January 27, 1949.

Dear Luria.

I will be very glad to submit a sections on biochemical mutants and genetic recombination in bacteria, for "Methods...." Can you get for me information on a) style of references b) reprints c)length of artacles d)as soon as possible, the other contributors and the subjects they will cover? I expect I will need not more than about 10 pages altogether. Professor Riker here is very much interested in this project. Apparently, the AAAS Committee on Genetiws of Pathogenic Microorganisms had considered sponsoring a cooperative book on methods, but they will probably withdraw.

The problem that you suggested was taken up by Szilard a long time ago, and there is no entirely satisfactory solution. I've tested a considerable number of single colony isolates of the parents in ✗ crosses; there was no remarkable fluctuation in yield, but that might be expected. Until the aberrant segregations in the heterozygotes are cleared up, I don't think they could be trusted for the backcross experiments indicated. The "spontaneous" heterozygotes (from cultures without "H") unfortunately show the same aberrant behavior. I am beginning to wonder whether this aberration occurs even in the "normal" formation of prototrophs, and that the heterozygote behavior is just superimposed on this, and unmasks it. It would probably have to come from the B-M- parent, so I have been getting heterozygotes from other crosses. A biotin-histidineless

crossed with a TLB_1 "H" stock also gives aberrant heterozygotes (abnormal segregation of Lac , etc), but the abnormality may have come in with the biotinless. I've started crosses with your tryptophane-adenineless, and find that it gives very satisfactory yields of prototrophs (rather higher I think than in comparable tests with BM x TLB_1), but the weak fermentation of lactose, maltose and glucose by this strain is a nuisance.
I would appreciate it very much if you could send me the single mutant from which you prepared the tryp-aden, and any other K-12 mutants that you might have which are not derived from either the biotinless or threonineless series that I have been using.
I hope that ML works out all right; it is the most mutabile strain I have ever seen.

As I predicted during the seminar, Lac_1- adapted on butyl-galactoside does utilize lactose (although the enzyme is not maintained), while on lactose, the enzyme is not developed. Conversely, the wild type which does not utilize lactobionate, responds to it by forming the galactosidase. This should serve quite well to separate the enzyme forming system from the enzyme itself.

See you in Chicago,

Sincerely,

Joshua Lederberg.

P.S. Could I ask you to send me your birthdate and not ask me any questions about it? Thanks.