

October 29, 1951

Dr. P. R. Edwards  
Box 185, U.S.P.H.S.,  
Chamblee, Georgia

Dear Dr. Edwards:

Thank you for your kind remarks in your recent letter.

To answer an implied question, whether to call the *Shimonella* changes "recombination" is partly a matter of semantics. There are certainly many differences from the *E. coli* system: filtrability of the agent, ~~and the~~ absence of linkage. But I can't help feeling that when we know more of what's going on in both cases, we may find an underlying pattern. I find it difficult to believe that bacteria otherwise so similar can have a completely and fundamentally different genetic organization.

The characteristics which have concerned us most have been nutritional mutations, for experimental reasons. In intertype (typhi; typhimurium) effects we have dealt with streptomycin-resistance, fermentation of rhamnose and of arabinose, and the serological changes. We are setting up experiments now with a view to finding other expected combinations of flagellar antigens (e.g., IX, XII, - 1, 2...). If we can develop the appropriate sera (e.g., IX without XII) we will try substituting IV or V for IX. We have d-antiserum in reasonably good titer now, but wish to thank you again for your gift of the same which tided us over nicely. Ultimately, when the procedures have become more standardized, and some of the details are better understood, we should like to consider an analysis of the relationship between host specificities and virulence patterns and the somatic antigens. Much might be said, however, for doing such work in a more specialized laboratory, such as, for example, your own.

Mr. Zinder is in the midst of writing up this work for publication, and for his Ph. D. thesis, on which he will be examined this Spring. When the paper is ready, I hope that you will be willing to criticize it for us.

For reasons of "symmetry" we should like to look into the possibility of exchanges reciprocal to those you diagnosed, i.e., FA from typhi, acting on typhimurium. We have been referred to you as the sole source of typhi typing-phages in this country. May we impose on you for some of this material? As we now have the typhi strains "2V" and Watson V, under your numbers 59 and 60, the phages specific for these strains may well suffice, at least until we learn the contrary.

Yours sincerely,

Joshua Lederberg  
Associate Professor of Genetics