

July 3, 1969

Mr. R. C. Hope-Jones  
Foreign and Commonwealth Office  
London, S.W.1.  
England

Dear Mr. Hope-Jones:

I hope you will not consider it an intrusion for me to place before you the enclosed items dealing with chemical and biological weapons. I have learned of your interest in this subject from Mr. John Henahan of the Salk Institute for Biological Studies and also from my friend Dr. J.H. Humphrey of London.

The items enclosed are as follows:

- 1) A hearing before the Senate Committee on Foreign Relations on chemical and biological warfare in which I participated on April 30, 1969.
- 2) A memorandum on the position of various nations regarding the use in war of tear gas.
- 3) A note on the use of CS in Viet Nam.

The use of CS in Viet Nam illustrates the difficulty of confining the use of "non-lethal" gas to police-like actions once it has been introduced onto the field of battle. We see not only a steady escalation in the scale of its use, but also a technological escalation in the form of the agent itself. Unlike the original CS, the micropulverized silicone treated material is highly persistent in the field, even in the presence of considerable moisture. A further dimension for technological escalation has been opened up by the discovery that the effectiveness of CS can be considerably enhanced by a further reduction in particle size even below that of the so-called "micropulverized" material. Such ultrapulverization, as one might describe it, allows penetration of CS into the deep recesses of the lungs, thereby evoking

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a set of physiological responses considerably more severe than those caused by the action of CS on the eyes and upper respiratory passages.

It seems to me that over any very long period of time it would be difficult to prevent the unrestricted use of "non-lethal" gases in war from escalating to the use of lethal ones. Perhaps the risk of escalation can be reduced by reintroducing the language of Article 2 of the draft Disarmament Convention, which prohibited the use of all gases for purposes "... of injuring an adversary..." This passage might be read so as to allow the use of tear gas for purposes other than injuring the adversary. All-in-all, however, the simplest and most durable standard with the fewest political headaches for the future would certainly be "no gas".

Sincerely yours,

Matthew Meselson  
Professor of Biology

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Encl.