

DGF/ME/46D

2nd February, 1960

Sir Charles Ellis,

MILLBANK.

Dear Sir Charles,

I find that I was mistaken when I told you on the telephone yesterday that we had written a memorandum in 1956 or 1957 about the formation of benzpyrene from precursors in tobacco. On reference to the files, the only note on this subject which I can find is one which is dated the 21st November 1956 and entitled "The Zephyr Aspects of P.C.L." This covers rather the same ground but in somewhat less detail, and summarises the theories relating to the possible route of formation of benzpyrene. The rest of the memorandum however was not concerned with tobacco but with the foreign chemical substances which were incorporated in MC/P.C.L. in those days.

Thinking back, subsequently, I seem to remember that we had a number of discussions during your visits to Southampton, at which I outlined in rather more detail our ideas as to the step-wise formation of benzpyrene from aliphatic hydro-carbons, e.g. tobacco waxes. You may find some account of this in the notes which you used to take during your visits to this Establishment.

To go over the ground again briefly, tobacco waxes may be expected to break down into ethylene or acetylene (probably in nascent form) and these intermediates may then recombine in various ways to produce a whole range of polycyclic structures. The temperatures at which these various stages occur might well be different, and evidence from the study of vapour-phase cracking of hydro-carbons suggests that the recombination of the intermediates occurs preferentially at a lower temperature to that necessary for the primary cracking reaction. At one time, we considered the possibility that there were a number of routes whereby the intermediates might be rebuilt to polycyclic structures and it was suggested, as I recall, that blocking one of these routes would not necessarily mean that the formation of all polycyclic hydro-carbon structures was thereby affected. We concluded therefore

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that the best and surest step would be either to remove the initial precursors, e.g. waxes, or to interfere with their primary break-down into 2- or 4- carbon units. This was of course before the time that Wyder and Neukomm proposed extraction of tobacco, but was in line with the work of Lam who had just begun publishing.

I am sorry therefore to have misled you on the telephone yesterday, but I trust that this note will serve instead.

Yours sincerely,



D.G. Felton

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