STUDY PROJECT

THE PROLIFERATION OF CHEMICAL WEAPONS: PUTTING THE GENIE BACK IN THE BOTTLE

BY

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24 February 1989

U.S. ARMY WAR COLLEGE, CARLISLE BARRACKS, PA 17013-5050

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USAWC MILITARY STUDIES PROGRAM PAPER

THE PROLIFERATION OF CHEMICAL WEAPONS: PUTTING THE GENIE BACK IN THE BOTTLE

AN INDIVIDUAL STUDY PROJECT

by

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ABSTRACT

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INTRODUCTION

Ypres, Belgium - 22 April 1915. It was late afternoon and the setting sun cast long shadows over the battle scarred terrain. In the distance could be heard the faint sounds of large caliber artillery. Suddenly, at 1724 hours, three flares rose from an observation balloon and German artillery commenced a fierce bombardment of the areas to the rear of French and British trenches. At 1800 hours, the shelling ceased and an eerie silence fell over the area.

Chancing to rise and peer across the battlefield, the men of the French and Algerian divisions saw a thin blue-white haze rising from the German trenches. It swirled about, gathered into a greenish cloud and began to slowly drift across the terrain at a height of about six feet. Settling into every depression as it went, the cloud finally came spilling into the French trenches, silently enveloping the occupants in an acrid green cloud so thick they could not see their neighbors. Seconds later they were clutching their throats, fighting for air.[1] In an effort to escape, some attempted to bury their mouth and nose in the earth. Others panicked and ran, which only resulted in deeper breaths and more acute poisoning. Faces turned blue and some suffered ruptured lungs from coughing.[2] To the north and south of the cloud-enshrouded French positions, British and Canadian troops watched in amazement as soldiers emerged from the cloud,

staggering about and running wildly for the rear. Soldiers streamed by "blinded, coughing, chests heaving, faces an ugly purple color, lips speechless with agony." Surprise was complete. The two French divisions collapsed, leaving a gap four miles wide in the Ypres front.[3]

Thus, the spectre of large scale toxic chemical warfare was unleashed upon the world. That this was a clear violation of international protocol, namely the Hague Convention of 1899, did not stop the major powers from embarking upon a course of action seeking ever more lethal chemical agents and the unrestricted use of toxic gas on all major war fronts. As a direct result, over 1,287,000 military gas casualties were to be suffered by the seven major belligerents by the end of the war.[4]

Following World War I, the perceived horrors of chemical warfare created a world wide revulsion which caused it to be banned by international protocol. World War II was fought on an unlimited scale, including the introduction of nuclear warfare, without resort to the battlefield use of chemical weapons (with minor exceptions). Later, the extended and nondecisive Korean and Vietnam conflicts were fought, again without resort to toxic chemical warfare. The last decade, however, has seen a dramatic proliferation of chemical warfare capability, especially among Third World nations. Additionally, there has been an accompanying escalation in the use of lethal chemical agents both on the battlefield and against civilian population centers, the most notable being the events of the recent Iran-Iraq War.

Why has this proliferation occurred? Why have chemical weapons reemerged as tools of modern conventional warfare and can they be controlled? This study will first examine the background of chemical warfare and the evolution of traditional restraints which, until recently, were effective in limiting its use. These restraints will then be extrapolated to the modern era to determine what recent changes have occurred to cause them to become ineffective. And finally, a course of action will be proposed which might be followed in order to restore an effective restraint system against chemical warfare.

It should be noted that the scope of this study will be limited to chemical warfare and will not address the equally serious problems posed by the evolving biological warfare menace.

ENDNOTES

1. Charles E. Heller, Leavenworth Papers No. 10. Chemical Warfare in World War I: The American Experience, 1917-1918, pp. 7-9.

2. Robert Harris and Jeremy Paxman, A Higher Form of Killing: The Secret Story of Chemical and Biological Warfare, p. 2.

3. Heller, p. 9.

4. Association of the United States Army Special Report, A Chink in Our Armor: The Urgent Need for Chemical Weapons, p. 15.

CHAPTER II

BACKGROUND

To understand the evolution of the traditional restraints which served to limit the proliferation and use of poison gas during the 50 year period following World War I, it is first necessary to review the international backdrop which existed during that era and how key events influenced thinking and attitudes regarding chemical warfare. This chapter will set the stage by briefly tracing the history of chemical warfare and related political actions from World War I to the present.

