November 3, 1954

Dr. Clifford Grobstein
National Cancer Institute
Bethesda 14, Maryland

Dear Cliff:

The first thing that Esther and I did when I got back to Madison was to set up some dry runs on experiments to test the transfer of "F+" through a membrane filter. Some experimental trials are in the mill now, using the standard thickness H filters. I will be quite astonished if this works through 150 μ thickness [but I was also astonished when the first "contagion" experiment worked too]. We will know about this in a few days.

The main point I wanted to tell you about is that the experimental design is entirely feasible, and that with these filters it should be possible to get clean results even with rather small pieces. The setup is such that I would prefer to use pieces about 3-4 mm. in diameter, but that the actual critical dimensions are rather smaller, so that occasional breaks ought not to be critical. The inoculum that is planted on the top surface forms small, well localized colonies which should be separable without too much trouble from any colonies that do come from breakthroughs. As I told you before, there will not be the least difficulty telling when such an event has happened: for example, the recipient culture is a streptomycin-sensitive(S^s) F-; the donor an S^r F+. If any of the latter break through as contaminants, they can be detected very readily by plating samples of the recipient colonies on streptomycin medium.

If you can conveniently send us some of your special membranes, we should be able to do some proper preliminary experiments to decide whether to pursue this approach. Have you any suggestion about sterilizing them? I would sooner stay away from chemicals. If they won't take steam (stacked between blotters), then a heavy dose of ultraviolet on both sides should do it, don't you think?

Under separate cover, I am sending a stack of reprints. Much of this stuff may be somewhat obscure and of only marginal interest, but I would welcome any comment you might have, especially on the F story, which has so far had a remarkable similarity to your own. I need hardly add that many geneticists have been groping for alternative formulations in addition to the simplest ideas of infective particles to account for examples of extrachromosomal determination.

Yours sincerely,

Joshua Lederberg

P.S. My appreciation to you & your wife for your hospitality on a rainy Saturday. [illegible] happened in your place [illegible]

Yours sincerely.

Joshua Lederberg

P.S. My appreciation to you and your wife for your hospitality on a rainy Saturday. As it happened my own plane was Grounded

cancelled out, but so many passengers were held up by that bridge accident that ~~Hedrno~~ all of us were booked on another flight scheduled 20 mins. later! Whatever was that all about?