

POLITICAL CONSIDERATIONS AND ANALYSIS OF MILITARY REQUIREMENTS FOR CHEMICAL AND BIOLOGICAL WEAPONS

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Introduction.—Chemical and biological warfare has been increasing in the news. There are numerous issues. Among these are research and development and especially open-air testing, Congressional appropriations, ratifying the 1925 Geneva Protocol, using tear gas in Vietnam, Presidential policy reviews, and the chemical-biological disarmament treaty recently proposed by the Soviets.

All of us seek to prevent chemical or biological war. Some believe the best way to prevent the *use* of these so-called horror weapons is not to *have* the weapons. This argument is appealing in its simplicity.

Rather than come to this conclusion in ignorance, we should understand the complexity of the problem. The issue I will discuss is whether to *have* a capability, whether to allocate resources to chemical and biological capabilities. We must recognize that these weapons and their cost would be in addition to, and not a substitute for, other weapons. While money enters into my analysis, it is not a major factor. We are talking about a dollar magnitude of only hundreds of millions of dollars annually. This is insignificant in an \$80 billion Defense budget. On the other hand, these funds could instead be spent on other scientific or medical research, on welfare, or on housing.

My objective today is, first, to describe a framework for analyzing whether to have chemical and biological capabilities. Second, by using that framework, to identify the key issues about which each of you must make a value judgment. When making those value judgments, you will be deciding for yourself whether the United States needs each of four kinds of chemical or biological capability. You must recognize that reasonable men may differ on these value judgments. I have tried to avoid advocating any one value judgment. My policy preference probably will show, but it need not distract you from the analysis.

The framework has two elements. First, we must recognize our objectives. These are non-proliferation, deterrence, and limiting damage. We all benefit when few or no nations have these weapons. Failing that, we can seek to deter nations from using the weapons. Failing that, we can reduce our losses by preparing a defense. The analysis mainly uses the non-proliferation and deterrence objectives.

The framework's second element is distinguishing among four kinds of chemical and biological capabilities, that is, between chemical and biological, and between lethal and incapacitating. The framework's underlying premise is examining the problem in parts. I will examine four kinds of chemical and biological capabilities. This will result in a more reasoned conclusion.

There is a fifth kind of weapon, which I will not cover. Defoliants, a form of anti-plant weapon, are being used extensively in South Vietnam today, covering thousands of square miles each year. The analytical framework would still apply.

I hope you will not find my bluntness too unpleasant. Chemical and biologi-

cal war is a grisly business. I am going to approach it unemotionally, much as an economist analyzes the need for mythical widgets, rather than like a Dr. Strangelove, gleefully plotting the destruction of millions by plague or anthrax. My general approach—that is, identifying objectives, breaking the problem into smaller manageable parts, and examining each part in terms of objectives—is being used at the Pentagon. Secretary Laird has a group, known as his Systems Analysis Office, which examines the need for each kind of military capability much as I will examine for you the need for chemical and biological capability. Unemotional analysis of the need for war-fighting capability goes on every day.

The first kind of capability I will analyze is lethal biologicals. This one lends itself to a general, simple, and logical analysis. For the three remaining kinds of capability I will describe scenarios which maximize the benefits obtainable from these weapons, thus making them look as attractive as possible. Logically, if you are not persuaded by these “best cases,” other scenarios will persuade you even less to *have* a capability. You be the judge.

Lethal Biologicals.—These are population-killing weapons. In situations in which our national objective would be to kill other countries’ populations, lethal biologicals could be used.

If we want to kill population, we can now do that with our strategic nuclear weapons—our B-52’s, Minutemen, and Polaris. We keep the nuclear capability whether or not we have a lethal biological capability. A lethal biological capability would be in addition to our nuclear capability rather than a substitute for it.

Therefore, we do not need a lethal biological capability.

Lethal Chemicals.—These are for use against land forces. Incidental to chemical warfare between armies, cities could be attacked. In densely populated Europe, for example, tens of millions of civilians could be killed.

Chemical weapons are very effective against unprotected troops. They are much more cost effective than conventional fragmentation artillery and bombs. Against protected troops—with gas masks and protective clothing—chemical weapons are almost harmless. Protecting troops seriously degrades their ability to operate. An infantryman in a rubber suit, for example, will experience heat buildup and inability to see or move freely.

Neither effectiveness nor cost, however, is the main objective of *having* a lethal chemical capability. Once both sides are defended and using chemical weapons, neither side would have gained a major advantage. Both sides would have seriously complicated their operations since troops would have to wear protective clothing. Both sides would incur large costs to *have* the capability, hundreds of millions to billions of dollars for the U.S. Hence, against a chemically capable opponent there is no incentive to *use* chemicals.

