

April 17, 1961

Dr. Phillip Morrison  
Department of Physics  
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Ithaca, New York

Dear Phil:

Jaffe has more certain information on the surface environment *of Mars* than I do.

But there is some merit to the view that moisture is the limiting ecological factor, and I would share the expectation that an organism large enough to shield itself might be preferred in the exposed environment. However, there must also be saprophytes to complete the carbon cycle and I would still propose these as the most ubiquitous types, as they are on earth. If these could evolve efficient means for accumulating  $H_2O$  against a concentration gradient, (as terrestrial cells do to some extent for water, and sometimes very spectacularly for, say, Varradium) they might have an active rather than passive barrier to the desiccant equilibrium.

More power to him if he can design the calorimeter. But how will he distinguish photosynthesis from other photochemically driven reactions?

Yours sincerely,

Joshua Lederberg  
Professor of Genetics

Jc