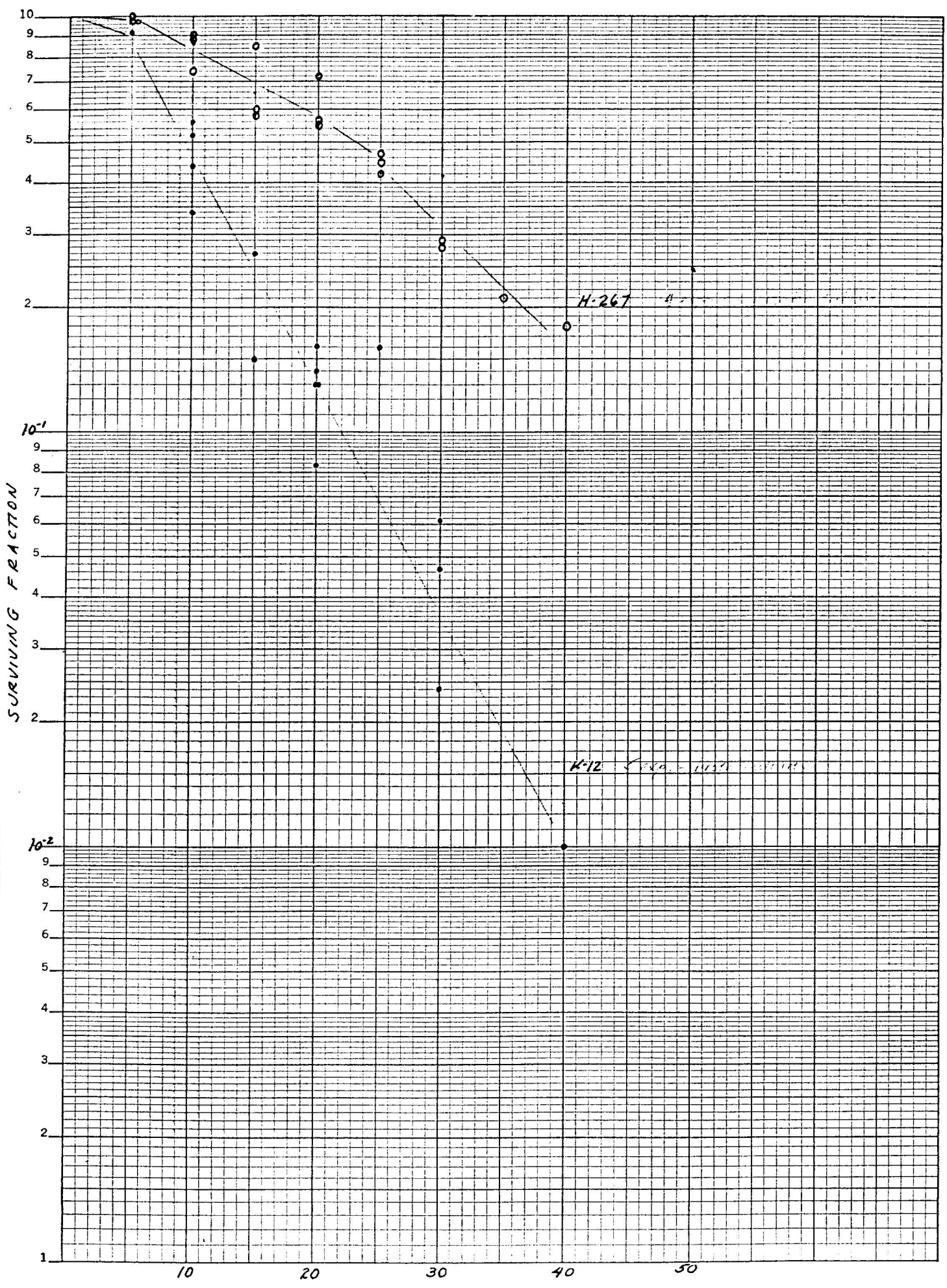
Initial culture from ——— hour unacrated culture. d.c aerated
 hours at 37°C. Prot. Titer 1.5×10^8 - Diluted 1:1000 with Penney Broth - Incub. 11 ml volume shaker @ 30

Dose Seconds	Dilutions	Plates	Approx. Col. Count	Titer	Survival
✓ 0	100, 10 →	S-0-4*	500	5×10^6	1.0
✓ 20	100 ↓ 10	→ S-20-3 → S-20-4	400 400	4×10^6	0.8
✓ 40	100 ↓ 10	→ S-40-3 → S-40-4	400	4×10^6	0.8
✓ 60	10 ↓ 10	→ S-60-2 → S-60-3	300	3×10^6	0.6
✓ 80	10 ↓ 10	→ S-80-2 → S-80-3	280	2.5×10^6	0.5
✓ 100	10 ↓ 10	→ S-100-2 → S-100-3	200	2.0×10^6	0.4