Our real objective for *having* a capability ought to be deterrence. Defensive capability alone—gas masks and protective clothing—is not enough. An enemy with offensive capability would need to be much less protected and would thereby increase its maneuverability and thus its fighting advantage. Having an offensive capability in addition to gas masks and protective clothing would enable us

to force enemy troops into the same protective posture they had forced us. In summary, our ability to respond with chemical weapons to a chemical attack on our forces takes away from an enemy the incentive to attack us with chemicals in the first place.

This argument says that we should have a lethal chemical capability if a potential enemy has one: If the Soviets have one, we should have one. This reasoning by symmetry has often been used by proponents of military capability, often incorrectly. In this case, to some degree, the argument is valid.

We should not have a lethal capability simply because the Soviets have one. If we have a capability at all, it should be to achieve one of our objectives. That objective, presumably, is both important—that is, we are willing to allocate resources away from other objectives toward this one—and presumably achievable in no better way. That objective, in the case of *having* lethal chemicals, might be to deter the Soviets in Europe from *using* their lethal chemicals.

As we walk today through a war scenario in Europe, the preceding generalizations will become more vivid. We will examine both our objective, namely, deterrence, and alternatives to it, namely, nuclear weapons. The European scenario is the most persuasive one. If that does not persuade you, perhaps nothing will.

The scenario is a war in Europe. The Soviets have a lethal chemical capability. They could use it in an invasion of Germany. If our forces had no chemical defense, our troops would be killed. The Soviets would occupy Europe. If we had only defensive capability, the Soviets probably still would occupy Europe. With an offensive capability in addition, we offset the advantages the Soviets might hope to gain, thereby taking away the Soviets' incentive to use lethal chemicals. Hence, *having* an offensive capability might help deter the *use* of chemicals.

A counter to my argument is a possible alternate deterrent. Some would say that nuclear weapons would deter the Soviets from using chemicals. This counterargument says that we could use tactical nuclear weapons in response to a chemical attack. We could, but that action has consequences of its own. Moreover, the counterargument assumes that using nuclear weapons will somehow achieve our objectives better than the other alternative, which is withdrawing and accepting partial defeat.

Using tactical nuclear weapons may not stop the invading Soviet forces if they use nuclear weapons on our forces. Using nuclear weapons in Germany risks their use elsewhere in Europe. Tens of millions of civilians could be killed, and the Soviets might still occupy Europe. Moreover, use of nuclear weapons in Europe carries the risk that they will be used in the Soviet Union and in the United States. This could lead to strategic nuclear war, the destruction of America, and the death of hundreds of millions. Hence, the use of tactical nuclear weapons, because of its potential escalatory consequences, is very unattractive.

The Soviets recognize the risks of nuclear war. However, they might come to believe that in a crisis, if their objectives were limited, we might not use nuclear weapons.

Because of our conventional capability, the Soviets could have little confidence of successfully invading Europe. Our conventional capability helps deter them at that level of violence. We are each deterred from using our nuclear capability by the other's nuclear capability.

Chemical warfare is intermediate in the spectrum of violence between conventional and nuclear war. The Soviets would have a lethal chemical option in Europe if we are unable to respond in kind. Hence, our *having* a lethal chemical capability would help deter their first use of lethal chemicals in Europe.

Deterrence, as a basis for having a capability, rests on a key philosophic assumption: Each level of violence is deterred principally by another's ability to respond *at that level* of violence. Put another way, *nuclear* weapons are not a deterrent to *chemical* attack.

One characteristic of such reasoning is that it cannot be empirically tested. Since we do not know whether our conventional or our strategic nuclear capability has deterred war in Europe since 1946, we cannot conclude with certainty *having* a chemical capability would deter a chemical attack, or whether our nuclear capability already deters it.

The issue of *having* a capability is not starkly black or white. If we are unsure about what deters the Soviets from using chemicals, we can ensure ourselves. After all, any war is unlikely. A war in Europe is very unlikely. The use of chemicals is even more unlikely—but it could happen. Wars do. We could buy some lethal chemical capability, choosing between one costing tens of millions and another costing hundreds of millions of dollars a year. We could even buy some capability if we thought it would only add to the deterrence to chemical war which our nuclear capability gives us.

The preceding rationale, based on a European scenario, is the most persuasive one I know of for *having* a lethal chemical capability.

