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NATIONAL SECURITY COUNCIL
WASHINGTON, D.C. 20506

February 9, 1970

MEMORANDUM FOR DR. KISSINGER

FROM: Michael A. Guhin *MA Guhin*
THRU: Robert M. Behr *RM Behr*

SUBJECT: Your Meeting with Matt Meselson, Wednesday
February 11 (5:00 PM)

You are scheduled to see Matt Meselson early Wednesday evening. We understand that the meeting will be devoted primarily to possible Senate strategy regarding ratification of the Geneva Protocol and to the subjects of irritant agents (CS or "tear gas") and herbicides.

Recent Biographical Information on Matt Meselson

- Matt was recently appointed by the American Association for the Advancement of Science to plan a study of the effects of the use of herbicides in Vietnam. This one-year study is to serve as the basis for a later extensive examination.
- He is also organizing a study for the Carnegie Endowment which will consist of papers on (1) the legal aspects of the Protocol, (2) arms control steps beyond the Protocol, (3) military aspects of the use of tear gas and herbicides, and (4) herbicides. The plan is to present these papers at a very high level meeting and to publish any conclusions in a form similar to the Academy report on "CBW".
- He has sent you a few letters over the past months, several of which contained background information and data on these subjects. Particularly, during the NSSM 59 study on chemical and biological policy, he sent you a paper on "The U.S. and the Geneva Protocol" (Tab C).
- He recently sent you (January 22) a paper entitled "What Policy for Toxins?" (Tab B). [Since the subject may come up in your discussion, we have prepared a very brief outline of the paper's main points (Tab A).]

Purpose of the Visit [Based upon recent conversations and his papers]

- His main concern will probably center about the Administration's proposed method of handling its position on irritant agents (CS) and, to a lesser degree perhaps, herbicides used for defoliation and anti-crop with respect to the Protocol.

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- In recent conversations, he has agreed that the primary purpose should be to gain near if not unanimous support for the Protocol without splitting the vote on the "tear gas-herbicides" issue.
- To achieve such unanimity, the Administration could, as it were, "leave the door open" by not making a hard and fast reservation.
- The Administration could show some flexibility (a) by announcing a willingness to enter into discussions concerning the status of such agents under the Protocol or the control of their use through further agreements; (b) by at least indications that the policy on tear gas and herbicides will be reviewed after hostilities in Vietnam come to a close; (c) by announcing a very high level citizen's advisory group to review the questions and make recommendations; or (d) by a Presidential statement that the U.S. would seek a uniform interpretation of the Protocol.
- [Dr. DuBridgde made some similar recommendations in January.]
- Matt may suggest that the best position would be a version of the "seeking a uniform interpretation" approach: that is, have the Senate pass a resolution to this effect as its advice to the Administration. [Thus, all sides could attach whatever interpretation they wished onto the issue.]
- These steps could ease the Protocol through the Senate without having the proceedings and vote turn into a debate on "tear gas-herbicides-Vietnam".

Background on Irritant Agents (CS)

- With respect to such agents, his main point will probably be that there is no unique and simple standard once the rule of "no gas" has been abandoned and that this rule should not be altered unheedingly. He may stress:
 - The limited military utility of such agents. (Why have the VC not found it worth logistics efforts or political costs to obtain a retaliatory capability with CS?)
 - More limited utility in other theaters and greater risks of escalation and proliferation.
 - A 1967 Edgewood Arsenal Technical Report found that very high concentrations of CS under tropical conditions produce second degree chemical burns which may incapacitate for up to 10 days (Tab D).
 - The effects of CS progress to the deep recesses of the lungs and its possible chronic toxicity is not known.

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- CS has rarely been used in Vietnam with the primary intent of sparing civilian lives and/or property, but is most commonly used for area denial and in offensive military operations (RAND Study, Tab E). [FYI: CS usage in Vietnam is running approximately 100 tons per month.]

Background on Herbicides

- On defoliation, he may make the point that we have no idea of the overall, long-range ecological effects of the large-scale defoliation and may question its military utility.
- On anti-crop, he may mention that even U.S. Government reports show that the main impact of crop destruction falls upon the civilian populations of enemy-held or contested areas (Tab F).

Suggested Talking Points for You

You might wish to:

- Acknowledge receipt of his papers, "The U. S. and the Geneva Protocol" and, particularly, the more recent paper "What Policy for Toxins?" [Main points of the latter paper at Tab A]
- Sketch the Administration's approach to ratification of the Protocol with respect to tear gas and herbicides: that is, no formal reservation, but more a unilateral statement of understanding.
- Ask him if, in his opinion, a Senate resolution to the effect that the Administration "should seek a uniform interpretation of the Protocol" could carry the day.

[FYI: Last week, British Foreign Secretary Stewart announced that the UK does not believe the Protocol prohibits the use of CS in war. This is a reversal of the 1930 UK position, and has been a matter of some in-fighting there (Article & Cable, Tab G). Also, although the following is still classified information, Japan will be ratifying the Protocol with a similar understanding as the U. S.]