* dilution = 10^4



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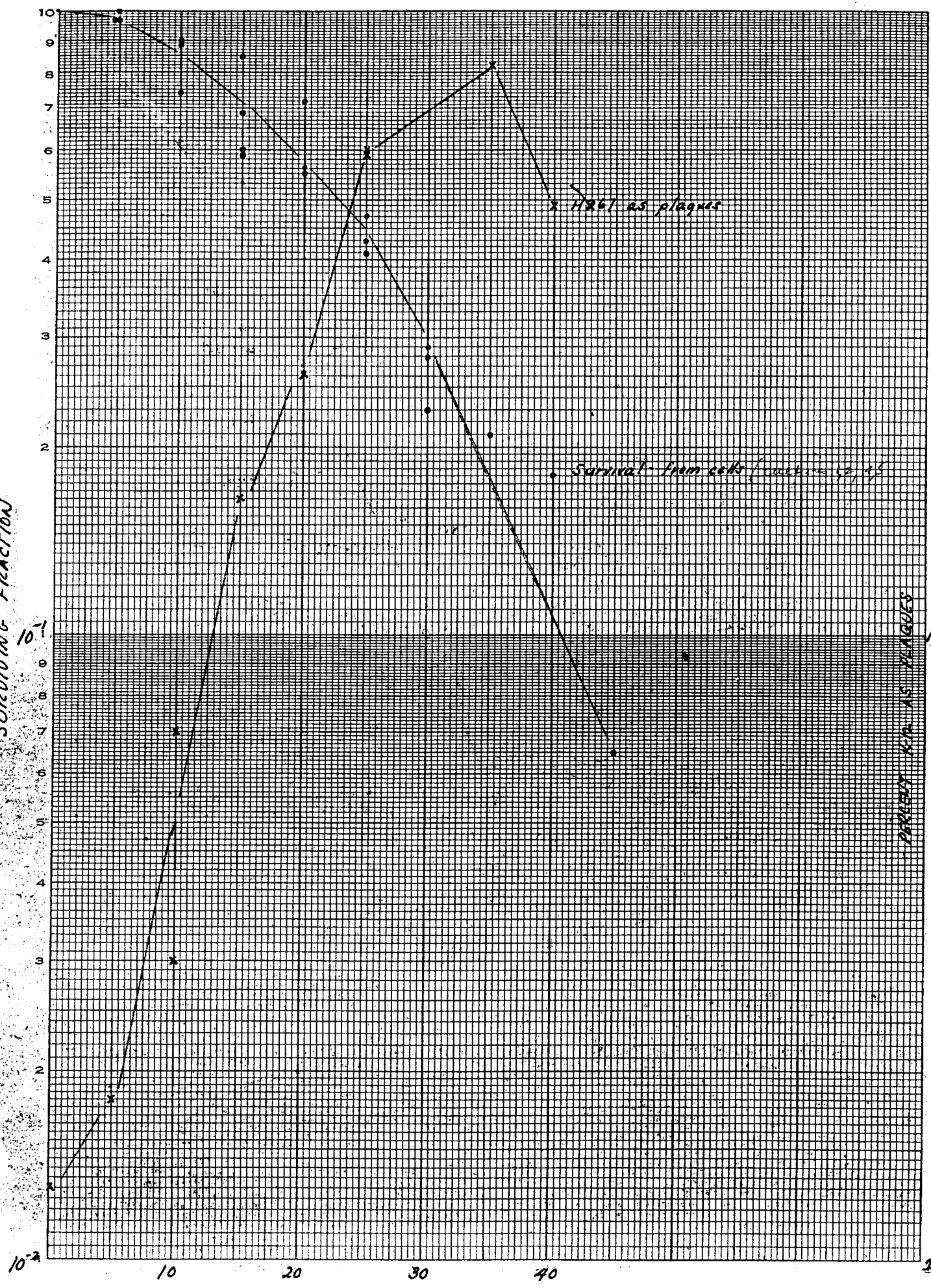


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MADE IN U. S. A.

NO. 340-L220 DIETZGEN GRAPH PAPER
SEMI-LOGARITHMIC
2 CYCLES X 20 DIVISIONS PER INCH

SURVIVING FRACTION

PLAQUE K₁₂ AS PLAQUES



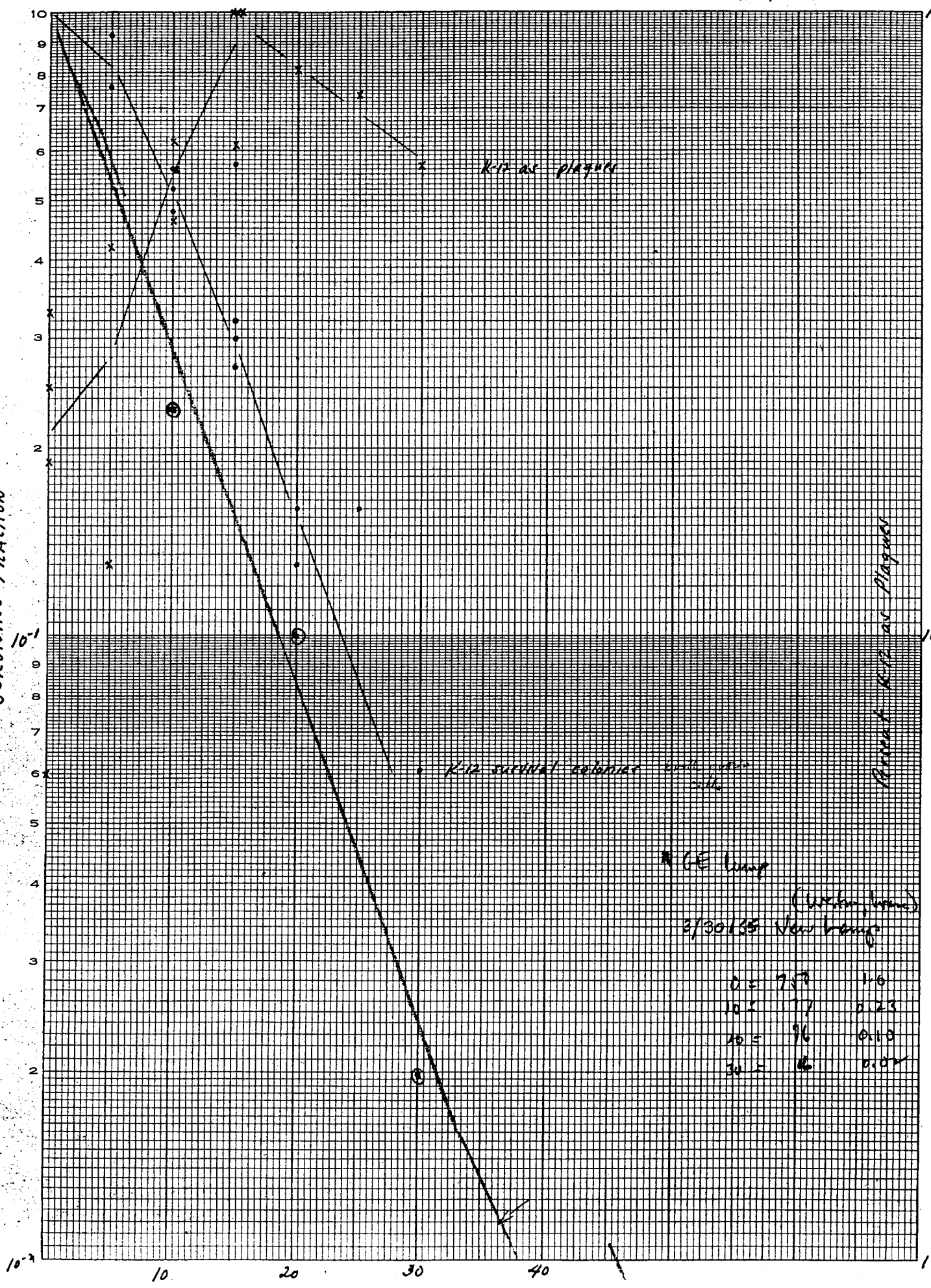
EUGENE DIETZGEN CO
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NO. 340-L220 DIETZGEN GRAPH PAPER
SEMI-LOGARITHMIC
2 CYCLES X 20 DIVISIONS PER INCH

