

SEP 25 1963



# *Liana* OF WAIKIKI

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September 19, 1963

Dr. Joshua Lederberg  
c/o Stanford University  
Palo Alto, California

Dear Doctor Lederberg:

With great interest, I read an article in the August 30 issue of the TIME magazine about your development of a "multivator" in association with the Drs. Levinthal and Hundley.

The purpose of this multiple evaluator is, as it was described, to test dust off the Martian surface for evidence of life by means of a phosphatase determination.

I thought it might be of interest to you that I have worked (for my doctor's degree) for almost three years exclusively with the various methods for the quantitative determination of phosphatase.

In order to be able to determine quantitatively slightest traces of alkaline phosphatase (in enamel from teeth), a number of described methods were compared and several of them were especially adopted for increased sensitivity. A new uniform definition of the phosphatase unit was proposed, which allows comparison of different methods.

The TIME article mentions that the multivator will use fluorescein phosphate as the substrate. As mentioned in my dissertation, H. Neumann proposed the development of a fluorescence method by using the phosphates of Methyloxycumarin, Fluorescein, Eosin, Oxyacridole, and the sodium salt of 3-Oxypyrenesulfonic acid.

Dr. Joshua Lederberg

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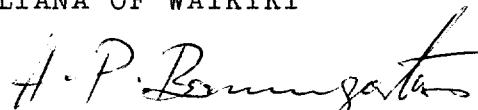
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I suspect that the phosphates of fluorescein and eosin will show a larger disadvantage. Because of their two OH groups, the amount of the split color component will not be a linear proportional function of the enzyme concentration, as it also is the case with the Phenolphthaleinphosphate-method. For this and other reasons, a new fluorescence method was developed by using Beta-methyloxycoumarinicphosphoric acid ester. The preparation of this substrate, details of the fluorescence, as well as other methods, are described in my dissertation and to a very limited extent in the publication in Archives of oral Biology, Vol. 1, pp. 8-22, 1959, Pergamon Press Ltd., printed in Great Britain.

I would be glad if I could be of any assistance in this specialized field. I am enclosing one reprint of our publication; the complete dissertation could be made available to you should you be interested.

Very truly yours,

LIANA OF WAIKIKI



Dr. H. P. Baumgartner  
President

HPB:sy

Enclosure