The next group of weapons we will analyze is incapacitating chemical weapons. The value of human life enters into this analysis. Again, I will describe the most persuasive scenario I know of for this particular capability.

Incapacitating Chemicals.—These are tactical weapons which make a person unable to function effectively. Most victims recover completely with no after-effects. Tear gas and CS (orthochlorobenzilidene malononitrile) are examples of incapacitating agents. More effective agents would increase the degree and duration of incapacitation. Defense against incapacitants is the same protection needed against comparable lethal chemicals. These weapons would theoretically make combat more humane since few fatalities would occur. This is not their main attraction.

These weapons enable us to attack unprotected enemy troops mingled with civilians. The alternative to using incapacitating chemicals is to kill civilians or not to attack the enemy. No other weapon gives us this option. Situations in which the option is useful occur infrequently because most enemy troops would be protected. Incapacitating chemicals would be effective only against unsophisticated troops, and only then if they did not expect to be attacked frequently. Enemy forces, even insurgents, who considered incapacitating chemicals to be a serious threat would protect themselves.

Note that the "intermingled-situation" rationale contemplates our first use of these chemical weapons. This is in contrast to lethal chemicals, in which case our use would be in response. Moreover, with lethal chemicals, we derive the main benefit, that of deterrence, from *having* the weapons. We would derive the main benefit from incapacitating chemicals only by *using* them. Using them would of course, violate international law. And their widespread use would almost certainly cause other countries to prepare a defense, thereby reducing the value of the weapons. To retain their effectiveness, we could use these weapons only sparingly.

The potential benefit from incapacitating chemicals is to attack an unprotected enemy mingled with civilians. Such situations occur very infrequently. An incidental benefit is to spare civilians.

The real potential cost is not money, but proliferation of chemical and even biological weapons. (Recall that non-proliferation is one of our objectives.) Proliferation is a serious hazard. It could affect the world's balance of power. It would increase the probability of strategic war in which tens of millions of American civilians could die.

Nations generally have little chemical or biological capability today. The rules of war prohibit the first use of chemical or biological weapons. Our use of CS and defoliants in Vietnam is a deviation from historical practice which could have serious consequences. Chemical and biological weapons are popularly viewed as truly horrible instruments of war. Political leaders seem to believe that using such weapons is wrong. Scientists everywhere seem strongly to dislike working on these nasty weapons. Military leaders see no major advantage in them. A mystique seems to have developed around this mode of warfare which, rationally or not, has caused nations not to build capabilities actively.

All nations have benefited by not spending resources on chemical and biological warfare capability. The United States and the Soviet Union have benefited in particular from the lack of interest by other nations in chemical and biological weapons. The economics of conventional and nuclear war favor rich countries. We do not have that advantage with chemicals and, particularly, with biologicals.

A very large and effective strategic biological capability is probably not economically feasible for most countries. The necessary delivery systems and field tests are too expensive. However, a simple capability, enough to cover small neighboring countries or several metropolitan areas in the Soviet Union or the United States, is within easy reach of many countries. Enough agent for a simple capability can be grown in a public health laboratory, and covert delivery is feasible in the ordinary course of commerce. With such a capability, a small country can wield power out of all proportion to its size simply by the threat of small-scale biological attack.

In conventional war, in contrast, quantity alone counts heavily. The ratio of opposing manpower and firepower in conventional war in general and over the long run is a major indicator of the outcome, particularly where the major power's objectives are not limited. Large, rich nations can afford more military forces than small ones. Hence, the Soviets and we have an advantage over small countries in conventional war. The economics of chemical weapons significantly

reduces this advantage. Moreover, we have become dependent on complex mechanical devices and a very extensive logistics system to wage war. In a chemical war in protective suits, our forces would be relatively more handicapped than a much less sophisticated force. In the war today, for example, the North Vietnamese occasionally fire a rocket into a city to harass. Think of the harassment a chemical shell could cause.

The proliferation of chemical and biological capability would tend to change the world's balance of power, reducing ours. We would lose some of the relative advantage of nuclear and conventional capability which wealth gives to us and to the Soviets. Consequently, we have a strong incentive to discourage other nations from acquiring chemical and biological capabilities. Fortunately, many barriers already exist to them. Foremost among these is convention.

Incapacitating chemical weapons would give us the capability to fight in certain very unusual intermingled situations. As we use this capability, however, we lower the barriers to chemical warfare. Since chemical warfare is linked to biological warfare by popular concept and by convention, we also lower the barriers to biological warfare. As these barriers are lowered and the political cost to other nations of having CB capabilities and using them is decreased, more nations will acquire these capabilities. Such proliferation and the weakening of political and legal restrictions will increase the risk of the occurrence of chemical or biological war. We gain nothing by that or even by its threat.