SURVIVING FRACTION

Percent K-12 ac Plaque

10



K-12 ac plaque

K-12 survival colonies

GE lamp

(Larkin brand)
3/30/35 New lamp

0 =	75%	1.0
10 =	77	0.23
20 =	96	0.10
30 =	6	0.02

10^{-2}

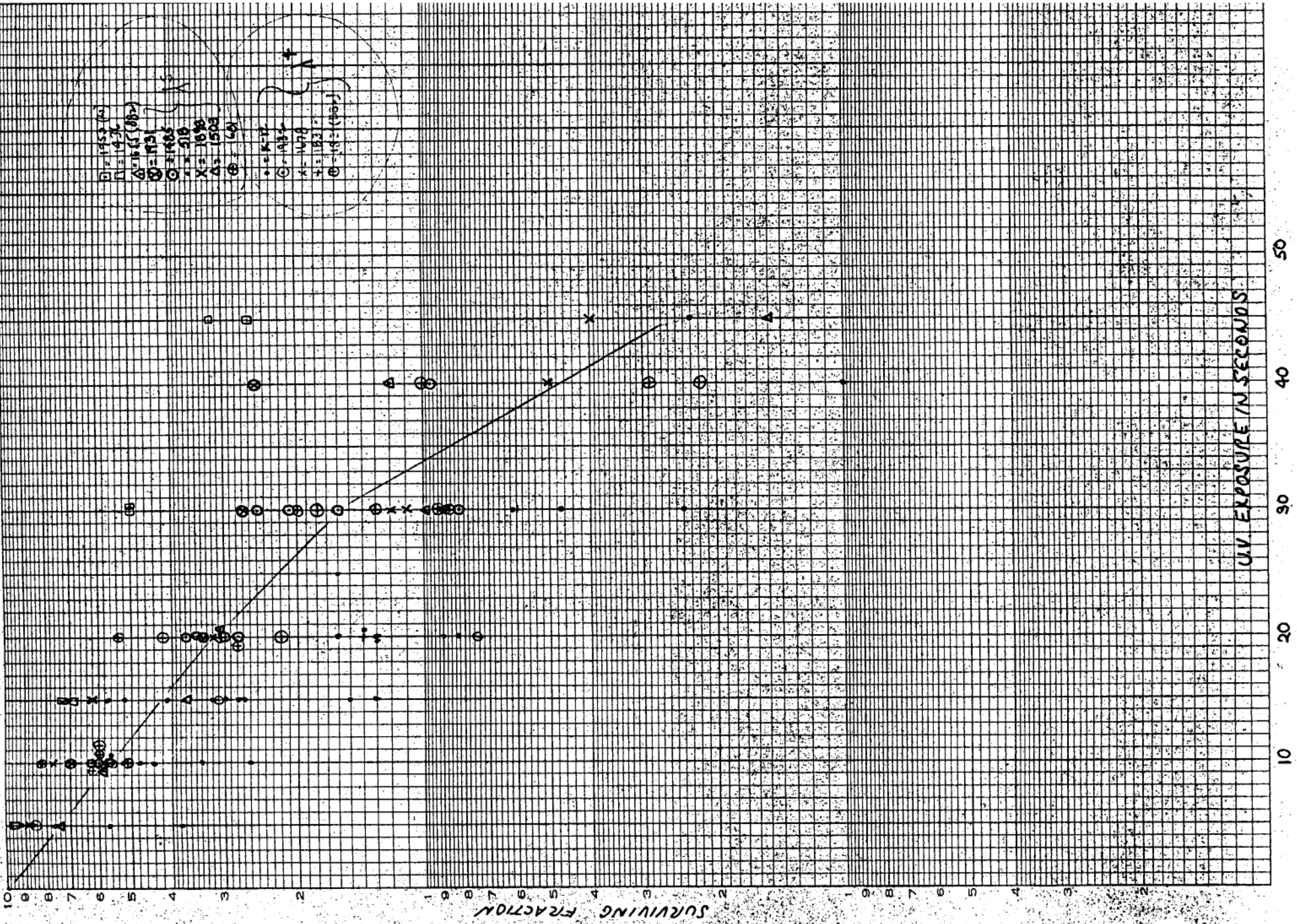
10

20

30

40

1



Irradiation - U.V - Sept II

(6) Morse 12/26/51

10ml fresh culture (2 hours from overnight unacrated) diluted 1-10 in W-D buffer after centrifugation and resuspension in 10ml W-D buffer.

Culture	(sec) Dose	0.1ml plated Dilutions	(in 5MB-lac) Count	O.F.	Irrad. titre - diluted 1-10 before irradiation	Surviving Fraction
A (W-1655)	0	10^{-6}	174	10^{-7}	1.74×10^8	
B (58-161)	0	10^{-6}	174	10^{-7}	1.74×10^8	
C (W-1681)	0	10^{-6}	92	10^{-7}	9.2×10^7	
D (W-1682)	0	10^{-6}	102	10^{-7}	1.02×10^8	
A	60	10^{-4}	995	10^{-5}	9.95×10^7	5.7×10^{-1}
B	60	10^{-3}	57	10^{-4}	5.7×10^5	3.2×10^{-3}
C	60	10^{-3}	1937	10^{-4}	1.937×10^7	$0.21 \times 10^0 = 2.1 \times 10^{-1}$
D	60	10^{-3}	1081	10^{-4}	1.081×10^7	1.0×10^{-1}

Stock suspensions from Step II used -
 Diluted 1-10 in PO_4 w-D before Irrad.

