DATE: 2/10/55 REF:

1 On the order of the loci 308-5 = 1-6-

(A) A complete (c. 0.01 ml) of HFT 7- streaked on ½ plate B gal
control ½ = 0 (a few bacteriophage very minute pop)
HFT 7- lysate ½ = 31 (on single gal (-) HFT 7- plaques have given c. 10^4)
The low titer here suggests the order 1-7-6 and that the pop are the result of double crossovers.

B. The segregants. Of the 30 pop examined, 18 were stable (all at (2) RETESTS AFTER PURIFICATION

	1	6	7	4	5	1	6	7	8	9
1.	—	—	0	104	1-6-7-	0	0	(2pop) 0	*	16- ?
2.	—	+	—	2pop	1-7- (?)	0	+	5pop	*	1-
3.	parental pop. (-)		—		1-6-7-	0	0	0	*	1-6-7-
4.	—	—	—		1-6-7-	+	+	0		7-
5.	—	—	—		1-6-7-	0	+	0	*	1-7-
6.	— very +				—	0	0	2pop	*	1-6- ?
7.	—	—	—		1-6-7-	+	+	0		7-
8.	+ 6pop	+	—		7-	2pop	+	0		7- ?
9.	—	—	—		1-6-7-	0	0	0 (1pop)	*	1-6- ?
10.	—	—	—		1-6-7-	0	0	0 (1pop)	*	1-6- ?
11.	—	—	+		1-6-	0	0	0 (2pop)	*	1-6- ?
12.						7 (1-6-7-)	aneuploid			1-6- ? = 5
					RETEST	(?) ATC 1-7-	aneuploid type			1- = 1 aneuploid
						1 (1-6-)	ideal			1-7- = 1 aneuploid
						1 (7-)	aneuploid			7 = 3 aneuploid
									* many minute papillae throughout	1-6-7- = 1 aneuploid

(B) a complete (c. 0.01 ml) of HFT 4- streaked on ½ plate B gal
control ½ = 0
HFT 4- lysate ½ = 500-1000 - this high titer suggests the order 1-6-4 and these pop are the result of single crossovers } the overall order appears now to be 2-1-7-6-4

1. The segregants. - After (2) 6 of 24 stable. The segregating strains in each case have only 1 or 2 (-). Do their segregations fit allotypic ? Should it fit order is correct

	1	4	6	8
1	0	+	0	1-6-
2	0	+	0	
3	0	+	0	
4	0	+	0	
5	0	+	0	
6	0	+	0	
7	0	+	0	
8	0	+	0	
9	0	+	0	
10	0	+	0	
11	0	+	0	
12	0	+	0	
13	0	+	0	
14	0	+	0	
15	0	+	0	
16	0	+	0	
17	0	+	0	
18.	0	+	0	

18 (1-6-)

Most of these have many small pop. in control and elsewhere - reminiscent of 2433+4-1

DATE: 2/12/55 REF:

On the order of the loci - To complete the analysis of the previous report.
With regard to the arrays of this lysate on other (-) sea 305, 307

1. 307-1 x — (+)
no odd = 0
0.1 ml 1612 = 294
(11/12/54)

This finding indicates the structure $\frac{--}{++}$ is of gal +

2. The segregants

	1	2	3	4	5	6	7	8
		1	1	1		1	1	1
	1	0	0	+	19	0	0	+
	2	0	0	+	20			
A	3				21			
	4				22			
	5				23			
	6				24			
	7							
	8							
	9							
	10							
	11							
	12							
	13							
	14							
	15							
	16							
	17							
	18							

24 1-7-

1. 308-5 x — (+)
no odd = 0
0.1 ml Kpn = 238
(11/12/54)

The structure $\frac{1\ 6}{--}$ $\frac{}{++}$ is of gal (+)

← 3708-1 presumed heterozygote - w2876

2. The segregants

	1	2	3	4
		1	6	16 +
	1	0	0	+
B	2	0		
	3	0		
	4	0		
	5			
	6			
	7			
	8			
	9			
	10			
	11			
	12			
	13			
	14			
	15			
	16			
	17			
	18			
	19			
	20			
	21	mixed - (+)		

3 stable (+)

20 1-6-

1	2	3	4	5	6	7	8	9	10

Gal1- Gal6- interaction. Gal2- x —— Gal1- Gal6-, is the product Gal+?

W1210

no odd = 0

0.1cm fr. 308.5 = 50

W1210 = gal8-

Seg	/1	/2	/6	Genotype			
1	+	0	+	~~1-6~~ 2-			
2	+	0	+	"			
3	0	+	0	1-6-	<-321-3	M-1-6-	<— W2864
4	+	0	+	2-			
5	0	+	0	1-6-			
6	+	0	+	2-			
7	+	0	+	"			
8	+	0	+	"			
9	+	0	+	"			
10	+	0	+	"			
11	+	0	+	"			
12	+	0	+	"			
13	0	+	0	1-6-			
14	+	0	+	2-			
15	0	+	0	1-6-			
16	+	0	+	2-			
17	lost						
18	stable(+)						
19							
20							
21							
~~22~~							

12 2- idio
4 1-6- allo
7 stable(+)?

