

October 17, 1950.

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Dear Mort:

I promised that I would write to you to attempt to excite your enthusiasm for the problem of genetic recombination in phytopathogenic bacteria — and this is it. I think that I did remember to send you a mimeographed copy of an outline of experimental methods in the production of mutants. They are all really quite simple and successful, particularly if you know the general nutritional idiosyncrasies of the organism you are working with. The techniques for identification of nutritional requirements of mutants are also included, but you could have written that chapter from your own experience.

Under separate cover, I'll send you all of the other reprints which I can afford. Some of these are nearly exhausted, so I am going to make the rather unusual request that you return those marked "Please return", at your leisure, unless they will be of special use to you because of your undertaking this kind of work.

The main leads which point to phytopathogens as likely material are the papers of Braun and Elrod, *J. Bacter.* 52: 695-702 1946, and their predecessors Stapp 1942 and Stapp and Bortels 1931, cited there. From the general morphological descriptions, I suspect that *Agrobacterium radiobacter* would also do as well or better. Do you know of other bacteria in this group which form star-shaped clusters under experimentally reproducible conditions?

The genetic investigation of these forms seems important on two grounds. Firstly, we have a cytological picture, already made, which points towards the possibility of sexual fusion. If this can be verified, it would be a considerable step ahead of *E. coli* K-12 where only the genetic picture is available. Secondly, recombination would allow an analysis of the problem of pathogenicity in, e.g., *Agrobacterium tumefaciens*, and could throw some light in particular on the gradual attenuation of virulence of this species by prolonged cultivation on glycine medium. I think there is room for the possibility that the virulence of this bacterium is partly determined by a virus-like agent, but this can only be properly studied with genetically-well-understood material.

It goes without saying that we enjoyed visiting the Starrs very much. I'm only sorry that we did not have a chance to get together more frequently and leisurely.

Sincerely,