Step III ⑦ more
 12/27/51

Culture	Dose	Dilutions	(aliquoted) D.F.	all on EMB-lac - Counts	Titer	Irrad Titer (1-11)	S.F.
A	0	1/2 dilution with 100% stock suspension	2, 4, 6	10^7	202	2.0×10^8	2.0×10^8
B	0		2, 4, 6	10^7	304	3.0×10^8	-
C	0		2, 4, 6	10^7	77	7.7×10^8	-
D	0		2, 4, 6	10^7	69	6.9×10^8	-
A	100 sees.		2, 3, 5	10^6	3	3.3×10^6	$\frac{3.3 \times 10^6}{2 \times 10^8} = 1.6 \times 10^{-2}$ (0.009)
B	100		1, 3, 3	10^5	33		
C	100		2, 3, 4	10^4	-		
D	100		2, 3, 4	10^5	-		
			10 ⁴	10^4	-		

} no colonies

Stock suspension from Exp II used
Diluted with $PO_2 = W/D$ 1-10 before used.

Culture	Phase	Dilutions	(0.1 ml plates) D.F.	EMB lac Counts	Titer	Final titer ($\times 10$)	S.F.	
A W-1655	0	1st dilution	2, 4, 6	10^7	111	1.1×10^7	1.1×10^8	
B 58-161	0	supp into tryptone broth	2, 4, 6	10^7	190	1.9×10^7	1.9×10^8	
C W-1681	0		2, 4, 6	10^7	69	6.9×10^8	6.9×10^7	
D W-1682	0		2, 4, 6	10^7	62	6.2×10^8	6.2×10^7	
A	so sec.		2, 4, 5	10^5	81	8.1×10^6	-	7.3×10^{-2}
B	so		1, 2, 3	10^2	142	1.4×10^4	-	7.4×10^{-6}
C	so		2, 3, 4	10^5	7.3	7.3×10^6	>	1.1×10^{-1}
D	so		2, 3, 4	10^5	52	5.2×10^6	-	8.4×10^{-2}

lac
Colonies picked and streaked EMB lac
cultures merged and added
to stocks 180.5
180.6
180.7

58-161

Exp I (4) 10/22/25

Dose	Phage Titer/ml $\times 10^6$	Viable bacteria/ml	Phage /viable cell	Phage /killed cell
0	66	1.8×10^8	$\frac{6.6 \times 10^7}{1.8 \times 10^8} = 3.1 \times 10^{-1}$	—
20	61	3.5×10^7	$\frac{6.1 \times 10^7}{3.5 \times 10^7}$	—
40	109	4.6×10^6	$\frac{10.9 \times 10^7}{4.6 \times 10^6}$	4.5×10^7
60	73	3.6×10^5	$\frac{7.3 \times 10^7}{3.6 \times 10^5}$	
80	46	1.0×10^4	$\frac{4.6 \times 10^7}{1.0 \times 10^4}$	
100	6	1.2×10^3	$\frac{6 \times 10^6}{1.2 \times 10^3}$	

Survival of B- Suspensions of Exp II
 Diluted with PD₉ = W-D. 1-10 before Irrad.

12/29/31

(10)

Mvra

Exp I

Dose	Dilutions	0.1 ml total D.F.	EMBLae Counts	Irrad. t _{1/2}	S.F.
0	2, 4, 6	10 ⁷	176	1.8 x 10 ⁸	-
10					
20	2, 4, 6	10 ⁶	35	3.5 x 10 ⁷	2.0 x 10 ⁻¹
30					
40	2, 3, 4	10 ⁵	46	4.6 x 10 ⁶	2.6 x 10 ⁻²
50					
60	2, 3, 4	10 ⁴	3.6	3.6 x 10 ⁵	2.0 x 10 ⁻³
70					
80	1, 2, 3	10 ²	101	1.0 x 10 ⁴	6.1 x 10 ⁻⁵
90					
100	4, 1	10 ¹ 10 ²	253 12	1.2 x 10 ³	6.6 x 10 ⁻⁶

W-1655 1

Survival of β 58-161 λ^+ and Lwoff Effect

(11) IV Lwoffs
Exp VII

New stock prep. prepared 1/2/52 from overnight unselected y.e. broth culture by resusp. in W-D PD₂ - Before Irrad. dil 1-100 = W-D PD₂

Dose	Dilution	Counts EMB loc 0.1ml	Titer	S.F.
0	1, 2, (4) →	7	4×10^5	1.9×10^6
20	1, 2, (3) →	208	2.1×10^6	1.3×10^1
40	1, (3) →	349	3.5×10^5	2.5×10^{-1}
60	(3) →	435	4.4×10^4	3.1×10^{-2}
80	(3) →	167	1.6×10^4	1.1×10^{-2}

① dilutions made into TSB - incubated 40 minutes then diluted and plated - keeping 0 dose

Dose	Dilution	Counts	Titer	S.F.
0	(2), (4) →	4	4×10^5	1.6×10^6
20	1, 2, (4) →	28	2.8×10^6	1.0
40	1, 2, (3) →	164	1.6×10^6	1.0
60	1, 2, (3) →	122	1.2×10^6	6.6×10^{-1}
80	1, 2, (3) →	20 141	2.0×10^5 1.4×10^5	1.7×10^5 1.0×10^{-1}

4/2/52 (12) M.M.P. Exp VIII

Radiation Sensitivity of K^+

Fresh suspensions - Made from overnight un aerated broth cultures resuspended in W-D PO_4^- - Plated 1-10 before irradiation with W-D PO_4^-

Pan

Count EMH-loc (0.1uc) T.C. S.F.