WORLD WAR I

The agent used to initiate chemical warfare at Ypres in 1915 was chlorine, a gas released from metal cylinders emplaced in the German trenches. Chlorine poisons, not by suffocation, but by stripping the lining of the bronchial tubes and lungs, producing severe inflammation. This in turn, results in the production of massive amounts of yellow fluid which fills the lungs, blocks the windpipe and froths from the mouth. Death actually results from the victim being drowned in his own exudation. A correspondent who visited a French medical facility shortly after the chlorine attack reported seeing hundreds of wounded with "faces, arms and hands of a shiny grey-black color" sitting "with mouths open and lead-glazed eyes, all swaying slightly backwards and forwards trying to get breath." In this surprise initiation of chemical warfare, French casualties were estimated at 5,000

dead and 10,000 wounded. Thirty-six hours later, a second German gas attack, this time on Canadian forces, produced another 5,000 dead.[1]

The introduction of chemical warfare by the Germans resulted in an immediate scramble by both sides to develop not only defensive measures, but also ever more deadly offensive chemical agents and techniques. By September 1915, the Western allies had responded with their own use of chlorine gas. The race was on.

The next toxic agent introduced (December 1915) by the Germans was phosgene, a gas attacking the respiratory system and producing effects similar to chlorine, but estimated as eighteen times more powerful. Then, on 12 July 1917, once again at Ypres, the Germans unleashed mustard agent which dwarfed the horror of anything which had gone before. Initially, its victims could see or feel no ill effects. But even the slightest contact with this seeming innocuous garlic smelling liquid could, in a few hours, produce intolerable pain in the eyes, vomiting, massive yellow blisters up to a foot long and wreak havoc on the respiratory system. Dying was a slow and agonizing process marked by incessant and useless coughing as the windpipe became totally clogged. The agent was persistent and remained in the soil over long periods of time.[2] Worst of all, a respirator or gas mask was no longer adequate by itself to provide protection because the liquid mustard could contaminate and penetrate clothing. The powerful impact of this new agent is graphically demonstrated by British gas casualty statistics. During the 27 month period from the initiation of chemical warfare in April 1915 to the introduction

of mustard in July 1917, the British suffered approximately 20,000 gas casualties. From July 1917 to the end of the war, a period of only 16 months, over 160,000 gas casualties were sustained.[3]

The horror of chemical warfare, however, was not limited just to front line troops. Reports indicate that massive chlorine gas attacks could generate dense clouds capable of producing significant casualties as far back as 30 kilometers from front line trenches.[4] Gas attacks often caused panic among troops billeted in towns and villages many miles behind the lines. When a gas cloud was detected approaching, alarm bells rang and soldiers and civilians alike, clutching respirators, would make their way to the top rooms of houses. All doors and windows would be tightly closed as the gas cloud drifted by below.[5]

Nor were the effects limited to humans. The gas clouds wiped out horses, wildlife, rats and mice, birds, insects and vegetation. A German phosgene cloud was said to have reached a height of 60 feet in one location, killing thousands of birds nesting in trees. In Monchy Woods, an area subjected to repeated gas attacks, all leaves had fallen from the trees three months before Fall. Chlorine gas also tarnished metal, turning buttons, watches or coins a dull green. Rifles rusted and looked as if left out in the weather for months. Breech blocks on cannons became unusable.[6]

By the time of the Armistic ending World War I, development of the airplane had raised gas warfare to the threshold of becoming a strategic as well as tactical weapon. Whether this

forbidding possibility was realized in future war depended upon the reaction of the international community and national decision-makers.[7]

THE INTERNATIONAL RESPONSE

By the end of World War I, strain and exhaustion were universally evident. The enthusiasm and hope for a more perfect world order which had characterized many nation's approach to the war had given way to disillusionment. The war seemed to have solved little.[8] And worst of all, with the introduction of chemical warfare, the existing international law and protocol concerning the rules of war had failed to prevent the elevation of warfare to new levels of horror.

Prior to World War I, there was already a considerable body of widely accepted international law prohibiting chemical warfare. As early as 1868, the St. Petersburg Declaration had stated that no weapon should be used that created superfluous suffering or made death inevitable.[9] The First Hague Convention in 1899, which deliberated the laws of warfare, declared in Article 23: "The contracting powers agree to abstain from the use of projectiles, the sole object of which is the diffusion of asphyxiating gases." The same article also forbade the use of weapons causing "unnecessary suffering." In 1907, the Second Hague Convention validated the accomplishments of the first and further declared: "...it is especially forbidden to employ poison or poisoned weapons."[10] Both protocols were signed and

ratified by all 1915 World War I participants except Serbia and Turkey.[11]

