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April 21, 1989

APR 28 1989

Dr. Matthew Meselson
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Dear Dr. Meselson,

I write about a potential method for detecting very low levels of nerve gases, and for advice on what to do with this method.

I rear crane flies in my laboratory to do experiments that deal with chromosome movement. After some years of detective work, we have found out that spraying of insecticide (against cockroaches) in a building 200m from ours causes easily detectable abnormalities in my laboratory stocks of flies and in material in several other labs in this building -- including increased mutation rates in Tradescantia stamen hairs, developmental abnormalities in Drosophila, altered nerve receptors in tapeworms, and altered internal organs in the rats that the tapeworms live in. The 'detective story' and the data demonstrating these effects have been written up, and will be published. But having attended a recent meeting in Toronto dealing with CBW it occurred to me that Drosophila and crane flies -- the two easiest systems to work with of those that are affected by the spraying -- could be used as monitors of nerve gases: if we can detect standard insecticide sprayed at 'safe' levels in a sealed room in a separate building 200m away, we should be able to detect extremely low levels of nerve gases.

The main question I have is this. It seems to me that the flies have potential for being used as bio-assays for nerve gases, and from what I heard from the Canadian military people at the meeting this would seem to be potentially useful, but before either or both fly system could be used as effective bio-assays we would need to work on the systems somewhat. For example, we would need to determine the easiest way for non-biologists to work with the flies, to build an air filtering system to get 'absolutely' clean air so that we can determine what levels of which compounds the bio-assay systems can detect, etc.. This would take some money. I think that I can get support for this from the Canadian military, but I would rather not work with the army, and would rather have any such bio-assay be developed for disarmament [detection and verification] purposes rather than military purposes. Hence this letter: have you any suggestions about non-military sources who might be interested in developing these sensitive bio-assays to

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detect low levels of nerve gases? Do you think the idea is worth pursuing at all?

Any help in this matter will be greatly appreciated.

Thanking you in advance, I am

Sincerely yours,

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