

CALIFORNIA INSTITUTE OF TECHNOLOGY  
PASADENA

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WILLIAM G. KERCKHOFF LABORATORIES  
OF THE BIOLOGICAL SCIENCES

Dec. 8 '46.

Sunday Morning.

Dear Mr. Ledenberg:

When I returned from my multifarious wanderings to the West Coast, about the 1<sup>st</sup> of November, I stayed in Pacific Grove for a couple of weeks in order to write up the talk I had given at Princeton. Mail sent to the Calif. Institute was kept here for me. As a result I did not get your letter of Nov. 4 until about the <sup>15<sup>th</sup></sup> 20<sup>th</sup>, when I finally returned to Pasadena.

Then I realized that I had shamefully forgotten to look over my card index files for references on variation of a heritable nature - as I had promised to do when I last saw you in New Haven. Two ways were open to me: write home and have that part of the files dealing with variability sent down to me here - or wait till I would be in Carmel next. For various reasons I took the latter course, and during my last visit to Carmel, a week ago, I made the requisite notes for replying more or less adequately to your letter. When I returned to Pasadena just a week ago, there was so much work to do that I felt compelled to postpone for another week the sorting-out of references etc. which I had collected. Now is my chance, and here follow some titles which I believe you ought to consider:

J. C. Appleby. Cytology and methods of reproduction of two cocci, and the possible relation of these organisms to a spore forming rod.

J. Bact. 38. 641. 1939.

M. W. Beijerinck. Sur diverses formes de variation héréditaire chez les microbes.  
Soc. Holland. des Sciences, Haarlem, 1900.

WANNIEN, O. G.

See also the critique to this paper by:

Genh. Fliegel. Entwicklungsvorgänge in Fleinkulturen von *Bact. coli*.

Arch. Mikrobiol., I, 491, 1936.

This can also be found in:

Proc. Soc. Sci. Kon. Akad. v. Wetensch., Amsterdam,  
3. 352, 1900, and in

M. W. Beijerinck, Verzamelde Werken, Vol. 4, 37, 1921.

K. W. Clauber. Untersuchungen zur Frage der  
Zyklogenie des Typhusbazillus.

Cent. f. Bakteriol., II. Abt., Originale,  
105. 161, 1928.

Hans David. Beiträge zur Morphologie der  
Bakterien, Cent. f. Bakt., II. Abt., 70, 1, 1927.

L. Dienes. The significance of the large bodies and the  
development of L.-type colonies in bacterial  
cultures. J. Bacteriol., 44, 37, 1942

G. Endtein. Bakterien Cyclogenie. 1923.  
Bornträger(?). (I forgot to look up  
the publisher.)

Do. - Various articles in the:

Archiv für die Entwicklungsgeschichte der  
Bakterien. Heft 1 & 2. (± 1931).

Bruno Kober. Über die Physiologie und Morphologie  
von *Actinomyces oligocarbophilus* und dessen  
Bedeutung für den Ackerboden.  
Cent. f. Bakteriol., II. Abt., 79. 370. 1929.

{ Kuhn und Sternberg. Über Bakterien und Pettkoferien.  
Cent. f. Bakt., I. Abt., Orig. 121. ~~113~~, 1931.

R. Lieske. Morphologie und Biologie der Strahlen-  
pilze. Bornträger, Leipzig, 1921, espec.  
pp. 48-93, and 172-194.

F. Löhnis and N. R. Smith. Life Cycles of the bacteria.  
I. J. Agric. Res., 6. 675, 1916  
II. do. 23. 401, 1923

F. Löhnis. Studies upon the life cycles of bacteria.  
Pt. I. Review of the literature, 1838-1918.  
Mem. Nat. Acad. Sci., 16 # 2., 335 pp., 1921.

F. H. Stewart. Mendelian variation in the paracolon  
mutable colon group, and the application of Mendel's  
principle to the theory of acquired virulence.  
Journ. Hyg., 25, 237, 1926.

Do. - The life cycle of bacteria. Alternate asexual  
and autogamic phases. Journ. Hyg., 27, 379, 1928.

The references to Melton's work are quite incomplete;  
there is a general summary of his work:

Ralph R. Melton. The polyphasic potencies of the  
bacterial cell; general biologic and chemo-  
therapeutic significance. Journ. Bact. 44, 1, 1942,

where you can also find a complete bibliography of  
his earlier writings.

I do not mean to imply that all these articles and  
books should be part of the bibliography of your paper.  
But I do insist that you should familiarize your-  
self with these publications, so that you will know  
what others have thought and done about problems  
which are related to sexual reproduction in bacteria.

There's one more paper for which I could not  
find a card. It deals with supposed conjugation  
of spirilla and of Chromatium in cultures of these  
organisms; was written by Potkoff, and published  
around 1926-27 in Centralbl. f. Bacteriol., probably  
in the II. Abt.

I hope that this may still be of use to you; even if the paper (or thesis) has already been completed, I believe that, in order to gain some more perspective, you would do well to look at these papers.

The results of the simultaneous inoculation of three types ( $A^-B^-C^+$ ;  $A^-B^+C^-$ ;  $A^+B^-C^-$ ) was very interesting. However, you failed to write that  $A^+B^+C^-$ ,  $A^+B^-C^+$ , and  $A^-B^+C^+$  had been recovered from the culture, merely stating that  $A^+B^+C^+$  was not found. Yet, the former should form an equally important part of the argument.

Best wishes & regards, also <sup>to</sup> the other friends at New Haven,

Sincerely,

P. B. Maurer -