- Tell him that the Administration hopes to have the package completed for submission to the Senate within the next few weeks.
- If he brings up the subject of toxins, you might wish to ask him how he would draw a lasting functional policy line between toxins and other chemicals.

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MAIN POINTS OF "WHAT POLICY FOR TOXINS?"

Submitted by Matthew Meselson

1. [The paper first defines and describes toxins, in a manner similar to the NSSM 85 exercise.]
2. The U.S. should not attempt to derive its policy for toxins from purely technical arguments regarding their definition.
3. Whether or not the U.S. decides to reserve the right to use toxins in retaliation and to pursue the development of toxin weapons should be decided in terms of major policy objectives:
 - Meeting military requirements;
 - Achieving arms control and non-proliferation;
 - Maintaining the authority and credibility of the President.
4. Lethal toxins are militarily inferior in almost every important respect to the standardized lethal chemical agents.
5. The easier logistics argument is not convincing because it fails to point out the relationship to the overall picture: that is, the requirements still for other chemicals and the very large requirements for conventional munitions in a major war zone.
6. As long as the U.S. is committed to use incapacitating agents only in retaliation, the U.S. has no major need for an incapacitating capability.
7. A toxin weapons program would be construed by many as inconsistent with the President's initiative in attempting to forestall the use of disease as a weapon of war: "The President... can scarcely have renounced typhoid only to embrace botulism" (Washington Post, January 9, 1970).
8. Conclusions and Recommendations
 - U.S. military requirements for toxin weapons are no more than marginal.
 - The proliferation of toxin weapons would be disadvantageous to the U.S.... Our principal objective should be to discourage interest in developing toxin weapons. This can best be done by grouping toxins with biological weapons for policy purposes.
 - Doing this would allow the President to take an unequivocal and convincing stand against any use whatsoever of disease as a weapon of war.

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January 22, 1970
(revised)

Tab B

WHAT POLICY FOR TOXINS?

Matthew Meselson
The Biological Laboratories
Harvard University

Characteristics of Toxins

Toxins are poisonous substances produced by living organisms including plants, animals and bacteria. Examples are ricin (from the castor bean), tetrodotoxin (from the globe fish), and botulinal toxin (from the bacterium *Clostridium botulinum*). Today, their production entails the growth or harvesting of large quantities of plants, animals or bacteria from which the toxin may then be separated and purified. Looking several years ahead, it will be possible to synthesize a number of toxins directly, without the need for toxin-producing organisms. Eventually, direct chemical synthesis will provide a practical alternative to extraction from living organisms, although the latter method is likely to remain the least expensive for bacterial toxins.

In contrast to the organisms that produce them, toxins are not capable of reproduction. For this reason, illness caused by toxins is not transmissible from man to man. Toxins cannot themselves cause spreading epidemics. Nevertheless, toxins do cause disease. The principal pathological symptoms of many bacterial diseases are in fact caused by toxins produced within the human body by living bacteria. In this sense, bacteria make toxins, toxins cause disease. Examples of diseases that can be produced either by bacterial infection or by direct administration of the corresponding toxin are anthrax, cholera, diphtheria and tetanus.

Some toxins are highly lethal to man (botulin) while others usually cause only temporary incapacitation (staphylococcus enterotoxin). Many

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toxins cause illness or death only after a considerable delay. This varies with the particular toxin and with the dosage and can range up to several days. For use as weapons, toxins may be dispersed as aerosol clouds over or up-wind from a target, to be inhaled by the target population. Because toxins are not absorbed effectively through the skin, a gas mask provides good protection, as do shelters with properly filtered air. Protection can also be afforded by prior immunization with specific toxoid. However, each toxoid is effective only against a particular kind of toxin and, for some toxins, the margin of protection is not enough to be of practical significance.

Are Toxins Chemicals or Biologicals?

Some texts classify toxins as chemical agents because they do not multiply and cannot cause spreading epidemics. Other texts define toxins as biological agents because the technology of their production resembles that of biological agents rather than that of chemical agents and because the symptoms produced by bacterial toxins are like those produced by bacterial infections. The report of the U.N. Secretary General on chemical and bacteriological weapons defines toxins as chemicals whereas, until recently, U.S. military writings defined them as biological agents. The intermediate status of toxins is manifest in the United Kingdom draft BW convention. Although this treaty does not explicitly prohibit the possession of toxins it does prohibit the production and possession of bacteria for the manufacture of toxin weapons. Apparently in recognition of these points, the British Government has declared its willingness to consider amendments that would extend the convention's prohibitions to cover toxins explicitly. In any case, the United States should not attempt to derive its policy for toxins from purely technical arguments regarding their definition. Instead, our treatment of toxins should aim to achieve our major policy objectives.

Policy Choices

The United States is already pledged not to initiate the use of lethal or incapacitating chemical weapons and to refrain from all use whatsoever of germ weapons. Thus, whatever policy is decided for toxins, there is no question of initiating their use in war. Rather, the principal questions for decision are:

- 1) Should the United States reserve the right to use toxins in retaliation for CB attack against us?
- 2) Should the United States pursue the development and production of toxin weapons?