DATE: 2/21/55 REF:

1	2	3	4	5	6	7	8	9	10

Multiplicity Effects.

Reagent:

1. 750-2 λ (old prep) 10^7 = 34 41 = 3.8×10^8
2. cell Assay = 10^7 = 172, 188 = 1.8×10^9
3. Transd. lysate = 10^1 dil of 0 dose 241-14 of 316, = 15500 plaques/ml
   c 9000 [illegible]

Procedure

		Tube 1	2	3	4
	R_x 3 [illegible]	0.5	0.5	—	—
	Pen assay	—	—	0.5	0.5
	R_x 2 cells	0.5	0.5	0.5	0.5
Incubate 10' at rm temp.					
		dilute as follows, 0.1ml of above to			
	0.4ml 750-2λ	*	0.1	—	0.1
	0.4ml Pen	0.1	—	0.1	—
Incubate 5' and then plate 0.1ml + 0.1ml of R_x 2 cells					
Plates: 24 hr		all (-), slight evidence of λ ⊙	ct. all (-) partially lysed		
Count:		187 plaques	—	—	—
		6 papillae	12 papillae	6 papillae	no papillae
		X10X10X2	X10X5X2		
		18700 plaques	1200	0	

DATE: 2/21/55 REF:

Multiplicity Effects and also Reciprocal case of position effect between 1–6, 1–7

2279 diluted = 10^6 cell

		tube	1	2	3	4	5
	cells		+	+	+	+	+
	HFT 6⁻	0.5 ml	+	+	0	0	0
	HFT 7⁻	0.5 ml	0	0	(+)	+	0
adsorb. 10 min							
dil 10^{-2} (after p. 322)							
add 0.1 ml + 0.9 ml 2D-2			0	+	0	+	0
add 0.1 ml + 0.9 ml penassay			+	0	+	0	+
adsorb 5 min							
plate 0.1 ml							

Plates			1⁻ × 7⁻	1⁻ × 7⁻	
24 hr	col(–), slight evidence of ⊙	(–) col. all partially gal	as 1	as 2	(–) col
			323-1		
26 hr	256 (–) col	287 (–) col	1 col pap. slightly; 246 (–) col. some partially gal.	1 col pap.; 306 (–) col	231 (–) col.
48 hr	1 col. c̄ 2 central pap ⊙	1 col. c̄ 5 central pap ⊙	no further change	no further change	
	323-3	323-4 ← stock gal+ discarded Sept 1, 1964			

323-2 ← Stock gal+ discarded Sept 1, 1964 (contract this ⊙ restored)

Streaked out parental (–) picked 24 in each case to obtain (+) ✓ ✓

No (+) obtained 22 23

323-4 = 1⁻ × 6⁻ for position effect analysis
1 Segregants 6/22 +ᵘ

327-2 = 1⁻ × 7 as above
1 segregant. 4/23 +ᵘ

6 Segregants

	/1	/6	by φ	Genotype
1.	0	+	sens	1⁻
2.	+	0	sens	6 - 323-5
3.	+	0	resist	6 - 323-6
4.	0	+	Resist.	1⁻ 323-7
5.	+	0	sens	6⁻
6.	+	0	sens	6⁻

4 seg.

	/1	/7	genotype
1.	+	0	7⁻
2.	+	0	7⁻
3.	+	0	7⁻
4.	0	+	1⁻

all λʳ

For further seg see 383B

W2791

W2894

W2895

of 2 6⁻ revertants both stable gal+

of 6 gal+ revertants, 1 unstable

DATE: 2/27/55

REF: (324)

Is 1210 nearly gal⁻ or a closely linked (−). In the past particularly with W2850 and W2760 Gal⁻ Gal⁻ derivs from lysates are derived from the (−) & W902) gave (delayed) positive response few in number. Purification of the culture did not always lessen this effect. It may be (despite the crossing data (11,000 prototrophs) between 1210 x 902 that 1210 gal⁻ is not a recurrence of gal₂. To add further information 3 separate Gal⁻ HFT lysates derived from (W902 gal⁻), known to have originated from separate single gal⁻ HFT colonies were put onto 1240

	Lysate	1240
2342	3/17/54 lys	~ 50 pap after 3 days
2342	3/20/54 lys	" " " "
	241-14 lysate	" " " "

Mal-Lp^{r} breakthrough — also selection for λ mutant = Serial selection 296-1 gal(−) seq : 286-1 = 1412 t 2342 (not purified) exposed to 0.1 ml 2342 (3/17/54) for these.

no add = 23

0.1 ml HFT2 − = 78 x 8 = 624 slightly higher than previously but this is probably a different lysate

DATE: REF: (325)