E W-1985 K^+
F K-12 K^+

E-0	2, (4) →	122	1.2×10^7	
E-80	(2, 3) →	20	2.0×10^5	7.1×10^5
	→	77	7.7×10^4	1.1×10^{-2}
F-0	2, 3, (4) →	268	2.7×10^7	
F-80	un, (1) →	6	6.0×10^1	2.7×10^{-6}

✓

G W-1673
H W-1678 K^+

G-0	2, (4) →	82	8.2×10^6	
G-80	2, (2) →	74	7.4×10^4	9.0×10^{-3}
	→			
H-0	2, 3, (4) →			
	→			
H-80	un, 1 →			

no colonies - cells left out? too few?

J. W-1177 K^+
K. W-1603 K^+

J-0	2, (4) →			
J-80	un, 2 →			
	→			
K-0	2, (4) →			
K-80	2, (1) →			
	→			

not done
insufficient time

Radiation Sensitivity and Lymph Effect
in W-1177 λ^+ (J) and W-1603 λ^- (resistant) (K)

Stock suspensions from Exp VII diluted 1-100 in W-D PO₉ =

Strain	Sample	CFU	Titer/ml	Corrected Titer	S.F.
J W-1177 λ^+	J-0	68 ca 500	6.8×10^6	6.8×10^6	1-
	J-60 unmed. plat.	39	3.9×10^4	3.9×10^4	5.7×10^{-3}
	J-60 1.0 ml + 10 ml Pan + YX Broth - Incub. 10 min @ 37 m WB.	27	2.7×10^3	2.7×10^4	3.9×10^{-3}
				Dil 10^3 10^4	142 16
K W-1603 λ^-	K-0	73	7.3×10^6	7.3×10^6	8.7×10^{-2}
	K-60 unmed. plating	64	6.4×10^5	6.4×10^5	8.7×10^{-2}
	K-60 1.0 ml + 10 ml Pan + YX broth Incubation 10 min @ 37 WB	79	7.9×10^4	7.9×10^5	1.1×10^{-1}

plaque in 1785
total ml
from 6.8×10^6 titer cell
 2.7×10^3 viable cell

Report on Exp. II (6) Morse 1/5/51 (15)

10ml culture of each (A, B, C, D, D_A) centrifuged and resusp. in W-D POF =
 Diluted 1-100 in W-D POF before read. (ca 10⁶ cells/ml)
 Diluted 1.0ml + 10ml POF + 1% - Inc. 40 minutes @ 37C

Culture	Dose	Rejection	0.1ml in 5ml POF	Titer	S.F.
A (W-1655)	0	1, ③ →	620	6.2 × 10 ⁶	-
B (58-161)	0	1, ② →	768	7.7 × 10 ⁶	-
C (W-1681)	0	1, ① →	821	8.2 × 10 ⁶	-
D (W-1682)	0	1, ① →	914	9.1 × 10 ⁶	-
D _A (58-161) (58-161)	0	1, ① → ↑ TSB	486	4.9 × 10 ⁶	-

These diluted 1-10 further than above because of inhibition

A	40	① → ② → ③ → ④ → ⑤ → ⑥ → ⑦ → ⑧ → ⑨ → ⑩ →	147 11 7	1.5 × 10 ⁶ 1.1 × 10 ⁶ } 1.3	$\frac{1.3 \times 10^6}{6.2 \times 10^6} = 2.9 \times 10^{-1}$
B	40	① → ② →	48	4.8 × 10 ⁵	$\frac{4.8 \times 10^5}{7.7 \times 10^6} = 6.2 \times 10^{-2}$
C	40	② → ③ →	35	3.5 × 10 ⁶	$\frac{3.6 \times 10^6}{8.2 \times 10^6} = 4.4 \times 10^{-1}$
D	40	② → ③ →	28 246	2.8 × 10 ⁶ 2.5 × 10 ⁶ } 2.7	$\frac{2.7 \times 10^6}{9.1 \times 10^6} = 2.9 \times 10^{-1}$
D _A	40	② → ③ →	6 50	6 × 10 ⁵ 5 × 10 ⁵ } 5.5	$\frac{5.5 \times 10^5}{7.7 \times 10^6} = 1.1 \times 10^{-1}$

Selection for growth by competition in d.f.

10⁶/ml → 1, 3 →

Comparison of K-12⁺ and 1485⁺

Unincubated broth cultures - centrifuge and resuspend

in W-O buffer. Dilute 1-100 with W-O Buffer before inoculation - make last dilution into P-X broth - incubate this dilution tube for 40 min sample.

Expected Survival no. of cells

Dose	K-12		1485	
	Inc. Untag	10 ⁷	Inc. Untag	10 ⁷
20	10 ⁵	10 ⁶	5x10 ⁶	5x10 ⁶
40	10 ³	10 ⁴	4x10 ⁵	10 ⁶
60	10 ²	10 ³	5x10 ⁴	5x10 ⁵
80	0	10	10 ⁴	10 ⁵

K-12	Dose	Character	Dilutions	Plate	Count
✓	0	unincubated	2, 10 ⁴ , 10 ⁵	F-0-4	80
✓	0	incubated	2, 10 ⁴ , 10 ⁵	F-0-4I	123
✓	20	unincubated	2, 10 ⁴ , 10 ⁵	F-20-3	154
✓	20	incubated	2, 10 ⁴ , 10 ⁵	F-20-3I	206
✓	40	unincubated	2, 10 ⁴ , 10 ⁵	F-40-2	141
✓	40	incubated	2, 10 ⁴ , 10 ⁵	F-40-2I	367
✓	60	unincubated	1, 10 ⁴ , 10 ⁵	F-60-1	781
✓	60	incubated	1, 10 ⁴ , 10 ⁵	F-60-1I	58
✓	80	unincubated	1, 10 ⁴ , 10 ⁵	F-80-1	4.1
✓	80	incubated	1, 10 ⁴ , 10 ⁵	F-80-1I	0

Surviving Fractions

K-12 Dose	Incubated		Unincubated	
	S.F.	S.F.	S.F.	S.F.
0	1.0	1.0		
20	1.7x10 ⁻¹	8.9x10 ⁻¹		
40	3.1x10 ⁻²	1.8x10 ⁻²		
60	4.7x10 ⁻⁴	9.6x10 ⁻⁴		
80	0	5.1x10 ⁻⁵		