The failure of international law to prevent the initiation of chemical warfare during World War I did not deter continued efforts toward that goal. In fact, due to its repulsive nature, efforts toward prohibition of gas warfare were redoubled. The Versailles Treaty imposed on the Central Powers at the end of the war stated: "The use of asphyxiating, poisonous or other gases and all analogous liquids, materials or devices being prohibited, their manufacture and importation are strictly forbidden." A few years later, participants in the Washington Armament Conference (Britain, France, Japan, Italy, United States) held in 1921-1922, drafted an article that essentially restated the Versailles Treaty and Hague Conventions and declared that chemical warfare "...having been justly condemned by the general opinion of the civilized world, and a prohibition to such use having been declared in treaties...the Signatory Powers...declare their assent to prohibition...". To be valid, however, the treaty had to be signed by all five participants. Because of a disagreement over another article concerning submarine warfare, France refused to sign, thereby rendering the protocol noneffective.[12]

It is significant to note that some national leaders were already starting to question the value of international treaties in the future prohibition of chemical warfare. Britain and France pointed out that previous treaties had been violated with impunity and that since there were no sanctions involved, compliance could only be ensured by national readiness. This was a

conclusion that many in the United States were also reaching.[13]

In 1925, the premier international agreement concerning chemical and biological warfare was negotiated in Geneva. Known as the Geneva Protocol of 1925, it is still in force today even though it has proven ineffective. While the protocol prohibits the use of chemicals of all kinds, it does not prohibit the production and stockpiling of chemical weapons. Further, there are no means of verification and no formal sanctions should the treaty be violated. Some 30 nations entered reservations at the time of ratification which permitted retaliatory use of chemical weapons if first used against them, thus making the protocol at best, a "no first use" agreement rather than a total prohibition.[14] While until recently, "no first use" has generally been observed, this was not so much because of the prohibition embodied in the protocol itself, as because of mutual fear of retaliation.[15] It should be pointed out that while the United States has continuously declared a "no first use" policy, it did not ratify the Geneva Protocol of 1925 until 1975, almost 50 years later. This delay was primarily due to chemical readiness issues and the feeling that the protocol was not enforceable. The United States, also, entered a "right to retaliation" clause at the time of ratification.

While there have since been numerous international forums concerning prohibition of chemical warfare, the Geneva Protocol of 1925 is the last major effort which was universally recognized and ratified (by 113 countries to date). And it remains today,

even with its inherent weaknesses, the touchstone for discussions of chemical disarmament.

WORLD WAR II

As the international tension and military muscle-flexing leading up to World War II increased, there was little confidence that international bans against chemical warfare would work in any future conflict. Prominent persons such as H.G. Wells and Bertrand Russell were warning their countrymen on the eve of World War II that they could expect to be showered with poison gas in the event of another world war.[16]

Happenings on the world scene certainly did nothing to dispel these fears. In late 1935, Italy invaded Abyssinia (Ethiopia), a backward country with a highly outnumbered army. Italy needed a quick victory. The Abyssinians were mostly barefoot and lacked protective clothing. The use of mustard, therefore, could produce a significant military advantage.[17] First mustard bombs were employed and then aerial spraying by groups of 9 to 15 aircraft. Soldiers, women, children, cattle, rivers and pastures were drenched with this deadly rain. The result was appalling suffering by the defenseless natives. In effect, Abyssinia was little more than a proving ground for the Italians. The general public sentiment in the Western world was expressed by British Prime Minister Baldwin: "If a great European power, in spite of having given its signature to the Geneva Protocol against the use of such gases, employs them in Africa, what guarantee have we that they may not be used in Europe?"[18]

In the eyes of many world leaders, the Italian defiance of the Geneva Protocol had only confirmed the obvious -- "A major power could get away with limited violations of the Protocol provided these did not threaten the interests of other major powers in preserving the general prohibition of the use of gas. The Protocol's 'no-gas' rule in fact meant 'only a limited amount of gas,' provided there is no threat of escalation."[19]

Meanwhile, on the other side of the world the Japanese were at war with China, another poorly trained and largely ignorant opponent. The Japanese had been party to the Hague Conventions of 1899 and 1907, but did not ratify the Geneva Gas Protocol of 1925. Neither had they participated in gas warfare in World War I, but believed that because it had been used then, they must be ready. This required a knowledge of the effects of use of chemicals in combat and China provided the perfect opportunity for field testing with no fear of retaliation. From 1937 on, the Japanese made extensive use of poison gas (frequently mustard) against the Chinese. By 1939, the Chinese claimed 886 separate instances where chemical agents had been used against them.[20] Formal protests to the League of Nations brought no relief or assistance.[21]

At the same time, the Germans in the mid-thirties were struggling to recover from the anti-chemical restraints placed upon them by the Versailles Peace Treaty and to rebuild their chemical arsenal. In December 1936, they made a discovery with the potential to provide a significant swing in the military balance of power. Conducting research into possible insecticides, a

German scientist, Dr. Gerhard Schrader, recognized the military potential of Tabun, a nerve agent. When used on dogs or monkeys the agent would produce a loss of all muscular control, shrink the pupils of the eyes, cause frothing at the mouth, vomiting, diarrhoea, twitching and jerking, convulsions and death in 10 to 15 minutes. Dr. Schrader was summoned to Berlin for a demonstration and the value of Tabun as a war gas was quickly recognized. It was colorless, practically odorless and could poison either by inhalation or penetration through the skin. Plans for production began immediately. Later, in 1938, the Germans discovered Sarin, a nerve agent ten times as toxic as Tabun, and then in 1944, Soman, which was even more toxic. The existence of these agents was a well kept German secret throughout the entire war. It was not until April 1945 that the Allies overran stocks of nerve agent munitions and were shocked to discover their existence.

