



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION

AUG 11 1976

NATIONAL INSTITUTE OF MENTAL HEALTH
MENTAL HEALTH INTRAMURAL
RESEARCH PROGRAM
9000 ROCKVILLE PIKE
BETHESDA, MARYLAND 20014
AREA CODE 301 TEL: 656-4000

August 10, 1976

Prof. Joshua Lederberg
Dept. of Genetics
Stanford Univ. School of Medicine
Stanford, California 94305

Dear Josh:

You once indicated that you believe reflexive catalysts are, in principle, possible (my term, at least, has been made respectable by Melvin Calvin). No doubt the biologists on the Viking project are prepared to recognize a biological system very different from that on the earth, but are they prepared for anything as simple as a flora of reflexive catalysts?

You have probably read and dismissed my arguments for believing that a system of one or more reflexive catalysts would initiate evolution in a process equivalent to mutation and natural selection. If so, I urge you to reconsider them; they may be very relevant to the search for extraterrestrial life.

After the advent of coacervate droplets, compounds other than catalysts could be selected by the mechanism described recently by D. S. Wilson in "Evolution on the Level of Communities" (Science, June 25, p.192). The system might remain for a very long time at the level of catalysts functioning cooperatively as free molecules, or even longer (because of inefficient propagation, mutation and selection) as a form of protoplasm lacking template-replicating macromolecules. I expect most life in the universe belongs to one of these two simple types.

Sincerely yours,


Gordon Allen

cc: Dr. D. S. Wilson
enc.