W-1485

W-1485	Dose	Character	Dilutions	Plate	Count
✓	0	unincubated	2, 10 ⁴ , 10 ⁵	E-0-4	160 x 10 ⁵
✓	0	incubated	2, 10 ⁴ , 10 ⁵	E-0-4I	229
✓	20	unincubated	2, 10 ⁴ , 10 ⁵	E-20-4	75 x 10 ⁵
✓	20	incubated	2, 10 ⁴ , 10 ⁵	E-20-4I	110
✓	40	unincubated	2, 10 ⁴ , 10 ⁵	E-40-3	290 x 10 ⁴
✓	40	incubated	2, 10 ⁴ , 10 ⁵	E-40-3I	353
✓	60	unincubated	2, 10 ⁴ , 10 ⁵	E-60-3	*193/2 = 97 x 10 ⁴
✓	60	incubated	2, 10 ⁴ , 10 ⁵	E-60-3I	140
✓	80	unincubated	2, 10 ⁴ , 10 ⁵	E-80-2	73 x 10 ³
✓	80	incubated	2, 10 ⁴ , 10 ⁵	E-80-2I	147

W-1485 Dose	Incubated S.F.	Unincubated S.F.
0	1.0	1.0
20	4.8x10 ⁻¹	4.7x10 ⁻¹
40	1.5x10 ⁻¹	1.8x10 ⁻¹
60	6.1x10 ⁻²	6.1x10 ⁻²
80	6.4x10 ⁻³	4.6x10 ⁻³

Many lysed cols in sections of K-12, espec 40: 1 col = W-1892

* 0.2 ml plated

2/7/52

(18)

Comparison of U.V. resistance of 58-161 = A.
 W-1655 = B.
 W 1831 = C.

28 hour un-aerated cultures used - centrifuged and resuspended
 in W-10 buffer - diluted 1-10 with W-0 buffer before irradiation

Cult. Dose	Expected Survival	Experimental		Counts	Titre	S.F.	
		Dose	Dilution* Plats				
A	0	1.0 = 10 ⁷ cells/ml	0	2, 4 → A-0-4	201	2.0 × 10 ⁷	1.0
	20	0.1 = 10 ⁶ cells/ml	20	2, 3 → A-20-3	579	5.8 × 10 ⁶	2.9 × 10 ⁻¹
	40	0.01 = 10 ⁵ cells/ml	40	2 → A-40-2	56	5.6 × 10 ⁴	2.7 × 10 ⁻³
B	0	1.0 = 10 ⁷ cells/ml	0	2, 4 → B-0-4	142	1.4 × 10 ⁷	1.0
	20	0.5 = 5 × 10 ⁶ cells/ml	20	2, 4 → B-20-4	35	3.5 × 10 ⁶	2.5 × 10 ⁻¹
	40	0.1-0.5 = 10 ⁶ cells/ml	40	2, 3 → B-40-3	237	2.4 × 10 ⁶	1.7 × 10 ⁻¹
C	0	1.0 = 10 ⁷ cells/ml	0	2, 4 → C-0-4	102	1.0 × 10 ⁷	1.0
	20	0.5 = 10 ⁶ cells/ml	20	2, 3, 4 → C-20-3 → C-20-4	182 27	1.8 × 10 ⁶	1.8 × 10 ⁻¹
	40	0.1 = 10 ⁶ cells/ml 0.01 = 10 ⁵ cells/ml	40	2, 3 → C-40-3 → C-40-2	22 255	2.5 × 10 ⁵	2.5 × 10 ⁻²