Our answers to these question should be decided in terms of our major policy objectives. These are (1) meeting military requirements, (2) achieving arms control and non-proliferation, (3) maintaining the authority and credibility of the President. Each of these objectives is discussed below.

Military Requirements

Today, lethal toxins are militarily inferior in almost every important respect to our standardized lethal chemical agents, the nerve agents. Nerve agents act rapidly, many toxins do not. Nerve agents can attack through the skin, thus forcing an enemy into cumbersome protective suits. Toxins do not act through the skin, protection is afforded by a mask alone. Nerve agents can be chosen to contaminate territory for several days, denying it to unprotected troops. Toxins, once they are deposited on the ground, do not constitute an important hazard. We already have a substantial supply of nerve agent munitions and have spent much effort in learning their field characteristics. The research, development and testing necessary to produce satisfactory toxin weapons, assuming that can be done, would entail considerable cost.

With enough development effort, some of the military shortcomings of toxins relative to nerve agents could probably be overcome. The main possibility of technological change that requires closer analysis of the value of toxins to the U.S. would be the development of lethal toxins substantially more poisonous under military field conditions than are existing nerve agents. Such development is probably feasible. The weight of toxin munitions needed to cover a given area would then be lower than the corresponding requirement for nerve agent munitions. For example, substantial chemical operations in Europe would require some tens of tons of nerve agent munitions per day. If developed to anything like their full potential, a much smaller quantity of toxin munitions would suffice to cover the same area. However, this reduction of logistic requirements in a major war zone is not so great as to provide an overwhelming argument for having toxins instead of nerve agent. For comparison, we expend thousands of tons of munitions per day in Vietnam and would expect to use considerably more in a major conventional war in Europe.

U.S. policy proscribes the first use of lethal or incapacitating chemicals. Our ability to use chemicals in retaliation against a chemical attack on us would force enemy troops to don protective equipment. This provides such a high order of protection that our chemicals would not be very effective in causing casualties directly. Instead, the military effectiveness of using chemicals against an enemy prepared to protect himself resides mainly in the reduction of mobility and general fighting efficiency caused by the cumbersome nature of protective equipment and by the complexity of the precautions needed to survive in a chemical environment. The chief argument for our possession of chemicals is that it enables us to force the enemy into the same awkward protective posture as his chemicals would force on us, reducing his incentive to initiate chemical warfare and denying him a comparative advantage in case deterrence fails. Although this argument deserves critical examination, it is accepted here without challenge in order to assess the requirement for toxins as a replacement for nerve agent weapons.

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There would be little military advantage in having agents much more toxic than nerve gas. Even a very large increase in toxicity would not overcome the high degree of protection afforded by sophisticated defensive gear. Indeed, in spite of their potential for extraordinary toxicity, toxins are likely to be less effective for tactical purposes than are nerve agents. Toxins do not penetrate the skin and therefore would not force enemy troops to wear protective equipment as cumbersome as the suits required for defense against nerve agents. Their dissemination over large areas would cause high casualty levels among unprotected civilians while not greatly impeding the activities of enemy soldiers. Indeed, even if skin penetrating toxins could be developed, contrary to present expectation, their only advantage would be the rather modest reduction of logistic requirements discussed above.

The situation with incapacitating agents is somewhat different because no very satisfactory incapacitating agent now exists. It is conceivable that a satisfactory incapacitating toxin could be developed, whereas no conventional chemical may be found with the necessary properties. However, so long as we are committed to use incapacitating agents only in retaliation for chemical attack upon ourselves, we have no major need for an incapacitating chemical capability.

Arms Control and Non-Proliferation

Today no nation appears to have operational toxin weapons or even to have generated any great momentum toward developing them. In the context of both tactical and strategic war, it is very much in our interest to preserve this situation. Our great wealth allows us to expend enormous quantities of conventional munitions in tactical combat. Very few countries even approach this capability. Toxin weapons have the potential of large

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area coverage at low cost. If effective toxin weapons are developed and if there are no strong restraints against their acquisition, countries and forces less wealthy than the U.S. will wish to acquire them, to our disadvantage.

At the strategic level, the hazard for us is much more serious. Toxins could open up a whole new dimension of strategic threat. For strategic purposes, their potential for large area coverage per pound of agent could make them more like germ weapons than like chemicals. Countries not possessing nuclear weapons and unwilling to accept the odium and uncertainties of reliance on strategic germ weapons might well be tempted to acquire a population-killing capability based on toxins.

Clearly, it is in our interest to discourage other nations from diverting resources to the development and procurement of toxin weapons. We do this by creating the expectation that such weapons will not be used, by not pioneering their technology, and by strengthening the psychological and legal barriers against them.