The stage was set. By the outbreak of World War II in 1939, all major powers had adopted the position that chemical readiness was the best deterrent and all had at least some offensive chemical capability. Chemical munitions had already been used on a large scale by two major powers between the wars. It seemed certain that World War II would pick up where World War I left off, but with a major difference. The airplane made chemical warfare a genuine strategic threat with the associated spectre of long range gas bombing of cities and industrial centers.

Yet, surprisingly, World War II was fought on an unlimited scale that included mass casualties caused by the strategic

conventional bombardment of cities, the overrun and unparalleled destruction of whole countries and the introduction of nuclear weapons, all without resort to gas warfare. (The major exception was the use of poison gas by the Germans to kill millions in concentration camps. For purposes of this study, however, this is not treated as gas warfare.)

The system of restraints which had evolved between the wars to discourage gas warfare will be examined in Chapter III. It was not, however, for lack of tempting opportunity or capability on either side that chemicals were not used. While initial capabilities were indeed limited, there was a rapid buildup of both chemical agent stockpiles and delivery means on both sides. Once started, production never slackened. For nearly six years, the initiation of gas warfare was regarded as a day to day possibility and by 1945, over a half million tons of chemical weapons had been produced.

Germany initially possessed only limited toxic stocks. They began an immediate buildup, however, with construction started in January 1940 on a massive nerve agent factory located in the forests of Silesia in western Poland. Capable of producing 3,000 tons of nerve agent per month, this facility was fully operational by early 1942. With a score of factories producing up to 12,000 tons of various toxic agents each month, the Germans, by mid-1943, had accumulated a vast arsenal of chemical munitions.[22] They had also built an extensive shelter system and issued over 28 million gas masks to the German people.[23]

Among the Allies, both Britain and the United States also entered the war with only sparse chemical warfare capability. At the outbreak, the British stockpile was limited to only a small quantity of mustard. Intensive production was initiated immediately and by December 1941, there were sufficient stocks on hand or in production to conduct effective ground and air retaliation. The strongest element of British gas warfare readiness, however, was civil defense. By 1939, over 38 million gas masks had been issued to the civilian populace.[24] In the United States a similar buildup of toxic stocks occurred, with 13 new chemical agent plants being opened within three years of the start of the war.[25]

Not only were toxic munitions being hurriedly produced, they were also made available at the battle front. Throughout the entire war, the Axis and Allies secretly moved chemical weapons and protective equipment into strategic locations for rapid access in case they were needed.[26] This was to lead to at least two recorded instances of accidental release of chemical agents by the United States. In the first, and worst case, a supply ship loaded with 100 tons of mustard gas bombs was hit by a JU 88 bomber while anchored in the harbor at Bari, Italy. The ship blew up, contaminating the harbor and causing severe casualties to both sailors and local civilians. Reported casualties from the mustard were 83 dead and 617 injured.[27] In the second instance, a German projectile hit a gas-shell dump in the Anzio bridgehead and the gas started drifting toward German lines. Through use of the "hot-line" technique to his German opposite

number, the U.S. commander was able to convey that there was no intention to use gas and thus defuse a tense situation.[28]

In reviewing the history of World War II, there were numerous opportunities when the initiation of chemical warfare might have had a major impact on the results of an operation or campaign, if not the war itself. The outcome of the Dunkirk evacuation might have been different if chemical weapons had been unleashed by the Germans. Shortly thereafter, faced with a possible German invasion (Operation Sea Lion), the British seriously debated the use of toxic gas. Later, in mid-1942, Churchill was so sure that the Germans were about to employ gas on the Eastern Front, that he offered to send Stalin 1,000 tons of mustard for retaliation purposes.[29] And in the Pacific, the island-hopping campaigns against the fanatical Japanese could well have benefited from use of toxic chemicals. They were, in fact, discussed and then rejected in planning the invasions of both Iwo Jima and the Japanese homeland.[30]