1	2	3	4	5	6	7	8	9	10

Observations on Erotic Induction

1895 Hfr Lp+ X 2234 F- Lp s

1. Freshly grown cultures, by dilution of overnight culture
2. 6.0 + 5.0 ml

Post - Mix
0.5 ml samples

	Pre mix Plaques	Col.		Plaques 0	Col	Plaques 15	Col	Plaques 30	Col	Plaques 45	Col.	
1895	2	72	}	4	23		17		17		23	
	5.1 ml		}	0		0		1		5		Suggestive —
2234	0	99	}		19		23		23		17	

dil = 1/4

2nd run. Dilutions the same overnight

(1)	Pre mix 1895	2234	0	15 Post mix	30	45	60	75	90
plaques	3	6	0	1	2	1	2	3	4
2234	~~(3)~~	—	111	—	—	—	—	97	—
1895	~~(3)~~	—	18	19	24	21	31	16	c.24

(2). After 90' culture diluted and plated on gal to see if and pots are Lp R. 3 plates — Not suggestive — replication of this plate shows c 10 prototrophs.

	(+)	(-)
1,2,3 about same	2	1/4 = 142

On streaking out some of these prototrophs, 28(-), 2(+), most of the (-) were greatly contaminated with (+) — the origin of some (+) is puzzling since the culture was diluted before plating and there should have been few (+) auxotrophs — the cross plate and the pickings were discarded — to do —

1210 E 84 to make HFT of 1210 (-)

1. no add 2
Phd (old) 22

2373 — to v on stability of ... .

1. no add : 8
0.1ml K12 (7/29/54) 280

2. as control the same / 2279

2279
no add 0 } many small
0.1ml K12 (7/29/54) 281 } papillae

DATE: 3/5/55 REF:

307-1 Lp[5] (made c̄ UV) = Gal₁⁻ Gal₂⁻. To determine order and to see if selection is operating against certain [?] strand class

1. Transduced with both 4⁻, 6⁻ (HFT) = 247B-1 for 4, 311-2 for 6-)

overnight cult. ↓ 1-100 ↓ [0.2ml + 0.2ml HFT] 10 min. 20' rmtemp ↓ dil H₂O 1-50 ↓ plate 1. gal ↓ follow cd. approx.

		(−)	(+)	papillating (−)
A. Control not exposed to λ. exposed to broth plate	1	79 [?]	0	0
	2	77	0	0
	3	87	0	0
B. Exposed to HFT 4−	1	47 ③	4 ③	0
	2	48	5	1 ①
	3	69	0	0
		164		
C. Exposed to HFT 6−	1.	32	0	0
	2.	23	0	0
	3.	37	1 [?]	0

~~[illegible]~~

326C - analysis as of 332

(327)

DATE: 2/5/55 REF:

1	2	3	4	5	6	7	8	9	10
As on 326 only using 308-5 4p's (abs. by UV) = 1-6⁻									
(A) Control - Web exposed 4 hours				(-)	(+)	pupal color			
			1	101	0	0			
			2	101	0	0			
			3	92					
(B) Exposed to HFT 4⁻			1.	77	0	0	5 survivors after 5 days		
			2.	82	0	0	327-1-B		
			3.	75	0	0			
(C) Exposed to HFT 7⁻			1.	95	0	2			
			2.	90	0	1			
			3.	84	0	1	327C-1, 2, 3 for analysis of 336		
							327C-1 also [redacted]		

DATE: 3/8/55 REF:

1	2	3	4	5	6	7	8	9	10

2344 M1 - at J.L. Request to test multiplicity effect and to get information for run.

1. Aerated 2344 → dil. from overnight

	1	2	3	4	6
	1-10	1-100	1-1000	1-10000	→ 1-100
	↓	↓	↓	↓	↓
	0.2 ml	0.2 ml	0.2 ml	0.2 ml	0.05 ml
2346λ (2/17/54) →	0.2 ml	0.2 ml	0.2 ml	0.2 ml	(2×10^7)

← incubate 15' at 37C →

	↓	↓	↓	↓	
	dil 10^5	10^4	10^3	10^2	
std. 1×10^7	← plate 0.1 ml →				
	not done, no plates available				↓

Result	1	2 ①	2 ②	3 ①	3 ②	4	4	134
no. colonies	—	46	47	37	38	35	30	120
no. gal(+)	—	3	7	2	2	2	2	$1.27 \times 2 \times 10^7$
no cells/tube/2	—	1.3 ~~2.54×10^7~~		1.3 ~~2.54×10^6~~		1.3 ~~2.54×10^5~~		2.54×10^9
HFTλ/tube								
no. survivors	—	4.7×10^6		3.8×10^5		3.3×10^4		
Fract. surviving		0.36		0.29		0.25		
Fract.(+) survivors		0.11		0.053		0.061		
Fract. transd.		0.04		0.015		0.015		

These transd. saved 328-1, 1-8

DATE: 3/9/55

REF:

Reexamination of 282-2 (The ± was reisolated from stock and a new purified stock made.)

1. Early tests do not say separate segregational events were examined.
2. 24 ± colonies streaked out and single (+) from each restreaked. After 2 (+) picking a (−) stain to classify for locus.