The most persuasive cases for the use of chemical incapacitants involve humanitarian motives toward small numbers of civilians. Each such infrequent situation typically involves the lives of tens to hundreds of civilians. In past wars we have often killed them and proceeded with the war. The importance of discouraging proliferation very strongly suggests that an incapacitating chemical capability is not worth the cost in terms of not achieving our two main objectives, non-proliferation and deterrence.

There is another situation for evaluating the need for incapacitating chemical capability. That is the most common one in Vietnam today, where we are using six million pounds of CS this year. We are using CS against enemy troops to drive them into the open so that conventional artillery and bombs can kill them. These are not "intermingled" situations. CS is used in the hope that it will improve the effectiveness of our conventional weapons. Another argument is also made in favor of CS. Increased effectiveness, the argument says, reduces our own troop casualties.

Whether CS really makes our artillery and bombs more effective is an unanswered question. We need effectiveness analysis.

Moreover, we need to question whether the tactical mission is necessary in the first place. For example, we could choose to forego attacking Hamburger Hill rather than engage in chemical warfare. Not engaging the enemy would reduce casualties even more.

Even if CS does help kill more enemy soldiers, effectiveness is not the real issue. If effectiveness were the objective, lethal chemicals would be even more so. No one is seriously suggesting we use lethal chemicals.

We would not use lethal chemicals because doing so would break down the barriers to chemical and biological warfare.

If that is true, the use of CS and defoliants also breaks down the barriers provided by convention. While the breaking down is a matter of degree, the barriers are nevertheless coming down as we continue to use CS and defoliants in Vietnam.

In making these judgments we must recognize that the tradeoff is between the uncertainties of non-proliferation and the undefined value of human lives, perhaps even thousands of them per year of war.

The last group of weapons is incapacitating biologicals. Again, I will describe a scenario which provides a case for *having* these weapons. Again, the benefit derives from *using* them. The scenario again contemplates first use, and again the trade-off is human life compared to the dangers of proliferation and escalation.

Incapacitating Biologicals.—After an incubation period these weapons incapacitate people in large areas.

A major danger in *using* these weapons is proliferation. Perhaps even *having* the weapons could lead to proliferation.

Rapid escalation is also a hazard. During an attack there is no certain way of determining whether the attack is lethal or incapacitating. Hence, an attack on a nation which possesses a nuclear or biological capability incurs the risk of immediate lethal strategic war.

For this reason, I have chosen a situation not involving another nuclear power. The locale for this scenario is Southeast Asia and the situation is that our forces are about to be pushed off the peninsula. In this scenario we have insufficient time to reinforce or evacuate our forces, and the enemy has announced that it will take no prisoners. The possibility is that our troops may be killed by the tens of thousands. In this situation we would have the following military options: (1) to fight on desperately and hope for the best; (2) to use one nuclear weapon on enemy forces on the peninsula as a hint of things to come and then, if that failed to frighten them, to delay their advance and gain perhaps a month's time by using hundreds of nuclear weapons on the peninsula; or, (3) to delay by an incapacitating biological attack. In the nuclear and biological cases the delay we might achieve could become permanent, but not necessarily. A nuclear attack would kill a major fraction of South Vietnam's population. A biological attack would incapacitate them along with enemy troops.

This weird scenario is designed to present incapacitating biologicals in the most favorable light, not the most likely situation. As in the case of nuclear weapons, incapacitating biological weapons are intended for extremely rare situations. The issue to focus on is whether we should spend money today in order to have an incapacitating biological option should an extremely rare situation occur. Of course, if we are willing to decide today to forego that option, then we do not need to spend the money.

Our use of biological weapons, no matter how humanitarian our motive, would most probably make it a legitimate form of warfare. Proliferation would become the price of possibly achieving a humanitarian objective in Asia.

The barriers to biological warfare are high today, relatively higher than those against nuclear war. We think of biologicals as repulsive, politically unacceptable and an illegal mode of warfare. Biological weapons have never been used. These precedents, conventions, and beliefs probably act as a restraining influence on political leaders considering the use of biological weapons.

The barriers to biological war could be broken down more easily than the barriers to nuclear war. A crude biological capability is economically available to very many nations. A modest capability can be hidden from international inspection much more easily than a nuclear one. Hence, condemnation for *having* a capability can be avoided by small nations.