The arms control benefits of our newly decided policy of not using germ weapons for any purpose will be reduced if we maintain biological laboratories where secret work is done and if we keep military facilities capable of the large-scale production of germ weapons. An active U.S. toxin weapons program would prevent us from demilitarizing and declassifying our biological research laboratories at Fort Detrick and our germ weapons production facility at Pine Bluff Arsenal. Conversely, if we choose not to develop toxin weapons, Pine Bluff can be completely demilitarized and our defensive biological research program can be done at Fort Detrick or other locations with little or no secrecy. This would constitute a comprehensive and convincing renunciation of the use of disease

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as a weapon of war. It would deprive present and potential advocates of biological weapons in other countries of the time-honored argument that such weapons must be made because the other side is doing so. It would reinforce the psychological attitudes which incline political leaders not to divert resources to biological weapons and which incline technical personnel not to work in this area. Such a policy would allow us to focus maximum political pressure on other nations in order to discourage them from undertaking or prosecuting biological weapons programs of any kind.

Maintaining the Authority and Credibility of the President

The initiative of the President in renouncing the use of biological weapons under all circumstances was greeted with praise and admiration throughout the world and across a broad political spectrum. However, the toxin issue threatens to undermine the credibility and authority of the President's policy, even in the eyes of persons generally counted as supporters of Presidential policy. Many senior scientists have expressed the view that a toxin weapons program would be inconsistent with the President's initiative in attempting to forestall the use of disease as a weapon of war. A toxin weapons program would require us to divert many of the recent and forthcoming advances in biology and medicine toward new methods of killing and of controlling living processes for military purposes. Most persons hold this to be unnecessary and abhorrent. This attitude was stated editorially in the Washington Post of January 9. "The revulsion generally felt against biological warfare arises from the conviction that disease should not be used as a weapon of war. Surely the President did not mean that, while a disease induced by living bacteria is out of bounds, a disease induced by a toxin is acceptable. He can scarcely have renounced typhoid only to embrace botulism." This view is likely to be shared by a large segment of responsible opinion in the United States and abroad. To the extent that this is the case, a decision to

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maintain a toxin weapons program would rob the President of the initiative he has gained and would generate cynicism and disaffection amongst persons who would otherwise come strongly to the support of his policy.

Conclusions and Recommendations

- 1) U.S. military requirements for toxin weapons are no more than marginal.
- 2) The proliferation of toxin weapons would be disadvantageous to us in tactical war and would pose a major new strategic threat. Our principal objective should be to discourage interest in developing toxin weapons. This can best be done by grouping toxins with biological weapons for policy purposes.
- 3) Doing this would allow the President to take an unequivocal and convincing stand against any use whatsoever of disease as a weapon of war.

Tab C

This paper outlines the history and present status of the 1925 Geneva Protocol for the prohibition of gas and germ warfare. The principal considerations bearing on possible United States ratification of the Protocol are presented and briefly discussed.

WHAT THE PROTOCOL PROHIBITS

The Geneva Protocol prohibits (1) "the (first) use in war of asphyxiating, poisonous, or other gases, and of all analogous liquids, materials or devices" and (2) "the use of bacteriological methods of warfare."

The Protocol does not prohibit research, development, testing, or production of gas or germ weapons. It does not prohibit the use of such weapons in reprisal against their first use by the enemy. It does not prohibit the use of riot control gases or other agents for police purposes. It does not prohibit the use in war of chemicals used for concealment ("smokes") or of flame throwers, napalm, or other incendiary weapons.

WHAT CONNECTION HAS THE U.S. TO THE PROTOCOL

The language of the Geneva Protocol dealing with gas derives from the peace treaties of World War I, which treated gas warfare as already prohibited and specifically forbade the manufacture and importation of war gases by Germany and her wartime allies. These provisions were incorporated in the bilateral treaties between the United States and the defeated powers.

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On the initiative of the United States, an article based on the language of the peace treaties was incorporated in the 1922 Washington Treaty on Submarines and Noxious Gases. At the urging of President Harding, Secretary of State Hughes, Senator Elihu Root, and a Presidentially appointed advisory committee of prominent citizens, the Treaty passed through the Senate with no dissenting votes. Although ratified by the United States, Great Britain, Italy, and Japan, the Washington Treaty never came into force because France, whose ratification was required, objected to its provisions on submarines.

The United States again pressed for a prohibition against gas warfare at the 1925 Geneva Conference on the Limitation of Arms, proposing language on gas essentially identical to the Washington Treaty. The prohibition was extended to cover "bacteriological methods of warfare" at the suggestion of ~~_____~~. The resulting treaty, the Geneva Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, was signed by representatives of thirty-eight nations on June 17, 1925.

The Coolidge Administration and the various supporters of the Protocol seem to have assumed the Senate would give its consent as readily as it had to the Washington Treaty. Almost nothing was done to prepare the case for ratification or to mobilize public support. Meanwhile, the Army Chemical Warfare Service; the American Legion, the American Chemical Society, and segments of the chemical industry organized the opposition. The arguments made against ratification were that the Protocol would be ignored in time of war and that poison gas was more humane than bombs and bullets. The Protocol was debated but not acted upon by the Senate — apparently because the majority leader did not have the votes. It remained on the Foreign Relations Committee

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docket until 1947 when President Truman withdrew it, together with several other long-pending treaties.

