

March 13, 1961

Dr. J. W. Mitchell
Department of Physics
University of Virginia
Charlottesville, Virginia

Dear Doctor Mitchell:

May I ask your help to bring me up-to-date on a point of literature that I hope will be as familiar to you as to anyone. In their well known paper in the Zeitschrift f. Physik in 1930, Hilsch and Pohl refer to the darkening of silver chloride crystals. They also refer specifically to the selective bleaching in a band corresponding to the monochromatic radiation used for the illumination of the crystals. They and subsequently, Dr. Fred Seitz, have attributed this selective bleaching to the photo-excitation of colloid resonators. I have been interested in this phenomenon primarily as a conceivable means of producing narrow band filters or more precisely, spectral wedges for use in spectrophotometric devices. The particular region that I am interested in myself is the ultraviolet between 250 and 300 nm and it is, of course, quite uncertain whether the Hilsch and Pohl phenomenon would be directly useful. However, as far as I can find, it is the only material manifestation of the principle of selective bleaching that would be one approach to the preparation of such filters.

As far as I can determine, although the work of Hilsch and Pohl has been widely quoted, no one has made any particular effort to repeat or improve upon their experiments. This is the main question I would like to ask you, namely, whether you know of such a repetition. I would also appreciate your views on the correctness of the interpretation of selective bleaching. It has occurred to me, as a rather far fetched possibility, that Hilsch and Pohl may instead have been observing an interference pattern of silver deposition in the crystals such as forms the basis of the old Lipmann process of color photography.

While I am on that subject, I might remark that I have heard rumors that the Lipmann interference prints have been adapted for the production of practical filters, also, I have not myself been able to track down any recent work on this. If any such has come to your attention, I would be most grateful as I would for your helping in dealing with the above questions.

Yours sincerely,

Joshua Lederberg
Professor of Genetics

Mitchell, J.W.