2nd (+) clone	Stability	Stability Rev	/1	say /4	Allele	
1	. s	u	~~populating parental (−)~~			parental
2	u	—	o	o	1⁻ 4⁻	
3	u	—	+	o	4⁻	
4	u	—	+	o	4⁻	
in white + 5	u (s?) −	u				
in Rev ✓ 6	. s	~~m~~ S	~~[illegible]~~	~~[illegible]~~		
7	u	—	+	o	4⁻	
8	u	—	o	+	1⁻	
9	u	—	+	o	4⁻	
10	u	—	populating −	± ?	—	parental
11	u	—	+	o	4⁻	
12	. s	s	———			
13	u	—	+	o	4⁻	
14	u	—	+	o	4⁻	
15	. s	s	———			
16	. s	s	———			
17	u	—	+	o	4⁻	
18	. s	s	———			
19	. s	u	~~[illegible]~~			−
20	. s	s	———			
21	u	—	o	o	1⁻ 4⁻	
22	u	—	+	o	4⁻	
23	u	—	+	o	4⁻	
24	. s	s	———			
	9 s	7 s				
	15 u	17 u				

10 4⁻ ✓
2 1⁻4⁻ ✓
1 1⁻ ✓
2 parental
2 not done

17

DATE: 3/14/55 REF:

1 ? 2 3 4 5 6 7 8 9 10

2344 MI ← 2346 λ 3/17/54 Repeat to see frequency of reversion.

Reverted 2344 M

↓ 1-100 → Culture 0.3 Extract 0.3

Birth 0.3 —

2346 λ — 0.3

Adsorb 15 min 37°C

All 10^4 10^7

↓ 0.05 ml plated ⇒ 0.05 ml

Clones:

Plates	1	2	1	2
(+)	0	0	9	9
(−)	43	26	220	190
total	43	26	229	199
	35		184/428	= 4.2% (+)

DATE: 3/14/55 REF:

Repeat analysis of 285-2 - 24 pg. (-) picked and streaked to obtain a single gal (+) from each one.

This is wrong anal - as Lp^R not known - Lp^+ should have used 285-1

Gal +	Stability ①		Stability ②		/1	/4	Lp^RX	
1	u		✓		parental (-)		—	
2	u		✓		0	+	rms	1-
3	s	1		s				
4	u		✓		0	+	rms	1-
5	s	2		s				
6	s	3		s				
7	u	—	~~stable~~ u ✓		0	+	rms	1-
8	s	4		s				
9	s	5		s				
10	u		✓	~~s~~	0	+	rms	1-
11	s	6		s				
12	s	7		s				
13	s	8		s				
14	u		✓		0	+	rms	1-
15	u		✓		0	+	rms	1-
16	s	9		s				
17	s	10		s				
18	s	11		s				
19	s	12		s				
20	s	13		s				
21	s	14		u	+	0	rms.	4-
22	u		✓		- parental (-)			
sum	14 s		13 s				6	1-
	8 u		9 u				1	4-

DATE: 3/16/55 REF:

[redacted] 326c

see [redacted]. Analysis of segregants from [redacted] from p 326c

1. 24 (−) pap. isolated and streaked
2. from these streakings 24 (+) obtained
3. 24 (+) streaked out.

+col		motility	Rel stability	/1−	/6−	/7−	
streak	1.	?	s	o	+	o	
cut	2.	s	u	mixed c (+)			
	3	u		o	+	o	✓
	4	u		o	+	o	✓
	5	s	s				
	6	s	s				
	7	s	s				
	8	s	s				
	9	u		o	+	o	✓
	10	u		o	+	o	✓
	11	u		o	+	o	✓
	12	s	s				
	13	u		o	+	o	✓
	14	u		o	+	o	✓
	15	u		o	+	o	✓
	16	u		o	+	o	✓
	17	u		o	+	o	✓
	18	u		o	+	o	✓
	19	u		o	+	o	✓
	20	u		o	+	o	✓
	21	u		+	o	+	
	22	u		o	+	o	✓
	23	s	s				
	24	u		not done			
		8 s	7 s			14	1 7−
		16 u	8 u			1	6−

6+ + x | | −
7− − | | +
1− − +

\+ − + − + −
− − + − + +
− − + − + +

6 + + ⊗ − −
7 − − + +
1 − − + +

1 3
Centro: + +
mere − +
− +

Centro: − − +
− − −
mere + + ⊗ −

DATE: 3/18/55 REF:

1	2	3	4	5	6	7	8	9	10

1321 X 902 F+ - to obtain reciprocal cross data. Previously 518 X 902

1. Control streaks ok on B gal
2. Cross plates bad - many small (-), ca. 20 large col., probably (+)

Don't know what to make of this? [illegible]..?

518 X 2035 to look for "unlikely" "recombinant class" - namely gal+ Lp^s S gal.

1. Cross plate ok. ca. 90% gal+ - no record of control plate
2. 50 (+) col. picked streaked on B gal, same suspension also streaked against λ.

sensitive Streak/λ	no. of (-) in B gal streak	Tests of the (+) on the streak (1)	(2)
# 3	1/ca. 50	sens.	sens
# 5	0/ca 100	sens.	sens
# 20	0 / ca 200	sens.	sens.
# 41	5 / ca 100	sens	resist.