By 1939, the Protocol had been ratified by forty-four nations, including all major European powers. At the outbreak of World War II, England, France, and Germany exchanged assurances that they would abide by the Protocol. In 1943, President Roosevelt declared that gas warfare was "outlawed by the general opinion of civilized mankind" and that "we shall under no circumstances resort to the use of such weapons unless they are first used by our enemies." Japan is believed to have used gas against China before our entry into the war but otherwise gas was not used in World War II. The threat of retaliation provided a sanction; the restraint was reinforced by widespread abhorrence of gas and germs, and by military skepticism regarding their utility; however, it was the Protocol that placed gas and germs in a distinct category and provided a clear standard upon which the belligerents could base their conduct.

Since World War II, the United States has repeatedly declared its support for the no-first-use principle of the Geneva Protocol. In 1952, our representative at the United Nations Disarmament Commission declared our support for "the general objective of the (Geneva) treaty, the effective outlawing of poison gas and biological weapons against human beings". When President Eisenhower was asked at a 1960 press conference whether he planned a change in our no-first-use policy, he said "No official suggestion has been made to me, and so far as my own instinct is concerned, it is not to start such a thing first". During President Johnson's Administration, the United States supported resolutions passed in 1966 and 1968 by the United Nations General Assembly, calling for "strict observance by all states of the principles

and objectives of the Protocol" and "inviting all nations that have not done so to accede to the Protocol".

Our statements supporting the objectives of the Protocol have generally stopped short of declaring that we will be legally bound by its provisions. The United States Army Manual, "The Law of Land Warfare", states that the Geneva Protocol is "not binding on this country". However, in 1967 the Department of State held that "We consider that the basic rule set forth in (the Protocol) has been so widely accepted over a long period of time that it is now considered to form a part of customary international law". Whether or not this position is confirmed, it is clear that we are closely associated with the Protocol by virtue of our leading role in its promulgation, our practice over the years, and our recent statements at the United Nations and

where

WHAT COUNTRIES ARE PARTY TO THE PROTOCOL

A total of 84 nations are now parties to the Protocol — 16 of them have ratified since the 1966 United Nations resolution. The parties include all NATO members except the United States, all members of the Warsaw Pact including the Soviet Union, and all nuclear powers (other than the United States), including the People's Republic of China. All major industrial nations except Japan and the United States are parties. The Protocol has been signed but not ratified by the United States, Brazil, El Salvador, Japan, Nicaragua, and Uruguay.

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WHAT ARE THE MAJOR SECURITY IMPLICATIONS OF A NO-FIRST-USE

TREATY COMMITMENT

While the Protocol places gas and germ weapons under the same prohibition, distinguishing several classes of weapons and their characteristics is useful in order to evaluate the security implications of ratification. This is done both in the context of strategic and of limited war.

Lethal Germ Weapons - These weapons operate by disseminating clouds of lethal disease germs over or up-wind from the target area, to be inhaled by target personnel. The lethal effects would not occur until a number of days after attack. Very small quantities of disease germs would be sufficient to cover large areas: a light aircraft can deliver enough to kill populations over several thousand square miles.

Although diseases can be chosen that are normally not highly contagious, the extremely unnatural conditions inherent in military employment make it unintentionally possible to spread the disease far beyond the target area or to create a long-term epidemic hazard.

Since the attacker's choice of germs is wide and mixtures could be used, medical defense can be rendered ineffective. Significant protection can be provided only upon advance warning to a population previously provided with protective masks or air-filtered shelters and trained in their use. Reliable early warning systems have not yet been devised. Active defense against the delivery of germ weapons must be able to deal with a variety of offensive techniques, including aircraft and missile delivery and cloud dissemination by offshore ship or submarine

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or by land-based saboteurs. We might wish to deter strategic nuclear attack upon ourselves by having the capability to retaliate with lethal germ weapons. The deterrent threat posed by our germ weapons would be that of destroying populations. However, since our strategic nuclear forces already provide this capability we have no need to rely on lethal germ weapons and would lose nothing by giving up the option to use them first. Our major interest is to keep other nations from acquiring them.

If the nuclear non-proliferation treaty succeeds, the acquisition of lethal germ weapons would still remain as an alternative means for non-nuclear nations to acquire a strategic capability. Germ weapons that could threaten a large city are much simpler and cheaper to acquire than the corresponding nuclear weapons.

Although many non-nuclear nations could develop germ weapons, none is thought to have done so yet. We reinforce the political and psychological restraints against acquiring germ weapons by strengthening the expectation that they will not be used. We do this more effectively with a binding treaty commitment than with statements of de facto policy. A treaty commitment would resolve much of the uncertainty that may have been aroused in the minds of others in recent years by our germ weapons development and testing programs at Fort Detrick, at Dugway Proving Ground and in the South Pacific, and by our construction of large-scale facilities for germ weapons production at Pine Bluff Arsenal.

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Lethal Chemical Weapons - Modern lethal chemical weapons are the organo-phosphorous nerve agents first developed, but not used, by Germany in World War II. They are several hundred times more poisonous than the lethal gases of World War I and are lethal when inhaled or when deposited as liquid droplets on the skin. The Soviets and ourselves have stockpiled a variety of tactical nerve gas weapons. Soldiers can be defended against them with protective masks and suits: however, the latter are cumbersome and tiring to wear. Fighting efficiency is severely reduced by the wearing of protective equipment and by the strict observation of various special precautions necessary to survival in a lethal chemical environment.

