

January 23, 1952

Dr. A. H. Doermann
Kerckhoff Laboratories of Biology
California Institute of Technology
Pasadena 4, California

Dear Gus:

I'll be interested to hear the results of the UV experiment on lysis-inhibited cells, however it comes it, and with due account to your reservations. If you're going to Caltech, you'll probably hear no end of lysogenicity discussion.

I doubt very much whether the problems of linkage in K-12 are very pertinent to the situation in phage. I have every reason to suppose that the peculiarities we have found are not inherent in the *E. coli* genetic system, but are due to chromosomal aberrations in the stocks we have used. Some notion of the basis of this idea will be seen in print in: Cavalli. 1950 *La sessualità dei batteri*. *Boll. I. sieroter. Milan*. 29: 1-9; Newcombe and Nyholm 1950 Anomalous segregation in crosses of *E. coli*, *Amer. Nat.*, 84: 457-465; my abstract in *Genetics*, Jan. '50. There is a more involved discussion in the GSH ms., but I'm afraid I don't have a copy with all of the tables and figures that I can send you. It boils down to the fact that, by the criteria of my 1947 paper, *Bl*; *Mal*; *Xyl*; and *Lac* are each linked to *M*, but not in any linear sequence. The "branched" chromosome idea has been somewhat misunderstood: what I have meant is the likelihood that we have a reciprocal translocation between two chromosomes, with a break-point near *M*. This would give such a genetic picture. We are painfully building up new stocks, without the use of artificial mutagens, in hopes of developing a less aberrant picture. I should say that Rothfels has a paper in press (*Genetics*) with a very nice, sound confirmation of the linear order of the segment to the "right" of *M* with the loci *Lac*, *V₁*, *T*, *L*. I think that linearity is still the fundamental system in *coli*, and each aggregate of factors still behaves all right. Would repetitive mating cause much trouble in assessing linear order in phage?

Sincerely,

Joshua Lederberg