4/50+ are recombinants between Lp and Val

Gal- Lp^s X Gal+ Lp+
↓
Gal+ Lp^s

replicated to S gal, all prototrophic

296-1 : 1412 t AFT 2

1. Hoping to find λ host range mutant. Repeated transd. of gal- seg from this heterogenote

1. transd. with gal(+) HFT 1 (#1) → gal- seg obtained → transd. (#2) → Gal(+) HFT → rpt. #3

→ from #3 8 transd. picked and single gal- seg obtained. Each plated with 0.1 ml HFT gal(+) λ to see if plaques observed on [illegible].

1. On one (#3) single faint plaque (?) noted.
2. on one (#6) several " plaques (?) observed near edge

abandoned after the 4th passage.

DATE: 3/18/55 REF: W2790

1	2	3	4	5	6	7	8	9	10
W2580 = gal_2 - 4% 1/2^s - modified and 1/2^s blamid								W2580 1/2^s	

10

20

30

40

50

DATE: 3/20/55 REF:

1	2	3	4	5	6	7	8	9	10
Lysates						5/21/55			
811 t 902			Transductions (td = 2x10^5)			td = 2x10^4		Lysate streaked	
	Plaques (2x10^5)	Plaque Titer	/811	/2580		td /811	/2580	2580 / 750	
335-1	1. 110, 116	2.3×10^7	34	30	19 = 3.8×10^6	22	20	+++ +	
2	2. 8, 7	1.5×10^6	26	20	9 = 1.8×10^6	24	17	0 0	
3	3. 129, 134	2.6×10^7	20	23	12 = 2.4×10^6	21	25	± ++	
4	4. 148, 158	3.1×10^7	19	26	15 = 3.0×10^6	41 [illegible]	23	+++ +	
2580 t 811									
	Plaques (2x10^6)		2x10^5			td = 2x10^5			
5 1.		?	115	16	[illegible]	13	18	0 0	
not stable 6	2. 229 = 2.3×10^7			33		33	48	±± 2×10^6 +++	4.4×10^6
7	3. 211 = 2.1×10^7	?	69	78		28	96	1.2×10^6	1.4×10^7
8	4.		35	32		12	16	0 0	
Spontaneous			29	11		22	26		

Better start from scratch

2236 for HPT 3

1. no add = 2 — when these were tested, initially fair percentage unstable (12/12? or 17/24)
2. 902 λ* = 342 — plates stored in fridge c. month, then 24/24, 17/12 found stable

↑ why? see next page also /811

2062
1. no add 4
2. 902 λ* = 85 81

2580 against 811 λ 6/1/54 Rpt 4/25/55

1. no add 11 9
2. 0.1 ml λ 140 170

2580 ly^3 against 811 λ 6/1/54

1. no add 19
2. 0.1 ml λ 4 x 986 = 3944

DATE: REF:

327C-1 = 1⁻6⁻ ~~x~~ 7⁻ - ~~From~~ 24 sep. presumed parental (-) streaked out - 20 actually were. From each parental (-) a single + obtained.

C.O. Gal(+)	stability (1)	(2)	/1	/6	/7
1	o	o			
2	o	o			
3	o	o			
4	o	o			
5	o	o			
6	o	o			
7	~~o~~	~~o~~			
8	"	"	o	o	2 pap
9	"	"	o	o	1 pap
10	"	"	o	o	o
11	"	"	o	o	o
12	"	"	o	o	o
13	"	"	o	o	1 pap
14	"	"	o	o	3 pap
15	"	"	o	o	o
16	"	"	o	o	2 pap
17	"	"	parental (+)		
18	"	"	o	+	6 pap
19	"	"	o	o	1 pap
20	"	"	o	o	1 pap

13 4
7 0.

(8–20:) all lp^s except parental (−)

This culture presumably lp^n / lp^s

6⁻ − +
7⁺ + −
1⁻ − +

1⁻
4 1⁻6⁻
3 1⁻6⁻7⁻

511 by 902 λ *

1. no add	29	
2. 0.1 ml λ	88	60

511 by 902 λ
518?