In July 1944, the British again seriously considered using chemical warfare in retaliation for the German V-1 attacks against London. The British Joint Planning Staff recommended against this action primarily because it would likely bring about widespread chemical warfare in Europe. Churchill strongly opposed the recommended position and in a bluntly worded minute to his staff on 6 July 1944, directed them to restudy the situation. A feel for just how close the world really came to chemical warfare in World War II is reflected in the following excerpt from the Churchill minute:

> "...I want you to think very seriously over this question of using poison gas. I would not use it unless it could be shown either that (a) it was life or death for us or (b) that it would shorten the war by one year...I want a cold-blooded calculation made as to how it would pay us to use poison gas... principally mustard...I should be prepared to do anything that would hit the enemy in a murderous place. We could drench the cities of the Ruhr and many other cities in Germany in such a way that most of the population would be requiring constant medical attention ...I want the matter studied in cold blood by sensible people and not by that particular set of psalm-singing uniformed defeatists which one runs across now here, now there."[31] (emphasis added)

While the world came within a hairbreadth of the reinitiation of gas warfare, it had not happened. For the first time in history, a major weapon employed successfully in one conflict had not been carried forward to the next.[32] It seemed to many that the inhibitions against the use of chemical weapons contained in the Geneva Protocol had been reaffirmed and that a functional set of traditional restraints had been established. But these inhibitions and restraints were already starting to be undermined by technical advances such as the development of nerve agents, toxins and the new possibilities presented for biological warfare.[33]

THE KOREAN AND VIETNAM WARS

Relieved that World War II was over and comforted in the belief that there was a widely accepted taboo against toxic chemical weapons, the world soon forgot about the threat of gas

warfare. Even with the onset of the Korean Conflict, there was almost no public concern that toxic agents might be used.

There is little doubt that the Korean War provided the United States with a classic opportunity to decisively change the course of battle through the use of toxic weapons. Both the North Korean and Chinese Armies were primitive and unprepared to counter a chemical threat. Moreover, their pattern of massed attack lent itself perfectly to the employment of chemical agents. That the use of chemicals was seriously considered by the United States then, is no real surprise. Writing after the war, General J.J. Rothschild, former head of the U.S. Army Chemical Corps, stated that field commanders had requested permission to use gas in the later stages of the war, but that permission was denied. Once again, the traditional taboo had been reaffirmed.

Next came the Vietnam Conflict, with the United States committed to fighting a guerilla force actively supported by North Vietnam, a third rate power. Due to the nature of the conflict, it is doubtful that large scale use of poison gas was ever seriously considered. What is significant, however, is world reaction to the U.S. use of riot-control agents, napalm and defoliants. Many critics lumped these together in the same category as mustard or nerve agents and argued that the use of these chemicals in war signalled the first breakdown of the traditional taboo. They argued that the crucial distinction between "use" and "non-use" had been blurred and that inhibitions had been lessened.[34] Whether this was true or not soon became a moot

point as events elsewhere were awakening the world from two decades of complacency concerning chemical warfare.

PROLIFERATION IN THE THIRD WORLD

For several years a civil war had been ongoing in Yemen, pitting the Saudi Arabian backed Royalists against the Soviet and Egyptian-armed Republican forces. Since 1963, there had been sporadic charges made by the Royalists, international journalists and the International Red Cross (IRC), that the Republicans were indiscriminately using poison gas. The reports of horrible blistering and blindness suggested mustard was being used. Other cases referred to vomiting, collapsing and dying, suggesting nerve agents.

United Nations investigating teams had been unable to obtain conclusive evidence of chemical use. Then on 5 January 1967, there was a gas attack involving the alleged use of nerve gas on the village of Kitaf, the headquarters of the Royalists. Red Cross teams were in the vicinity and cabled the IRC in Geneva reporting 155 killed and over 200 more seriously poisoned. Evidence was collected and sent to the United Nations, including the measurement of phosphate content of blood from the victims, a strong indicator of nerve gas poisoning. The data, however, was questioned, and again no official conclusive finding was made. The Red Cross stepped up their efforts and after later gas attacks actually performed autopsies and sent the results to the University of Berne for evaluation. The official conclusion

reached from the collective evidence was that the victims had indeed been killed by poison gas.

For the first time since before World War II, poison gas had been used in violation of the Geneva Protocol. The agents included mustard and the first recorded use of nerve gas in warfare. It had been used indiscriminately against both military and civilian targets. The party responsible for providing the agents was clearly Egypt, who most likely received them from the Soviet Union. What became apparent was the extreme difficulty, even in the modern world, of conclusively proving something as seemingly obvious as the use of poison gas.