For tactical use against an enemy equipped with protective gear and able to retaliate in kind, chemical weapons would greatly complicate the battlefield situation without giving either side a major advantage; therefore, against sophisticated forces, we do not require an option for the first use of lethal chemical weapons. If the enemy possesses them, we remove the incentive for his first use by having protective equipment and chemical weapons ourselves.

Lethal chemicals could be used in anti-guerilla warfare for territory denial and to attack enemy personnel sheltered from the effects of high explosive and flame weapons. However, the effectiveness of such operations would be largely nullified if the guerillas can devise or obtain protective equipment. Moreover, our first use of these weapons would seriously risk opening up sources for their supply to the enemy and to other dissident forces to which we may be opposed in the future. Lightweight munitions such as mortar cartridges and rockets containing nerve agent would enormously enhance the guerilla's disruptive and destructive capability, both against government troops and base camps and as terror

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weapons against cities. Government forces would often be compelled to encumber their soldiers and supporting personnel with protective equipment and would be confronted with demands for protection by urban populations. The guerillas, with their ability to disperse and to mingle with civilians, would offer no comparable targets. Therefore, the introduction of lethal chemicals into guerilla warfare would greatly escalate the level of violence and complicate combat operations without offering anti-guerilla forces any advantage.

A concluding but often overriding constraint on the tactical use of lethal chemicals, especially when the battlefield is on friendly soil, is that their large scale employment would inevitably cause heavy fatalities among undefended civilians in the combat zone and out to considerable distances downwind.

Lethal chemical weapons could be produced by non-nuclear nations to provide a limited capability for the attack of urban populations. Under meteorological conditions favorable to the attacker, a medium bomber or converted commercial air transport can deliver enough nerve agent to kill a high proportion of unprotected persons throughout the central region of a large city - and future technical developments may well lead to the appearance of lethal chemicals with considerably greater area coverage capability than those now available. Moreover, chemical weapons and germ weapons are often considered together, so that proliferation of the former risks proliferation of the later.

To summarize, where our forces face a lethal chemical threat, we can remove the advantage of their use against us by having the ability to defend ourselves and to retaliate in kind. However, the costs and complications of possible retaliation and of the proliferation of lethal chemical capability make the first use of lethal chemicals by us unattractive at any level of combat. Beyond that, it is in our interest to discourage non-nuclear nations from pursuing the development

of strategic chemical weapons. If we can accept a treaty commitment against the first use of lethal chemicals, we undercut arguments in other countries for the development and deployment of these weapons and reinforce the restraints that have acted to keep them from being used.

Incapacitating Germ Weapons - Several infectious diseases which usually cause severe temporary disablement, but normally kill less than one or two percent of the persons infected, have been considered for use as incapacitating germ weapons. Like lethal germs, they can be dispersed over large areas as aerosol clouds to take effect after an incubation period of several days. Masks provide good protection but existing detection systems cannot be relied upon to give warning of surprise attack.

The functioning of these weapons is subject to great uncertainties. A germ designed as an incapacitant might actually cause a very large number of deaths among enemy personnel and intermingled civilians. Conversely, it might cause too little incapacitation to be militarily effective.

Unlike lethal germ weapons, incapacitating ones are not potential deterrents but rather are weapons whose first use we might consider in certain unusual and extreme situations such as the entrapment of a large American force by unprotected enemy troops. In this situation, the employment of incapacitating germ weapons in forward and rear support areas might impede the enemy advance long enough to allow reinforcement or evacuation of our force. Of course, any decision to employ incapacitating germs must take into account their intrinsic uncertainty as well as the escalation and enlargement of the conflict that might result from the outbreak of germ warfare of any kind.

The facilities required for the production and delivery of incapacitating germ

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ions are essentially the same as those for lethal ones. Furthermore, the Geneva Protocol does not distinguish between lethal and incapacitating germs nor is there any technical basis for a clear distinction. The long term military benefit of our accepting the no-first-use commitment of the Protocol, especially when most other important nations have already done so, would be the reinforcement of existing restraints against the acquisition and possible use of all germ weapons, including lethal ones.

Incapacitating Chemical Weapons - These weapons include harassing agents which disable only during the period of immediate exposure as well as chemicals which incapacitate for several days. Both types are available to United States forces in a variety of munitions. The chemical agent is released as an aerosol cloud to be inhaled by target personnel. Gas masks provide adequate protection.

Our standard long-lasting incapacitating chemical, agent BZ, causes unpredictable and often violent behaviour and can have severe side effects. Therefore, it is not regarded as a satisfactory incapacitating agent. Although much effort has been spent in attempting to develop an effective long-lasting incapacitating chemical without these undesirable qualities, none has been found.

