Inheritance of heterozygote formation:

September 18, 1948.

(H x N)

(1) W477 x W351 (Lac-, Xgal-) (2). W477 x W466 (H x H)

(1). No yield! A few lac - only! (2) v. low yield. Picks +'s + streaks out on lac EMB. Following appear to be segregating. S.O. EMSlac.

4	✓
6	?
10	?
12	?
13	✓✓
16.	✓✓ = H50

Recover only 16, as the point is well proven with a single culture.
Also cf. H2 (W479 from 477 x 478).

Complementary heterozygotes
Continue 298.

Sept. 18, 1948.

32, 35, 36, 43

[H27 -, H28 -, H29 -, H30 +]

Pick distinctive Mal type to ~~MalEMS~~ MalEMS, LacEMB.

	EMBlac	EMS Mal.	
305-43.	++	− occ +	
H30	Sgr.	+, occ −	Purify!
H29	Sgr.	++	
-36.	++	−	Cosegregant!
H28	Sgr	—	
-35	Sgr.	—	No diffence
H-27	Sgr.	++	
-32	Sgr.	++	No diffence.

H27 + 28
Mal reactions
had evidently been
confused

Morphology of H. and N

Sept. 18, '48.

13.51 [redacted]

Streaks out on Lac EMS, varying lac conc. suspensions of 299-[redacted] for normal, and 7, 29, 34 and [redacted] for heterozygotic lac+ prototrophs.

Lac EMS.

1

2 Smooth, flat, uniform surface small margin, not indented

3 sl. rough colony, rough but narrow margin.

51 largicolonies like 3; smaller like 2

7 roughish colony, appr. rough margin

29 like 7, somewhat smoother

34 indistinguishable from 3.

65 like 7.

No more distinguishable, everything progressively more faded on lower concentrations of lactose (1/2%, 1/4%, .1%)

No consistent difference can be found between "normal" and heterozygous prototrophs in colony morphology on Lac EMS.

Sept. 21, 1948.

Lac - !

① W477 x 440 on Lac EMS.

② W466 x W483 (5 Lac factors heterozygous) on Lac EMS, also other sugars

1. Low yield. Lac + colonies only noted. 50 colonies from 20 plates picked for streaking on EMB Lac. 26 tests all pure +.

2. Xyl 5 plates
1 -
10 -
2 -
+, - ? difficult to score on Xyl EMS.

1 strays + ! = 308-2-5 Later 4 others.

Arab. 5 plates.

+	-
1	1
1	11
1	4
1	4
-	4
1-4 4.	24

S.O. plus on EMB Arab.

Gal 4 plates.

2+ mostly -. 6, 7, 8

Mal 6 plates. 1+

Lac 25 plates.

v. low yield all apparently scoring -! (Of course W466 is Lac, - !!)

1-4 Arabinose
5-9 Xylose
10, 11 Galactose
21-34 Maltose.

All ++.

Sept. 21, 1948 + prec.

streak out 5 single var. colonies from 262-0. and isolate from each 1 pure − and 1 pure + for nutritional tests.

1-5 are − ; 11-15 correlated +'s.

1	MT	11	M(T)
2	MTL	12	MT
3	M B?	13	MT
4	TLB₁	14	MT
5	MTL	15	MT

Save 3 as B?M −

4 as TLB₁ −

11 as B?M −

Sept. 22

(1) W478 x W583 (2) W478 x W584. on Lac EMS.

Many Lac - colonies appeared in 20 hours on (2). Probably contaminants.

(2).

(1). ~~20~~ 34 tests. All Lac +. Novarey.

multi factor heterozygotes

Sept 25, 1948

1. W477 x Y470.
2. W478 x W483 25 plates only 15 lac+ colonies [illegible]
3. W126 x W466 Mostly + colonies.
4. W126 x Y87 ca. ½% +; Pick 2

(1) 100+ colonies tested. None lac heterozygote (Recheck 13, 41).

(2). 15 tested. (9 maybe variegated. — H51.

(3). See 323.

(4). 2 tested. Both ++.

Streak out on EMB media. Gal ++
Mal ++
Arab ++
Xyl +/-
Lac +/-

→ Both are lac heterozygotes. H68, 69.

Multi factor heterozygotes

Sept 30, 1948.

W583 × W478

92 Lac+ colonies streaked out on Lac EMB

✓m 17., 53, 54, 48 Streak these on EMS Lac. as 1-4. and test on Lac, Xyl, Mal, Arab.

(4) not heterozy. 1-3 ok. W470 — W472.

1 Mal - colony noted on 3. S.O. Lac EMS and Mal EMB.

Sept 25, 1948 ff.
See 313.

40 lac+ prototrophs tested from W126 (Lacy-) x W466 (Lac,-)
Most of these are clearly heterozygotes for Lac as seen on lac EMB plates.
Pure ++ (?): 34. 19, 20 (unreadable). At least 36/40 = 90% are heterozygotes.

#3, 8, 25, 28, 40 seem predominantly + ē only small - sectors.

11 has colonies ē moderately dark centres, mostly light margins with v. dark sectors (Lac, + Lacy + recombinants ?).

36 has - colonies ē dark centres. } Pick single colonies from the
26 shows fairly typical sectoring. } EMB and streakout on EMB.

Save 1-10, 11, 25, 26, 28, 36, 40 for H-series. Streakout suspensions on EMB and EMB-Mal.

H- 52-67.

P2. 4+ colonies from each tested.
36: mostly -, frequent ⊕ types.
26. the same. No pure + noted. Probably all $\frac{Lac,- \; Lacy+}{Lac,+ \; Lacy-}$