PROGRAM IN SCIENCE, TECHNOLOGY, AND SOCIETY
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CAMBRIDGE, MASSACHUSETTS 02139

December 1, 1981

Prof. Matthew Meselson
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Harvard University
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Dear Prof. Meselson:

Here are some materials that should be of interest to you. The master's thesis has been gathering dust in my files since I wrote it in the late sixties: I doubt if you'll learn anything startlingly new from it, but you still might want to glance at it, just to make sure.

The handwritten letter from my grandfather was sent to me while I was in the process of writing the master's thesis (the letter is dated February 22, 1967). I did talk with Joel Hildebrand as my grandfather suggested; although the conversation didn't reveal any earthshaking evidence on the subject of World War I chemical warfare, it did give me a chance to meet a cordial person and distinguished chemist. As you can tell from my grandfather's letter, I had particularly queried him on the private, ethical concerns of scientists who might be involved with such work. This was the sixties, remember! I might add that although my grandfather had no regrets or guilts about his role in World War I, I'm not so sure the same is true of his work on the atomic bomb in World War II (I've enclosed an obituary to give you some background on this). I think <u>that</u> work may have troubled him in his old age. My husband, a student of Doc's, recalls that someone at MIT once referred to Doc as "the person who made World War II possible." In this case the person was referring not to the Manhattan Project but to fluid-bed catalytic cracking which made possible the efficient production of high octane aviation fuels (see the obituary again). My grandfather told me several times that at one point during the Battle of Britain tankers carrying aviation fuel from South America would dock at Liverpool and the gasoline would be pumped directly into the tanks of RAF airplanes which would then take off to engage the Germans.

The last item is a fragment of an Army publication <u>The Retort</u> dated sometime in 1918--I must have come across this clipping in his papers after his death (my grandmother was the one who would have saved something like this). If you could get the whole publication, you would undoubtedly learn some things! It must be on file <u>somewhere</u>. I also xeroxed the back, because the list of names and sections could well be of interest to you.

Letter to Prof. Meselson December 1, 1981

I'll also dash off a note to my uncle Clay Lewis to see what information or suggestions he might have on the topic. He has a phenomenal memory, so I'm hopeful he'll have some further ideas for you: if so, I'll pass them on.

It was a pleasure to hear your talk and to enjoy your company at dinner afterwards. I hope our paths will cross again sometime in the future.

Sincerely,

Rosalind Williams

Rosalind H. Williams
Research Fellow

Referring to your letter of Jan. 25, in World War I I was in charge of research in protective devices against gas warfare, serving as a civilian. On Nov. 11, 18 I was visiting the testing station for field use of all sorts of gas warfare equipment set up by Pershing near his headquarters in Chaumont, France, the commander of which was Lt. Col. Joel Hildebrand, a wonderful man! Of course the armistice resulted in immediate abandonment of all work on developments of a military character, and I was stranded there for several days. Sitting around the wood-turning stove in one of the huts I met an officer from Phila., a physician, who had been working on the effects, particularly on animals, of the materials being tested, who was a delightful man. Something he said tipped me off that he was a Quaker. I must have inadvertently indicated my surprise, for he went on to explain that he had accepted a commission in the medical corps over family objections, but when he saw the results of gas warfare in the hospitals in France he became convinced he could help in the field testing work and ought to do so and got transferred. He said sadly, "my folks know nothing of this angle and I don't know what they'll say when I get back". Of course, I dropped the matter

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but I've always wished I could have come to know him intimately enough to be able to share his feelings on the ethical implications of war from the point of view of the individual.

Would you like to meet Hildebrand to hear his feelings on gas warfare? I wouldn't think of suggesting it to him if his health is poor but if that is no barrier and he is within your reach I would be delighted to ask him to let you see him. If you want to, call me with charges reversed any evening after 8 P.M. your time, and I can find out where he is and whether it would be likely to be a burden to him. If so, don't!

Sorry I didn't think of this before! Were you visiting? If so, next time, remember your grandfather is thick headed and slow in reaction time but loves frankness and won't hesitate to say no if he feels it should be said!

My colleague, Prof. T. K. Sherwood, is at Berkeley as a visiting Prof. in the Dept. of Chem. Eng., whose head is Prof. Wilkie (it could be Stanford, but I don't think so). He served under Conant from just after Dunkirk till the end of the war, largely active in recruiting scientists, chiefly physicists and chem. engs. mainly. I think he recruited Prof. Fieser of Harvard, who developed Napalm. You can probably contact him thru the Dept. Phone him and get his opinion on the

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attitudes of technical men on research or
way problems as he experienced it. Tell
Jim I told you to ask him. Parenthetically, he
is a member of both the National Acade-
my of Sciences and the National Academy of
Engineering. He played an important part
in the establishment of the latter.

We had a balmy winter up
to the end of January, but cold and
considerable snow since and very cold of
the last 10 or 12 days, — down to 6° F
below one morning. Hope you're having
it better.

Hastily
Grandpa

Notes

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Initiation of chem. warfare came in the spring of 1915 by the Germans. The combatants flooded this country with propaganda on all sorts of things and I am fully convinced that the popular reaction to it stemmed from the English and French propaganda. N.B. I lived through it in my early thirties.

Parenthetically there was an international conference at the Hague in 1898 that adopted a convention on rules of war. One clause ruled out gas warfare. The U.S. representatives were John Hay and Admiral Mahan. They stated that the U.S. was against war, but if war came it was a resort to force and that the U.S. would not accept such a clause because in a resort to force it would consider no holds barred. I think the U.S. was the only combatant in W.W.I that had not signed that treaty.

U.S. experience in France in W.W.I showed far more U.S. casualties due to gas than to any other single weapon, but far less deaths relative to casualties. The army asked me in the 20's to speak before the Amer. Inst. Chem. Engs. I think it was in either Birmingham or Atlanta to put over this point and its significance on the basis of the army Med. Corps data. A great deal had also been said about after effects on men who had been gased. The Med. Corps data showed no greater incidence

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of T B or gassed cases than on the casualties as a whole. I can find no record of my talk but feel sure I can get you the data. Shall I try?

Tear gas and the related materials are violently painful and put a man completely out of action, but the effects are almost always gone in a few days.

As to reactions of scientists to war research, I served to recruit scientists in 1917 to develop protective measures against gas and again under Conant in '40 & '41, (after Dunkirk) for work in various military areas. Never once in all that experience can I recall a single case of question or hesitancy on the part of the men approached on ethical or quasi-ethical grounds. However, one must remember the anti-gas propaganda of WW I and the terrific impact of the flood of refugee scientists to this country before 1940 on the American scientific community. Again, in the latter case, one must reckon on the influence of the attitudes of men with the prestige of Bohr and Einstein.

I would certainly like to hear an explanation of the identification of scientists (especially American scientists) with "machinations".

As to non-use of gas in WW II, I suspect the real reason was fear of escalation into biological warfare. That is probably a more serious threat, especially to the civilian population than atomic war.

Among scientists and engineers who worked on war research I have never encountered the "never again" attitude, but I have encountered the question of justification of a given war,