The case did, however, cause world reaction to assume serious proportions. The Geneva Protocol had been flouted with impunity in a situation where because of the extreme inequality between forces and lack of retaliatory capability, respect for the law was the only motive for restraint. And it had been flouted by Egypt, a state that had signed the original Geneva Protocol and then reaffirmed its stand on becoming a Republic in 1953. It had also, as recently as 1966, joined in UN acclamation for banning lethal chemical weapons.[35]

The bottle had been uncorked and the chemical genie was about to appear. Over the next 20 years, reports of actual or potential uses of chemical weapons became more frequent around the world. The Israelis reportedly discovered nerve gas shells among munitions captured in the Sinai during the Six-Day War.[36] Later, in the 1973 war, they were to capture an extensive array of Soviet supplied chemical defensive equipment. Also during the

1970s, chemical agents, or perhaps toxins, were reportedly used by North Vietnam, or their clients, in Laos and Cambodia. In 1979, within three weeks of the Soviet invasion of Afghanistan, refugees streaming across the border into Pakistan were telling stories of being gassed by Soviet aircraft or artillery shells.[37] There are even reports that the British found stocks of nerve agent among captured Argentinian supplies in the Falklands.[38] In none of these cases, even though there was often a convincing body of evidence, did the UN ever condemn a nation or impose sanctions for the illegal use of chemical weapons.

The recently concluded Gulf War between Iraq and Iran has brought the troubling chemical warfare problem into even sharper focus. For the first time since World War I, a conflict fought between regular armies included the use of toxic chemical weapons. Noted Gulf analyst, Anthony Cordesman, recently summed up the foreboding situation: "The tragedy here is that we have just refought World War I (with bloody trench warfare and chemicals) in Iran and Iraq and now you have both sides positioning to fight World War III." He notes that Iraq currently has a critical three year advantage over Iran in terms of chemical weapons research and expertise, but that Iran is desperately seeking parity to create a credible deterrent. "Possession of chemical weapons is political clout," stated one diplomat recently. "Whether they use them or not is unimportant but just that they have them."[39]

A salient characteristic of the Gulf War is that only one side, Iraq, had a significant chemical warfare capability. While

there is no longer any doubt that Iraq routinely employed mustard (and probably cyanide and nerve agents) against Iran, there is no clear proof that Iran was ever able to retaliate.[40] UN investigating teams on at least three occasions (1984,1986 and 1987) determined that the Iraqis had employed chemical weapons against front line Iranian formations. In 1984, and again in 1987, the UN teams also determined that gas had been used against Abadan and Khorramshahr, two Iranian cities near the front.[41] Further, in 1987, Iraq began using mustard, cyanide and probably nerve gas, against internal border villages in an attempt (some say at genocide) to dislodge Kurdish separatists from their mountain strongholds along the Iran border.[42] The record includes the well publicized and documented incident at Halabja, where up to several thousand Kurdish civilians died.

Even though the UN Security Council condemned Iraq's actions in 1986 and again in 1987, it is obvious that the international community has proven to be virtually impotent in dealing with the problem.[43] While there is clearly a high level of concern over the use of toxic chemicals, reaction in diplomatic circles and the international media has been somewhat muted. There has been no "enraged cry" or attempt to bring Iraq before the International Court of Justice, for instance.[44] And many Gulf analysts say that the message now circulating in Third World military circles may be the most dangerous precedent to emerge from the war. That message is "that cheap and effective chemical weapons can help turn a war effort around. Even more compelling is the suggestion that Iran risked losing the war because (its)

Revolutionary Guards were not efficient enough to bolster (their) own chemical weapons arsenal to match that of Iraq's on the battlefield."[45]

The chemical genie is clearly out of the bottle. There are currently at least 30 countries either known to possess or seeking to develop chemical munitions.[46] Perhaps most ominous of all are the recent CIA reports that Libya's Muammar Kaddafi, a known supporter of terrorism, has built the largest chemical weapons plant known anywhere in the world.[47]

This proliferation should not be particularly surprising, however, given that chemical agents are cheap, simple to use and effective. Any country with a pesticide factory is capable of producing deadly gas. In the Third World, chemical weapons have become the "poor man's atomic bomb." "Its a relatively low-tech operation," says Graham Pearson, Director of Britain's defensive chemical warfare program at Porton Down. "And Third World countries appear able to obtain aircraft and bombs that they can then modify to deliver the chemical weapons."[48] With recent arms sales agreements in the Middle East, ballistic missiles can now be added to that list.

ENDNOTES

1. Harris and Paxman, pp. 2-6.

2. Ibid., pp. 17-18 and 24-27.

3. Frederick J. Brown, Chemical Warfare, A Study in Restraints, pp. 11-12.

4. Heller, p. 17

5. Harris and Paxman, p. 29.

6. Ibid., pp. 2 and 19.

7. Brown, p. 49.

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CHAPTER III

TRADITIONAL RESTRAINTS

Now that the historical framework of the development of chemical warfare has been established, we will next examine the traditional restraints that evolved between World Wars I and II, and which were to prove largely effective for nearly 50 years in preventing chemical warfare. These restraints can be categorized, in descending order of effectiveness, as fear of retaliation, military, political, moral and legal.