The principle harassing chemical now provided to the army is CS, developed by the British in the 1950's as a more effective agent than ordinary tear gas for dispersing rioters. Exposure to CS causes intense pain in the eyes and upper respiratory tract, progressing to the deep recesses of the lungs where it causes a feeling of suffocation and acute anxiety. These symptoms generally pass quickly after restoration to fresh air. The lethal dose for man is very much higher than that required to cause intense irritation. Nevertheless, very heavy or prolonged exposures, as may sometimes be experienced in confined spaces, would almost certainly cause permanent lung damage and deaths, especially among infants, ill persons and

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the aged. No long-term after-effects of moderate exposure to CS have been demonstrated; however, a thorough study of this possibility has not yet been made.

Tear gas and other harassing gases were the first chemical warfare agents employed in World War I. The total amount disseminated during the war was approximately 13,000 tons, equalling the amount of mustard gas used then. During World War II, Germany and the United States prepared large stocks of tear and other harassing gas munitions but refrained from using them. No gas of any kind was used on the battlefield in Korea. The first combat use of harassing gas by any major power since World War I has been in South Vietnam where our forces have employed agent CS since 1965.

Harassing agents can sometimes facilitate the attack or capture of unprotected enemy soldiers mingled with civilians when the alternatives would otherwise be to kill civilians or not to attack the enemy. However these situations are generally uncommon in warfare because civilians usually flee from firefights and because harassing agents can drive civilians who have found shelter back into the line of fire. The chief use made of harassing agents in World War I and also in Vietnam has been to assist the conduct of ordinary military operations. Harassing agents are employed against the enemy to upset his fire, to deny him territory, and to drive him from cover to face attack by high explosive and flame weapons. Most of the approximately 7,000 tons of CS disseminated in Vietnam has been employed for these purposes, utilizing a variety of newly developed CS munitions including grenades, rockets, mortar and howitzer projectiles, high capacity spray devices, and several types of aircraft bombs.

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The arguments for incapacitating chemicals in war are that they enable us to deal with enemy soldiers mingled with civilians and they can enhance the effectiveness of ordinary military operations. However, once such chemical munitions are widely deployed the occasions on which they might be employed in battlefield conditions or in preparation for bombing strikes greatly exceed the occurrence of mixed enemy population targets. This almost inevitable shift of use of chemical agents to increase enemy casualties in battle or bombardment has occurred and has now become routine. Yet this cannot be considered a stable phase because the enemy's resort to the wide use of masks will cut this effectiveness and the eventual use of such weapons against us may well effect our operations more severely than those of the enemy.

The further hazard in our employment of incapacitating chemicals in war, particularly when done on a large scale in conjunction with ordinary military operations, is that it stimulates other nations to initiate or expand their own programs for chemical (and possibly germ) weapons and erodes the restraints on their use. Even if the first result is only the deployment of harassing agents on both sides in a future conflict, the introduction of weapons, defenses, and logistic arrangements all suited to chemical warfare would facilitate the progression to more powerful and deadly agents. Once the long-observed rule of "no gas" has been abandoned, there is no unique and equally simple standard for international agreement on which agents and which means of employment are to be allowed.

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THE STATUS OF INCAPACITATING CHEMICALS
IN THE GENEVA PROTOCOL

Whether the Protocol prohibits the use of harassing agents and other chemical incapacitants is a subject of some dispute. On the only occasion when nations were canvassed for their views on this point, at a League of Nations Commission in 1930, Canada, China, France, the Soviet Union, and several other nations agreed with the declared British position that "The use in war of 'other' gases, including lachrymatory (tear) gases was prohibited." However, the United States delegate expressed hesitation over any commitment to refrain from the use in war of agencies used in peace time by domestic police and whose use in combat would be "more clearly humane than the use of weapons to which (nations) were formerly obliged to resort." The meeting ended without formal action but with an agreement to discuss the matter again. Two years later, the League Disarmament Conference unanimously recommended that the use of all gases, including tear gas, be prohibited in war. This view was accepted by the United States with the understanding that it did not apply to the use of tear gas for local police purposes. However, the discussions were not directed at the Geneva Protocol but on devising a comprehensive disarmament treaty, an attempt that was disrupted by the approach of World War II. The question did not come up again until 1965 when questions were first raised about our employment of CS and other chemicals in Vietnam.

In response to these questions, our representative to the United Nations General Assembly in 1966 adhered to our 1930 position, stating that the Protocol does not prohibit "the use in combat against an enemy, for humanitarian purposes, of agents that Governments around the world commonly use to control riots by their own people." At that time, this view was contested by the Soviet Union and its allies but not by other members of the United Nations. However, as the scale of CS usage in ordinary

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military operations increased, our position has come under mounting attack. This July, United Nations Secretary General U Thant urged that the Protocol be interpreted to prohibit the use of all chemical agents in warfare. Shortly afterwards, India, Mexico, Pakistan, Sweden, and eight other nations at the Geneva Disarmament Conference proposed a resolution holding that the use in international conflict of "any chemical agent of warfare" is contrary to international law. These views have received substantial attention and are likely to have the support of most United Nations members.