1. no add	49	
2. 0.1 ml λ	234	185

1	2	3	4	5	6	7	8	9	10

Linearity of HFT at high dilution

750 vs 1-10 dil of 241-14 (0 dose - rad. expt.) see 316 — 6/22/55 1-10² dil — Plaques against W2792

ml lysate	pap.	Δ			ml	plaques
0	2	0	10.1		0	0
0.02	16	14	70		0.02	90
0.04	38	36	88		0.04	183
0.06	68	66	110		0.06	257
0.08	74	72	90		0.08	354
0.10	95	93	93		0.11	459

one plate, broth @37
total plate additions made up to 0.2 with broth

2279 und. of 241-14 (0 dose rad. expt) see 316

total particles 38 ... = 35 15030/0.1 ml

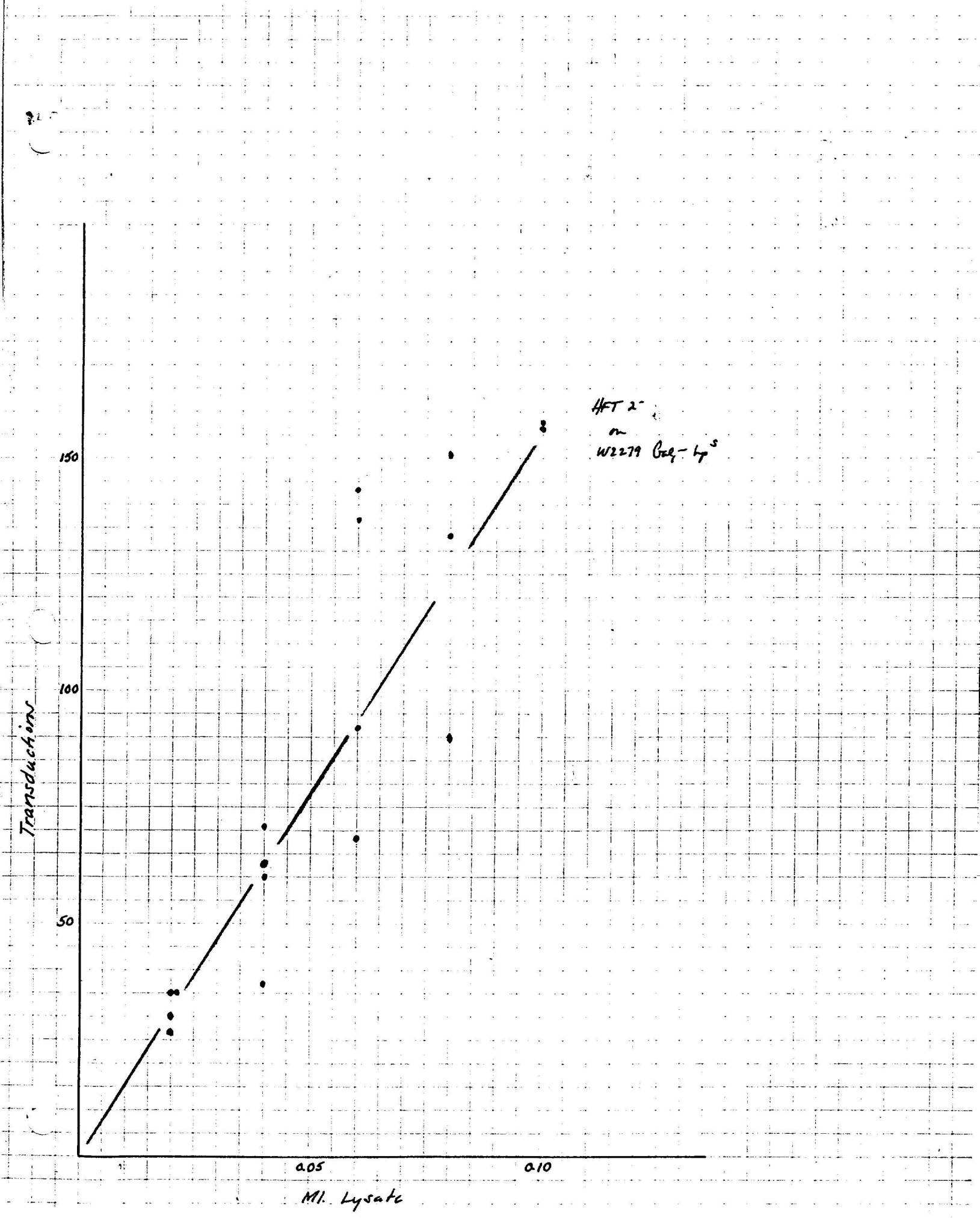
ml lysate	~~pap~~	Δ		Rpt. 4/8/55		Rpt. III	Rpt II	
0	1	0		3	0	0	2	0
0.02	28	27		38	35	30	37	35
0.04	61	60		66	63	37 ?	73	71
0.06	93	92		140	137	68 ?	145	143
0.08	201	200		154	151	90	135	138
0.1	316	315		159	156	238	158	157
			0.12	175	172	312		
			0.15	287	284	(0.14) >350		

1402 X 902F+

7 controls on B gal ok.

2.	(−)	(+)
Prototrophs ①	521	1
②	512	1
③	603	1
④	466	2
⑤	538	0
⑥	575	0
⑦	556	2
	3771	7

$$3771 \overline{)\,7.000\,} = 0.0018 \quad (3771,\ 32290) \quad = 0.18\%$$


HFT 2⁻
on
W2279 Gal-Lys
150
100
50
Transduction
0.05
0.10
Ml. Lysate

DATE: 3/23/55 REF:

Linearity with NPT.