*water

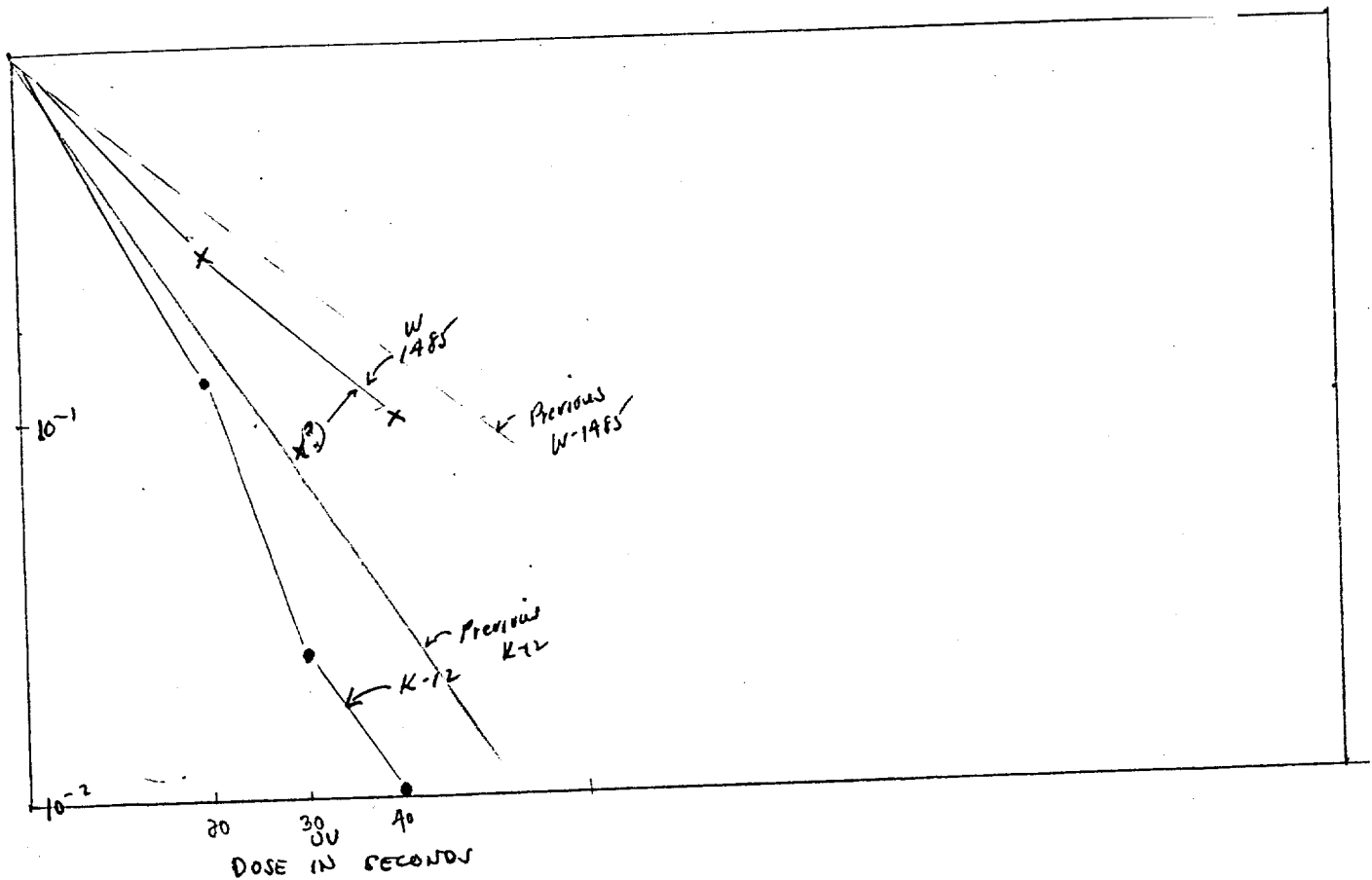
Comparison of K-12 and W1485

Aerated cultures = 0.1 ml of 2 hr un-aerated culture + 10 ml
 PK broth incubated in 37C + 1/2 hours - Centrifuged and
 resuspended in W-O buffer - diluted 1-100 before irradiation

K-12 Dose	Expected Titer	Dilution	EMB Plates	Counts	Titer	S.F.
0	1×10^7	2, ④ →	A-0-4 -	227	2.3×10^7	1.0
20	1×10^6	2, ③ →	A-20-3 -	300	3.0×10^6	1.3×10^{-1}
30	5×10^5	2, ③ →	A-30-2 -	56	5.6×10^5	2.4×10^{-2}
40	1×10^5	2, ③ →	A-40-2 -	238	2.4×10^5	1.0×10^{-2}
			A-40-3 -	21		

Data obtained from course prepared separately from the two points. 8/13/227
7/1/227

W1485	Titer	Dilution	EMB Plates	Counts	Titer	S.F.
0	1×10^7	2, ④ →	B-0-4 -	277	2.8×10^7	1.0
20	5×10^6	2, ③ →	B-20-3 -	80	8.0×10^6	2.8×10^{-1}
30	2×10^6	2, ③ →	B-30-3 -	247	2.5×10^6	8.2×10^{-2}
40	1×10^6	2, ③ →	B-40-3 -	267	2.7×10^6	7.6×10^{-2}



Comparison of K-12 and 1485

Cultures from one night unactivated PK broth by 0.1 + 10.0 and
 arrested 5 hours - centrifuge and resuspended in W-D buffer -
 Dilute $10^6 = \text{ca } 10^3$ cells/ml - Sampled immediately for 0

^{2,4,6} K-12	Dose	Plate	Count/plate	Count/ml	Plaque	S.F.
	0	K0 -	446	4.5×10^3	0	1.0
	10	K-10 -	195	2.0×10^3	No plaque -	4.9×10^{-1}
	20	K-20 -	62	6.2×10^2		1.4×10^{-1}
	30	K-30 -	21	2.1×10^2		4.7×10^{-2}

W-1485	Dose	Plate	Count/plate	Count/ml	Indicator	S.F.
	0	W-0	626	6.3×10^3	Continued and carrying phage	1.0
	10	W-10	392	3.9×10^3		6.2×10^{-1}
	20	W-20	234	2.3×10^3		3.7×10^{-1}
	30	W-30	129	1.3×10^3		2.1×10^{-1}

Ok with phage

Little high than normal

Examination of W-1655¹ C

Unactivated culture - 30 hours centrifuge resuspended
 in W-D - dilute 10^6 - ca. 10^3 cells/ml

Dose	Plate	Counts/plate	Count/ml	S.F.
0	C-0	175	1.8×10^3	1.0
5	C-5	138	1.4×10^3	7.8×10^{-1}
10	C-10	138	1.4×10^3	
20	C-20	92	9.2×10^2	5.1×10^{-1}
30	C-30	64	6.4×10^2	3.6×10^{-1}
40	C-40	56	5.6×10^2	3.1×10^{-1}

no appearance of W-1655 in W-1655
 of 8/10, etc

Examination of W-1655

Uncultured culture - 28 hours PX - Centrifuge, resuspended in W-0 buffer - dilute 10^6 - Inoculate

<u>Dose</u>	<u>Plate</u>	<u>Counts</u>
0	W-0 -	?
35	W-5 -	77
10	W-10	70
15	W-15	60
20	W-20	43
30	W-30	58
40	W-40	-
50	W-50	-

add exp -
fresh plate effect?

1831 + 882 -

Four ~~colony~~ ^{plaque} picked (central growth) and streaked

3 grew -

1982 } to date - single colonies on original ^{EMB} ~~EMB~~ picked - two sets 40 in 1st
1832 } 16 in 2nd

one possible diploid in 1st 40, none in 2nd

Possible streaked in EMS and EMB - indicated dip.

