

Kornberg?

STANFORD UNIVERSITY SCHOOL OF MEDICINE  
STANFORD MEDICAL CENTER  
PALO ALTO, CALIFORNIA 94304

DEPARTMENT OF BIOCHEMISTRY

Area Code 415  
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(rep)  
Dear Frances:

I read your little book on vitalism last night and want to tell you that I really enjoyed it.

I admire your courage and candor in disposing of the latest crop of vitalists among the physicians. The supply from that source is astonishing. I gave a talk on religion in a campus series here last year and got the most troubled and heated response from a young chemical physicist. Evolution of homing patterns in birds was too much for him and he felt more secure with creation.

What can we do about this terrible ignorance of modern biology? A major scandal of the humanities & science curricula at our best colleges is that at least

two-thirds of the students never take a course in modern biology. They usually dispose of their science requirements with a course in geology, anthropology or psychology. I'd guess the percentage not taking biology is highest among phys. sci. majors. The Biol. Sci. Curriculum, which has been taught in our high schools for five or more years has been an improvement but far from revolutionary. How can we lead biology to school children without qualified teachers?

There has been a rash of discoveries of enzymes that join DNA strands. One in uninfected *E. coli* discovered by Gellert at NIH and by Lehman here requires a cofactor which is not a nucleotide phosphate. Another in T4-infected cells (discovered by Richardson, by Hurwitz and locally too) requires only ATP.

We're investing our venture capital in genes and membranes.

Sincerely,  
Arthur