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The University of Western Ontario, London, Canada

Health Sciences Centre
Department of Bacteriology
and Immunology

September 11, 1975.

Professor Joshua Lederberg,
Department of Genetics,
Stanford University Medical Center,
Stanford, California. 94305

Dear Josh:

Your welcome letter probably arrived here a day or so after I took off for a two weeks vacation in and around Vancouver from which I only returned a few days ago.

VIRUSES.

I cannot now trace Haagen's work, it appeared in a journal which is not in our library. In any case an observation which was much more important than either Haagen's or Bland and Robinow's had been published as early as 1936 by Schlesinger in Nature, 138, pp 508/509. He reported the strongly positive Feulgen^{reaction} of a concentrated, purified sample of a bacteriophage!

After our note had appeared, C. H. Andrews wrote to us and pointed out that we had overlooked Schlesinger's work. That man unfortunately committed suicide soon after, had he not done so he would probably have become a Delbrueck-Luria like star in virus biology.

I have now looked up Cowdry and note his negative results. Bland's and my work on vaccinia was published in detail in the J. Path. Bact. 48, 381, (1939). You will find there a photomicrograph of the positive Feulgen reaction of early vaccinia inclusions. It is amusing to reflect that point 3 of our discussion - alas, rejected by us - at least allows for the possibility of an eclipse phase some time before such a stage was clearly established for viruses. Worse is our blindness to the possible general significance of the disruption of layers of contiguous cells by multiplying virus. This effect, destined to become famous, is clearly illustrated with a low power photograph in the 1935 paper by Nauck and myself which is quoted among our references. Unfortunately I was intent on studying viruses which produce visible inclusions. That the break-up of sheets of cells might be a useful indicator of the multiplication of viruses in general never entered my head.

Robinson

BACTERIA.

(a). Griffith. I think you will find the background story you are looking for in Alan Downie's Griffith Memorial Lecture (bottom of page 2, top of 3) in the J. gen. Microbiol. 73 of 1972.

(b) The first compelling evidence of discrete Feulgen positive specks of regular distribution was produced simultaneously by Stille (B. subtilis) and Piekarski (Salmonella) in the Archiv fuer Mikrobiol. of 1937. Piekarski was the first to use Giemsa after HCl hydrolysis, originally merely to reinforce the weak Feulgen image. This was the technique which allowed me to obtain those bacterial photographs of the mid-forties; a fact which, I trust, I have never failed to acknowledge.

I believe this is all I can tell you. What you have to say about TMV revives my scandalised amazement that Bawden and Pirie were not included in Stanley's Nobel award.

Best wishes.

Yours sincerely,

C. Robinow

CR:ph
encls.

C. Robinow

P.S. Many thanks for recent reprint!