November 20, 1952

Dr. W. Henle
Babies Hospital
University of Pennsylvania
Philadelphia Pa.

Dear Dr. Henle:

Thank you for the collection of reprints on your work on influenza virus, sent some few weeks ago. I have been reading these with great interest. Shortly, I hope to reciprocate with our recent studies involving bacterial viruses, and look forward to a continued exchange.

One point in your studies of single step growth curves of influenza was especially striking, but I could not clear it up in my own mind. I am referring to the apparent equilibrium between added and adsorbed virus during the first few hours after inoculation. It is stated, I believe, that about the same percentage adsorption is seen for large and for quite small inocula, but that the residual virus is adsorbed to the same extent when reinoculated into a second egg. If a much larger dose is (incompletely) adsorbed, the incomplete adsorption can hardly be due to a saturation of the adsorptive sites. Why then does the residual virus remain free in the first fluid, but is adsorbed to the same extent in a second egg? Unless I have misinterpreted your findings, it would seem that during the first stages, an egg is somehow conditioned, even by small doses, so that adsorption does not continue over an extended time. Your reinoculation experiment shows that the virus itself is not conditioned, or originally heterogeneous. Such a prompt conditioning would be a remarkable effect to impose on an entire egg by a few thousand ID_{50}. Would it not be feasible to investigate this by following a small inoculum, which has reached equilibrium, by a second much larger one? If the egg has been conditioned, and this is the basis of the first equilibrium, the adsorption of the second should be inhibited.

Perhaps this experiment has already been reported, or I have overlooked some other pertinent observations.

Ypurs sincerely,

Joshua Lederberg