FEAR OF RETALIATION

There is no question that while other categories of restraints played a complementary role, the single dominant restraint to chemical warfare which came to the forefront during World War II was fear of retaliation. World War II is replete with examples demonstrating the power of a credible retaliatory threat as a restraint.

One of the intriguing questions concerning World War II is why the Germans did not use toxic chemicals, especially nerve gas. There were certainly critical times that this could well have made a significant difference. Campaigns such as the Battle of Britain, the Eastern Front and Normandy come to mind as examples. While there were clearly other considerations, the main reason was unmistakably fear of retaliation.

At the outbreak of the Second World War, poor intelligence led all the major belligerents to believe that each had the

capability for massive chemical warfare and, if used, each saw the outcome as favoring the enemy. Ironically, Germany made the major chemical breakthrough of the interwar period, the discovery of nerve gas, yet forfeited the advantage by presuming the Allies had the same capability (they did not). Germany assumed that the Allies had conducted extensive chemical research and development during the 1920s and 1930s, while they were hampered by the Treaty of Versailles and could only work secretly. They believed that Germany was twenty years behind, surrounded by enemies who were ready and willing to use chemicals and, therefore, were not inclined to incite retaliation upon themselves. This assessment was totally incorrect. During the 20 years following World War I, a massive anti-gas campaign in the West had effectively restricted chemical preparedness to defensive measures. In reality, at the outbreak of war the Allies were no better prepared for chemical operations than was Germany.[1]

Throughout the entire war, however, the Germans perceived themselves under threat of toxic chemical attack. Early on, their sense of inferiority concerning gas warfare derived from the quality of their preparedness. After 1943, this fear was stimulated by the increasing Allied air superiority over Germany, as evidenced by the strategic bombing campaign.[2]

Hitler clearly understood that Germany was vulnerable to air attack and feared reprisals if he initiated chemical warfare. Much of his reluctance to initiate gas warfare late in the war may well have stemmed from a May 1943 conference at the "Wolf's Lair" in East Prussia when he was told by his chemical warfare

expert, Otto Ambros, that the United States and Britain were likely to have Tabun and Sarin and could outproduce Germany. In actuality, neither had anything remotely capable of matching Germany's nerve gas. There is speculation that this may have been a ploy by Albert Speer and Ambros to discourage Hitler and save Germany from the ultimate consequences of chemical warfare. It is also reported that Hitler speculated at one conference on using gas warfare to stop the Soviets in the east. He felt that the West would accept this use against Russians. When no one spoke up in agreement, he dropped the subject. Undoubtedly, his generals understood and feared the consequences.[3] Hermann Goring, under interrogation at Nuremburg, stated that the Germans did not use toxic chemicals at Normandy for fear the expected retaliation would paralyze the German transportation system which still relied heavily on horses.[4] Later, by 1945, it would have been suicidal to embark on chemical warfare given the state of Germany's defenses.

Both the Americans and British also clearly understood the concept of threat of retaliation as a deterrent. While the U.S. had no fear of actual attack against the homeland, it quickly established a policy to deter enemy initiation of chemical warfare by maintaining a credible retaliatory posture. Early in the war, the British found themselves equally as vulnerable as the Germans were to become later. Their cities were severely bombed, making them fully aware of their strategic vulnerability. Even though the use of chemicals was seriously considered both early in the war when the British Isles were threatened, and later to bring

Germany to its knees, there was a clear understanding that this would undoubtedly bring retaliation by the Germans against industrial and populations centers.[5]

In the Pacific, the Japanese toxic gas policy was initially a peculiar blend of illusion and reality. In employing toxic chemicals against the Chinese, they seemed oblivious to the potential dangers of escalation and retaliation that worked to deter Britain and Germany. Also, because of the publicly stated "no-first-use" policy of the United States, the lack of strong U.S. response to their use of gas warfare in China and their geographic location, the Japanese did not consider themselves vulnerable to strategic attack. Their closest potential rivals were a weak China and a European-oriented Russia.

As the tide of war turned, however, the Japanese took on a more realistic view. The Army General Staff recommended the use of chemical warfare against the United States in the Marianas Campaign in June 1944. The decision not to employ toxic agents was based primarily on the recognition that Japan had a low potential for production of chemicals as compared to the United States and also that the Japanese homeland had by now become extremely vulnerable to retaliation.

