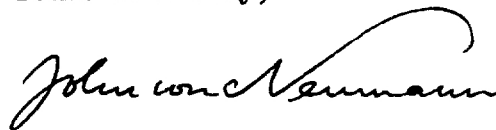August 8, 1955

Dear Professor Lederberg:

Thank you for your letter of August 4 and its enclosure (part
of a draft of your paper to be published in a Growth Society
Symposium). My connection with the Atomic Energy Commission
certainly slows down all my other activities, but I hope I
will succeed in not abandoning the one to which you refer.

In connection with the draft that you sent me, I would like
to make the following comment. On page B-11, lines 9-12, you
say that my model depends for its self-reproduction on "the
correct array of organized parts (the information already in-
herent in which perhaps begs the question of biological re-
production)." I cannot agree to this, that is, to the
bracketed clause in your sentence. I showed this. In the
fixed medium M (independent of the A that follows), given any
aggregate A (outside M), it is possible to specify an
aggregate A^1 (also outside M, and dependent on A), such,
that if A^1 is immersed into M, it will keep reproducing A^1
and producing A. Now: since M is independent of A, the
information-content of A cannot be contained in M; since
A^1 can produce A, the information-content of A must be
contained in A^1 ; hence the information-content of A^1 (A^1 is
self-reproductive!) cannot be contained in M.

Does this argumentation satisfy you?

I am,

Yours sincerely,

John von Neumann

Encl.

Professor Joshua Lederberg
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P.S. - I assume that you will wish me to return your type-
script; I am, therefore, enclosing it.