AMHERST COLLEGE

Amherst, Massachusetts

DEPARTMENT OF BIOLOGY

January 5, 1952

Dr. Joshua Lederberg
Department of Genetics
University of Wisconsin
Madison, Wisconsin

Dear Josh:

We have had two excellent days of skiing here in Amherst. The skiing is one of the most enjoyable aspects of living here.

There are no definite plans for the summer as yet, but we plan some time during the vacation to go west to collect flies in southern Arizona. The flies are for the Y chromosome problem which I believe that I mentioned to you before. We figure on about a month for this trip. However, there is one thing holding it back and that is finances. I hope to get some support for the research problem but am not certain of getting it by summer. If there is no way of financing the trip then we shall have to postpone it until next year. There are several other problems with Drosophila which will keep me buzy if the trip falls through. I am quite interested in a problem with Drosophila pseudoobscura which is concerned with the effects of different inversions on crossing over in other, non-inverted chromosomes. Work of this sort has been done with D. melanogaster but we know nothing about this in D. pseudoobscura. This is of some importance here because it will give some idea about the amount of recombination going on in the natural populations of the flies which contain third chromosome heterozygous inversions. Of particular interest is the problem of how much recombination occurs in the other chromosomes when heterozygous inversions of different sizes occur in the third. The Standard/Arrowhead inversion heterozygote is is a simple loop and rather small- covering only a small portion of the chromosome. On the other hand the Standerd/Chiricuahua inversion is a large, overlapping one. There are several inversions that I would like to test. The work in setting up the marker stocks is a bit tedious but not too bad. I have also been working on the effects of low temperatures on sterility in D. pseudoobscura. A few weeks ago I tried out Novitski's freezing technique for getting virgins. Ten minutes at about -10 degrees C. works well for D. melanogaster but 60 minutes will not work for D. pseudoobscura. Anyway what we are really interested to know is what happens to the damn flies in nature during the winter when the temperature really drops. In D. robusta there is a reproductive

diapause, but nothing like this has been shown for B. pseudoobscura. There are other problems too and I have a few students working away at them. What they will lead to I have no idea.

My thesis, or rather a version of it, has been sent to EVOLUTION. If it is accepted it will be out sometime after September of this year! Why don't all of the journals follow the Am. Nat. and use the photo-offset method. In this way there could be larger issues and one would not have to wait a year to get a piece of work out?

Only two more weeks and the first semester will be over. I shall be done with my genetics course but will still have to labor on in the biology survey course. Next semester I shall give about a month of lectures on the fundamentals of genetics and a week of lectures on genetics and evolution. I am, however, looking forward to the population genetics course next semester. The class will be small (12) and most of the students are in it because they are interested in the subject (I hope). The only thing unusual about the course will be the laboratory. As far as I know there is no population genetics course given that has a lab. We shall be doing work with Drosophila on sexual isolation, isolating mechanisms, competition between mutants and wild type in cages, etc. What about microorganisms- have you any suggestions for their use? I am quite interested in putting bugs to work for population studies.

I have been hunting and pecking at this thing too long so I shall cease for now. Both Liz and I are happy here as far as the living is concerned. The school is good but for myself I feel that in addition to teaching genetics and particularly population genetics I would rather be in an institution with a graduate school where there would be some contact with those doing advanced work not only in genetics but in other fields as well.

Give my best regards to Esther. I hope that we shall be able to see you this summer. As soon as I know what the plans are to be I shall let you know.

Sincerely,

R.P. Levine