A decision to *have* a capability, to have an option for that rare situation, requires weighing the uncertainties of non-proliferation with the value of human life, perhaps of tens of thousands of Americans. If we can decide today that we would be willing to sacrifice our soldiers in the situation I described, we do not need a capability. However, if we want the option to decide later, perhaps we need an incapacitating biological capability.

Summary.—One of the issues we face as a nation is whether to *have* a chemical and biological capability. We ought to make that decision in a rational manner. The concept I want to communicate is this: An analytical framework for examining that issue is feasible. Its main components are, first, a clear statement of our objectives. They are principally non-proliferation and deterrence. Second, distinguishing among the four kinds of CB weapons, that is lethal biologicals, lethal chemicals, incapacitating chemicals and incapacitating biologicals. The framework for evaluating our need to *have* a capability is different for each kind. Once we have identified our need for each kind, if any, we can proceed to acquire the capability. We can also develop informed national policies on not using the weapons, on the Geneva Protocol, and on disarmament.

CONCLUSIONS

The author has used the analytical framework described above for coming to his own conclusions about United States requirements for chemical and biological capabilities. His conclusions follow. Since reasonable men could differ on the value judgments, particularly about human life, one could come to different conclusions while using the analytical framework.

About the Need for Chemical and Biological Weapons

Lethal biologicals. If we want to kill population, our strategic nuclear capability gives us that option. We keep the nuclear capability anyway. We do not need the lethal biological capability in addition.

Lethal chemicals. The Soviets have a lethal chemical option in Europe short of nuclear war, if we are unable to respond in kind. We need some lethal chemical capability to deter their first use in Europe.

Incapacitating chemicals. These weapons enable us to attack unprotected enemy troops mingled with civilians. This is a first-use capability. No other weapon gives us this option. The alternatives are not to attack the enemy or to

kill civilians. Such situations occur infrequently because most enemy troops are protected. Using the weapons would break down the barriers to chemical and biological warfare and encourage proliferation of chemical and of biological capabilities.

The importance of discouraging proliferation is greater than the lives of ten to hundreds of civilians occasionally killed on the battlefield. Hence, we can proscribe the use of incapacitating chemical weapons and do not need the capability.

Incapacitating biologicals. First-use situations in which we might consider using these weapons would be very much more serious. The lives of tens of thousands of United States troops, for example, might be involved. Proliferation would again be the main cost.

The importance of discouraging proliferation is greater than the lives of even tens of thousands of U.S. soldiers. Hence, we can proscribe the use of incapacitating biological weapons and do not need the capability.

About using CS and Defoliants in Vietnam

Using CS and defoliants in combat amounts to chemical warfare. Engaging in chemical warfare, if only with harmless irritants also used to suppress domestic riots, breaks down the barriers to chemical and biological warfare. Maintaining these barriers discourages proliferation and use of all kinds of chemical and biological weapons.

The importance of maintaining these barriers is greater than the lives of tens to hundreds of civilians killed in intermingled situations. Correspondingly, even if CS could be shown to reduce U.S. troop casualties—and it does not necessarily reduce casualties—maintaining the barrier is more important than reducing U.S. troop casualties by several thousand per year in Vietnam. Therefore, the United States should stop employing CS and defoliants in Vietnam.

Employment could be halted by the Secretary of Defense, the Secretary of State, the President, or even the U.S. Ambassador to Vietnam or the U.S. Commander there.

About Ratifying the Geneva Protocol

International convention is a major factor influencing nations not to acquire or use chemical and biological weapons. Ratification by the U.S. Senate would strengthen this convention, and thereby the barriers to chemical and biological warfare.

Ratification would draw attention to the use of CS and defoliants in Vietnam. To make the gesture of ratification genuinely meaningful, we would be obliged to stop using CS and defoliants.

Opponents to halting our use would allege embarrassment to the United States, loss of face, even our becoming after the fact war criminals. They would allege shackling of the military, increased U.S. troop casualties, and other dire consequences. I question the validity and certainly the relevance of these arguments.

We should stop using CS and defoliants in Vietnam because continued use leads to proliferation. We should strengthen the barriers to proliferation and CB warfare by ratifying the Protocol.

About CB Disarmament

We do not need any biological capability. We do not need incapacitating chemical capability. Our lack of need is independent of other nations' capabilities. Hence, we can publicly and unilaterally disarm. We should make that decision and announce it in a manner which will strengthen the barriers to chemical and biological warfare.

Our only need for a lethal chemical capability stems from the Soviets having one. If the Soviets agreed to disarm, we should also.