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15 MAR 64 Date 8/29/60

Tab A

AD

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TECHNICAL REPORT

EATR 4075

THE EFFECTS OF THERMALLY-GENERATED
CS AEROSOLS ON HUMAN SKIN

809485

by
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Richard H. Goldman, CPT, MC
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January 1967



Medical Research Laboratory
Research Laboratories
EDGEWOOD ARSENAL
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Conclusions (p. 3)

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Tab F

SUMMARY, CONCLUSIONS & RECOMMENDATIONS (p. v)

MEMORANDUM
RM-5914-ARPA
JULY 1969

OBSERVATIONS ON THE EMPLOYMENT OF
RIOT CONTROL AGENT CS IN
VIETNAM (U)

S. N. Blumenfeld

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Tab F

Principal Findings

1. Defoliation. The defoliation program has been instrumental, and at times decisive, in overcoming the difficulty of locating the enemy in heavily forested combat zones. It has thereby helped enable Allied forces to maximize their advantage of superior mobility and firepower. It has also enhanced the security of Allied lines of communication and facilities by helping to eliminate enemy ambush sites and by providing defensive fields of fire. Thus, both offensively and defensively, defoliation has reduced the number of men and the equipment required for combat missions, has protected war materiel, and most importantly, has helped to save many Allied lives.

2. Economic Costs. The defoliation program, however, has incurred some substantial costs for the United States as well as for the people and Government of the Republic of Vietnam.

(a) Large stands of merchantable timber in War Zones C and D have been damaged and many trees killed. The forests of Vietnam are one of its most important renewable natural resources and future sources of employment. Repeated application of defoliants in these Zones could seriously retard regeneration of these forests.

(b) Damage to crops in III CTZ has been attributed to defoliation operations. Further investigation indicates that these crop losses resulted from a combination of causes including plant diseases, lack of effective farmer care, herbicide drift, targeting and navigational errors, abortion of spray missions, and defective equipment on spray planes. It has not been possible to determine how much defoliation operations have been responsible for this damage.

(c) The alleged threat to the life of the rubber plantations in 1967 did not materialize.

3. Ecological Consequences. The ecological impact of herbicide operations to date does not appear to be serious. The herbicide program has no effect on precipitation, caused very minimal laterization of the soil, and apparently has had little or no effect on micro-organisms in the soil system. It has killed large stands of mangrove which will probably re-establish themselves.

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Anti-Crop Sectors Circled

Britain Asserts CS Gas Is Not Banned

By ANTHONY LEWIS
Special to The New York Times

LONDON, Feb. 2—The British Government took the position tonight that international convention does not bar the use of disabling gas.

The announcement was a surprise and a severe disappointment to campaigners against chemical weapons. Britain had been widely expected to take a leading role in seeking a broader legal ban on gases.

President Nixon, in making a pledge against use of chemical and biological weapons Nov. 25, specifically exempted CS gas. Today's move brings Britain into line with the American view.

Secretary General Thant has urged a more complete ban on gas weapons, including CS.

CS produces sensations of choking and blistering. It has been used by the United States in Vietnam and also by the police in domestic disturbances, such as one in Berkeley, Calif., in 1968.

2 Put Forth Arguments

The usefulness of CS in domestic situations evidently swayed the British Government after a long internal argument. The gas has been used in recent riots in Northern Ireland.

Reliable reports said the argument for keeping CS in the armory had been made especially by the Home Secretary, James Callaghan, and the Defense Minister, Denis Healey. Mr. Callaghan has general responsibility for Northern Ireland, and Mr. Healey for the British troops now maintaining order there.

The exact medical effects of CS have been the subject of intense controversy here.

An official inquiry held after the gas was used in Londonderry, Northern Ireland, last summer found that it caused acute asthma attacks and bronchitis among those with impaired health.

Three doctors reported to Mr. Callaghan that healthy people suffered no lasting damage after exposure. But they asked for a further study, which has not yet been completed.

This inquiry said the effects ranged from "a mere pricking sensation in the eyes and nose," to "streaming from the eyes and nose, spasm of the eyelids, marked salivation and retching or sometimes vomiting, burning of the mouth and throat, and a gripping pain in the chest of such intensity that breathing became restricted to shallow gasps."

The argument about the legality of CS gas turns on the 1925 Geneva Protocol against the use of chemical weapons. The question is whether a non-lethal gas falls within the scope of the protocol.

Michael Stewart, the Foreign

Secretary, disclosed the British decision in a written answer to a question in the House of Commons. He quoted a statement made in 1930 by Hugh Dalton, then a Foreign Office Under Secretary.

Mr. Dalton said that "smoke-screens" were "not considered as poisonous and do not therefore come within the terms of the Geneva gas protocol." But he said that "tear gases" and "shells producing poisonous fumes" were prohibited.

"That is still the Government's position," Mr. Stewart said.

"However, modern technology has developed CS smoke which, unlike the tear gases available in 1930, is considered to be not significantly harmful to man in other than wholly exceptional circumstances.

"We regard CS and other such gases accordingly as being outside the scope of the Geneva Protocol. CS is in fact less toxic than the screening smokes which the 1930 statement specifically excluded."



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Handwritten signature and date: *[Signature]* 5/20/16