1. 8H overnight incub. cut cure. lysate = K12 11/12/54

	lysate	Capillar	Δ	
	0	23	0	-
	0.02	63	40	20
	0.04	112	89	22
	0.06	151	128	21
	0.08	plate contaminated		
10	0.10	234	211	21

2. 2580

0	22	0	K12	11/12/54
0.02	163	141	70	
0.04	270	248	62	
0.06	345	323	55	
20 0.08	460	438	55	
0.10	527	525	53	

3. 2580 lyo

0	10	0	K12	11/12/54
0.02	1467			
0.04				
30 0.06				
0.08				
0.10				

518

0	49	0		
0.02	499	450		
0.04	714	665	186	plate
40 0.06	888	839	139	contaminated
0.08				
0.10				

50

DATE: 4/8/55 REF:

1439 To see if Mal+ S_2^R (λ-2 Resist) are also found. Sy HFT since the mal- S_2^R may all be temperature dependent (ETC).

1. streaked out on B mal - mixed.

1. 4 (+) } streaked / λ-2, mal+ = λ-2 sens.
2. 4 (-) } mal- = λ-2 resist.

1439 spread with λ-2 to obtain Mal+ λ-2 resist.

Tests of some HFT cultures (2-) obtained on 293. Stabs streaked on B gal - all gave (-). Colonies picked and tested / FH for HFT using u.v.

⊕ = HFT , O = NFT

293-1A. O O ⊕ ⊕
⊕ ⊕ ⊕ O — O may be the result of too few cell
O O ⊕ ⊕ — HFT 4/4 gal+R segregating at ②

293-2A ⊕ O ⊕ ⊕
⊕ ⊙ ⊕ ⊕ — O = too small inoculum (no growth on spot plate)
⊕ O ⊙ ⊕ — HFT 2/3 gal+R segregating at ②

293-2B ⊕ ⊕ ⊕ ⊕ — HK /2 /4 /+
⊕ ⊕ ⊕ ⊕ — O = good inoculum — 0 + + 2-
⊕ ⊕ O ⊕ — HFT 3/3 gal+R segregating at ②

293-11A ⊕ ⊕ ⊕ ⊕
⊕ O ⊕ ⊕ — O = good inoculum — 0 + + 2-
⊕ ⊕ ⊕ ⊕ — HFT 3/4 gal+R segregating at ②

RPT

			/2	/4	/+	
1A	⊙ ⊕ ⊕ ⊙	1	0	+	+	2-
	⊕ ⊕ ⊕ ⊕ — ⊙ good inoculum	2	0	+	+	2-
	⊕ ⊕ ⊙ ⊕	3	0	+	+	2-
2A	⊕ O ⊕ ⊕	1	0	+	+	2-
	⊕ ⊕ O ⊕ — O good inoculum	2	0	+	+	2-
	⊕ ⊕ ⊕ ⊕					

DATE: 4/13/55 REF:

1436 - originally (see pg 137, 113) 1436 E/K12 gave ± / or weak (+) band.
- suspicion that something unusual here. Reexamine

① no add c. 40
K12 λ c. 1000

② Streaks. 12/12 strong pos. gal+, segregating

2799 : mal+ λ-2^R 2279 no breakthrough: Designate Lp$_4$^{R}

1. no add = 3
2. 0.1 ml
2342 3/7/54 = 4

241-14 mal - Spontaneously produced λ - HFT?
/750
1. no add (?) 6
2. 10^2 (0.1 ml) 41 35
3. 10^3 (0.1 ml) 3

/2279 10^2 (0.1 ml) 0 plaques
5 pap.

rpt.

35 × 10 × 10^2 = 3.5 × 10^4

DATE: 4/28/55 REF: (341)

2580 for checking on diploidy of other markers after crossing over to give autotypic HFT gal(-)
1. origin of ducks in 335
2. a second plate made as p 335
3. to aid in understanding phenotype of these cultures on arabinose comparison made between K12 +

341C = control
341/4
341/2

W945(old stock) ent. –
W945 stock cntrl. ent. –
W2580 entered –
} turning dark after 2 days

4. 17 day clones obtained. Spotted on F11 and 2580 – cried.

Previously diploids for ara believed by peculiar phenotype this cond. ... 2308

Summary

Ⓐ F11 o o ⊚ o
o o o o
341-9 → ⊕ o o o 1 HFT 2-
ⓒ o ⓒ ⓒ
o
Ⓑ 2580
o o ⓒ o o
o o o o
o o o o
ⓒ o ⓒ ⓒ
o

⊕ = HFT
ⓒ = contaminated
o = NFT

Ⓑ F11 o o o o
o o o o
o o o ⊕ 1 HFT 2-
o o o o 341-12
B2580 o
o ⓒ ⓒ o
o o o o
o o o o
o o o o
o

some of o have several pap.
(thrown out before tested)

Ⓒ o o o o
o o o
o o o
o o o o
o
o o o o
o o o
o o
o o o o
o

} most of these have c. 20 papillae WHY?