Three colonies of EMS dip picked to EMB, inoculated in DM+ lactose (1.0mg/10ml)

dated 10:15 2/19/52

just
picked →

2/13/52

Comparison of K-12 with 1485

4 hour aerated culture from overnight un-aerated - dilute to contain 10^3 cells/ml - Inoculate - Plating for phage on S18

K-12 as Phage	K-12	Dose	Count/plate A.P.F.	Count/ml	Phage/ml	S.F.
0.25		0	278	2.8×10^3	70	60
0.50		10	156	1.6×10^3	$\frac{990}{2} = 1560$	5.6×10^{-1}
0.81		20	37	3.7×10^2	2240	1.3×10^{-1}
1.59		30	17	1.7×10^2	1570	6.1×10^{-2}

1485	Dose	Count/plate	Count/ml	S.F.
	0	187	1.7×10^3	50
	10	106	1.1×10^3	5.7×10^{-1}
	20	66	6.6×10^2	3.5×10^{-1}
	30	30	3.0×10^2	1.6×10^{-1}

Ratio	cells lost plaque count	Dose
	$\frac{122}{156} = 0.79$	0-10
	$\frac{241}{224} = 1.1$	0-20
	$\frac{261}{157} = 1.7$	0-30

Culture started PX broth

WB-13 project X → 0.25 + 10ml PX (1-16) 9:15

W9-14 } for Penicillin Run → 0.25 + 10ml PX 9:15
W9-16 }

K-12 } possible mistake in
1485 } above exp.

2/14/52

(23)

Comparison of K-12 and W-1485
 Heroff effect - 4 hr aerated cultures in PX from overnight
 un-aerated cultures

K-12 Dose	Plate	Colonies/plate		/ml	Plaque/plate	S.F.	K-12 Plaque
			diff.				
0	K-0	250	18	2.5×10^3	< 50	1.0	2.25
5	K-5	232	120	2.3×10^3	105 $\frac{319}{3} = 106 - 55$	9.2×10^{-1}	.92
10	K-10	130	182	1.3×10^3	155 $\frac{155}{1} = 155$	5.2×10^{-1}	.62
15	K-15	68	210	6.8×10^2	230 $\frac{360}{2} = 180$	2.7×10^{-1}	1.05
20	K-20	40	210	4.0×10^2	134	1.6×10^{-1}	0.74
25	K-25	41		4.1×10^2	134	1.6×10^{-1}	?

Ratio	Cell loss diff.	Plaque gain diff.	Dose	S.F.
			0-5	$\frac{18}{55} = 0.32$
			0-10	$\frac{120}{105} = 1.1$
			0-15	$\frac{182}{201} = 0.91$
			0-25	$\frac{210}{134} = 1.6$

W-1485

Dose	Plate	Colonies/plate	Count/ml	S.F.
0	W-0	251	2.5×10^3	1.0
10	W-10	153	1.53×10^3	6.0×10^{-1}
20	W-20	75	7.5×10^2	3.0×10^{-1}
30	W-30	62	6.2×10^2	2.5×10^{-1}

Cultures

- K-12 -
 W-1485 -
 Wg-19 -
 Wg-16 -
 WB-1 -

} are lost -
 tipped over in
 incubator

Cultures made - 2/15/52

PX { K-12 - repeat 2 incubations
 1831 - examine 1831 + 882 for lys. 882!
 WB-1 - prepare X.

Sat. 2/16/52 K-12 aerial culture started 7:50 out at 9:50 35+10+10
 WB-1 " " " 7:55 - no lysis 11:10 refrigerat until 2/16/

Effect of Prot Incubation
 K-12 - Centrifuge - resusp in W-D - Dilute to 10⁹ viable cells/ml - Prot inad. incub. 40 min at 37C

<u>Time</u>	<u>Plate</u>	<u>Count/plate</u>
0	K-0 -	58
	K-0 - Inc	140
15 sec	K-15	25
	K-15 - Inc	20

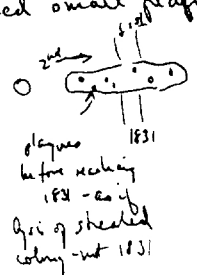
2/17/52 lysed WB-1 tube plated at - TSA
 10² -
 10⁴ -
 10⁶ -

Culture started 2/17/52

K-12
 1982
 1831
 WB-1

WB-1 culture continued at 37C
 in 10:00 AM
 out 11:05 AM lysis apparatus beginning.

20 colonies of 1831 + 882 (from plaques) streaked across 1831 for lysogenicity 2 882
 made 2/16/52 - examined - no clear cut examples of sensitivity of 1831 to any of
 streaks noted One streak contained small plaque

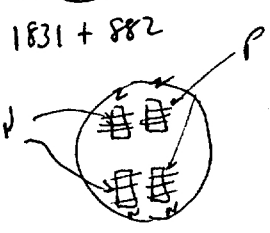


Cultures 2/18/52
 Staked
 K-12
 1831
 1485

2/19/52
 Aerated cultures staked K-12, 1485 - at 8:15 - 0.25 + 10.0 in PX
 wt 12:15

uncovered overnight

Results 2/20/52



1831 + 882

z = 1831
 w = 1485
 P = plaque forming - see bottom of 24
 N = non-plaque forming

N gives plaques on ref.
 lysate 1485 = N 1485
 lysate 1831 = N 882
 P gives no plaques on ref.
 lysate 1485 = P 1485
 lysate 1831 = P 882

16-11 - Effect of post-irradiation on Survival

Inoculate - aerated: 4:30 hours in PX. Centrifuge - resuspend in W.D.*
 dilute in W.D to contain 10⁸ cells/ml - ~~After~~ After inoc. 1/10 dilution
 into PX broth - incubated
 5 air 40 min at 37C

Dose	Plate	Count/Plate	S.F.
0	K-0 K-0-I	281 270	1.0
10	K-10 K-10-I	84 185	3.2 x 10 ⁻¹ 6.7 x 10 ⁻¹
15	K-15 K-15-I	42 117	1.5 x 10 ⁻¹ 4.2 x 10 ⁻¹
20	K-20 K-20-I	23 58	8.3 x 10 ⁻² 2.1 x 10 ⁻¹

Suggests that
 post irradiation in culture
 de-activates "Survival" effect.

post-
 I = 1 incubation counts

* remainder of this response are
 irradiated 25 sec, ca 8 ml PX added
 and incubated in aeration
 2:00 PM - 4:00 PM - slight lysate
 apparent.
 left on bench overnight - nearly clear
 next morning - centrifuged and analyzed
 dil: 10⁶ - 43 = ca 86 x 10⁵ x 10 = 8.6 x 10⁸

Cultures started 2/18/52
 K-12
 1485
 1831