TESTS OF REVERSIONS
341-9 reverted on
B gal 4/6 reversions +-
B lac 6/6 reversions stbl
B xyl 6/6 " "
B ara 6/6 " "

2/17/56
LFT seg of 341-9
8/8 Gal2 –

5/5 gal+ of LFT stbl

2062 – see 335 for ducks.
1. check of HFT derivatives for diploidy for proline
2. 5 separate transd. picked – segregants tested

Segregants from transd #	1 F11	1 2580	2 F11	2 2580	3 F11	3 2580	4 F11	4 2580	5 F11	5 2580
	o	o	o	o	o	o	o	o	o	o
	o	o	o	o	o	o	o	o	o	o
	o	o	o	o	o	o	o	o	o	o
	o	o	o	o	o	o	o	o	o	o
	o	o			o	o	o	o	o	o
Expt. 1 ↑					o	o	o	o	o	o
					o	o	o	o		
	o	o	o	o	o	o	o	o	o	o
	o	o	o	o	o	o	o	o	o	o
	o	o			o	o	o	o	o	o
	o	o			o	o	o	o	o	o
					o	o				
Expt. 2. ↑					o	o				

Expt. 1: } All NFT, spottings on 2580 show 10-20 pap. Is this an indication they are 4- ?

Expt. 2: } as above

1. Are there position effects between 4, 6, 7?
2. The directions:

A Overnight broth culture diluted 1-100 ē pen. 0.1 ml cells + 0.1 ml lysate → adsorb 10' at room temp.
Dilute 1-100, 0.5 + 10 ml, and plate 0.7 ml on 2 B gal plates.

(B) lysates of 2478-1 = 4
311-2 = 6
309-1 = 7

(3). → × Gal₇⁻ 2308?

		(−) col	(+) "pap" col. 36 hrs		Phenotype
	A. broth	302, 260	0	none of these (+) were + in 24 hrs.	The phenotype here may be weak (+) 342-A1 → X
HFT 4⁻	B. 2478-1 λ	192, 198	6, 5		papillated (−)? * 342 B1 → * 4
HFT 6⁻	C. 311-2 λ	254, 169	5, 4		

(4) → × Gal₆⁻ 2070

A. Broth	483, 431	0	
B. HFT 4⁻	256, 251	4, 2	pap. (−)? * 342C1 → * C4
C. HFT 7⁻	283, 332	3, 3	pap. (−)? * 342D1 → * D3

(5) → × Gal₇⁻ 318

A. Broth	108, 124	0	
B. HFT 6⁻	199, 99	2, 1	pap. (−)? * 342E1 → * E2
C. HFT 7⁻	85, 105	0, 1	intermed. (+)? 342F1 —

* on 2nd streak gave papillating colonies.

DATE: 5/11/55 REF:

Hfr 6⁻ × 7⁻ (342B#1) Of 24 presumed P.E. (-) colonies picked to obtain separate crossover events 3 were true (-), 21 were P.E. (-)

P.E. (-) #	+ obl. seg.?	(-) /16	Segregant /7-		/+				
1	0 = no								
2 (Streaked 1/4 plate each)	0	-							This clone
3	0	-							
4	0	-							Lp^R/s
5	0	-							
6	+ = yes	3	0	+	+	Lp^s	Gal6-	← 343-6	Use Lpt.
7	0	-							
8	+	2	0	+	+	Lp^R	Gal6-	← 343-8	
9	+	2	+	0	+	Lp^s	Gal7-		
10	0								
11	0								1/5/56
12	+	1	+	0	+	Lp^s	Gal7-		W3058
13	0	-							
14	0	-							
15	+	1	0	0	+	Lp^s	Gal6-Gal7-	← 343-15	
16	0	-							
17	0								
18	0								
19	0								
20	0								
21	+	3	0	+	+	Lp^s	Gal6-		

6 seg (slight)
15 non seg.

3 Gal6-
2 Gal7-
1 Gal6-Gal7-

Rpt 342B4

#	+ obl seg	#/16				str II 5/27/55 to ... Seg?	str III streaked		5/29/55
1	0	-				-	-		After str III, spotted from
2	0	-				-	-		broth on 2175 on 5Gal
3	0	-				-	-		and ... 1/16
4	0	-				-	-		appear AFS on 2175 (some papillae)
5	+	1	0	+	+	+	nd	Gal6-	
6	0	-				+	nd	/6 - /7 - /+ + ← Gal6-7-	
7	+	5	0	0	+	+	nd	Gal6-Gal7-	
8	0	-				-	-		
9	0					-	-		
10	+	1	0	+	+	+	nd	Gal6-	
11	+	7 3 ?	0	+	+	+	nd	Gal6-	
12	0	-				-	-		
13	0	-				-	-		
14	0	-				-	-		
15	0	-				-	-		
16	0	-				-	-		
17	0	-				-	-		
18	0	-				+	nd	/6 0 /7 + /+ + Gal6-	
19	0	-				-	-		
20	0	-				-	-		
21	0	-				-	-		

4 seg — 6 seg — 6 — 4 6-

17 non seg — 15 non seg — 15 — 2 6-7-