Curiously, at this point the Japanese went to the extreme of unilateral chemical disarmament of forces opposing the United States. Production ended and chemical stocks were withdrawn from field units. All toxic munitions were sent to Manchuria for potential use against the Soviets, who the Japanese believed would employ poison gas if they entered the war. By 1945, the Japanese

homeland had been stripped of all chemical stocks and lay virtually helpless in the event of a chemical attack.[6] Ironically, U.S. plans for use of chemical warfare in the invasion of the Japanese homeland were shelved in favor of the atomic bomb.[7]

In summary, there can be little doubt that fear of retaliation was the dominant restraint preventing chemical warfare in World War II. It is still, in fact, dominant even today. There has yet to be a recorded case of toxic chemicals being used against a nation which possessed a credible response capability of its own.

MILITARY

The second major category of restraints to chemical warfare which evolved during the interwar period was related to the military itself. These restraints fall into two general groupings, nonassimilation by the military establishment and debate over the actual effectiveness of chemical weapons themselves.

Nonassimilation of gas warfare by the military was a characteristic problem which stemmed from World War I. Gas never lost the twin stigmas it acquired at Ypres. To the military, it represented an enchroachment of science which corrupted the expertise and honor of the military profession. To the civilian, it symbolized the ruthlessness and inhumanity of modern warfare.[8] General Pershing summarized the prevailing military feeling when he stated in the early 1920s: "It is inconceivable ... (the) U.S. will initiate the use of gases -- and by no means certain it will use them even in retaliation."[9]

While the other two major innovations of World War I, the tank and the airplane, were considered essential weapons, there was a general unwillingness by military leaders of all major powers to accept gas warfare. It was considered a dishonorable weapon because it maimed noncombatants. It also introduced an enormous logistical burden and created untold tactical problems from trying to survive in an alien environment. Additionally, there were real questions concerning costs of employment versus tactical rewards. In reality, the problems of operating in a toxic environment at the end of World War I remained largely unresolved on the eve of World War II.[10]

The result was a general unwillingness by military leaders to devote resources to an unpopular weapon that was banned by international law and had been the source of immense difficulty in World War I. None of the armies either understood, or cared to understand, a weapon that was considered unchivalrous, if not downright unmilitary.[11] As a consequence, chemical readiness suffered and commanders devoted their attention to strategy, tactics and weapons which precluded gas warfare.[12]

The second aspect of military restraint was the question of effectiveness. Once employed, chemical agents were indiscriminate and effects were hard to predict, being very much dependent on weather conditions. The experience with gas warfare in World War I had not been all that great. Other than the initial surprises, there was little belief that it had really accomplished much. Even Japan, after field testing chemical agents against the defenseless Chinese, were generally dissatisfied with

the performance and by 1941 began to allow preparedness to slip. In general, chemical munitions were viewed by military leaders as having only marginal overall effectiveness.[13]

At any given stage of the Second World War, there were also concrete military reasons why chemical weapons were not used. Initially, the use of gas warfare would have impeded the lightning German blitzkrieg. At Dunkirk, Hitler was more interested in obtaining a peaceful settlement than wiping out the trapped Allied forces. The British and French might have used chemicals in 1940 to halt the German advances, but they had few stocks. By the time they had accumulated an adequate stockpile and the bomber force to deliver it, they were on the offensive themselves and would have been slowed. By the time the Germans might have employed chemical warfare to their advantage in 1944, they had lost control of the skies and would have been subject to retaliation.[14]

The ultimate consequence of this nonsupport by the military was that at the outbreak of war, no nation was adequately prepared, both offensively and defensively, to risk employment of chemical weapons. Later, when they might have done so, either the military incentive or the capability was gone.[15]

POLITICAL

A third category of chemical warfare restraints during World War II was political considerations. While the overall impact of political restraints was not as strong as either fear of retaliation or military restraints, political leaders and

political policy decisions did play an important role. Additionally, a political factor sometimes overlooked is the restraining effect which coalition warfare exerted on the potential use of poison gas.

First of all, the authority for a decision to initiate chemical warfare resided with the political leaders of the various nations involved in the war. It naturally follows that just as with the problem of military nonassimilation discussed in the previous section, the attitudes of political leaders toward chemical warfare would be important. Interestingly, in the United States the decision to employ toxic weapons rested with the Chief of Staff, Army and Commander in Chief, U.S. Fleet until 1942, when it was made a presidential decision.[16]

Of all the major World War II political leaders, Hitler probably had the strongest aversion to chemical warfare, and with good reason. He had experienced four years of frontline duty as a Corporal during the First World War and had lived through many gas attacks. Additionally, he had been temporarily blinded at Ypres in the fall of 1918, the result of a British mustard attack.[17] Until late in World War II, he showed little interest in chemical preparedness and never, in fact, ever visited a toxic agent facility of any kind. As the plight of Germany became more desperate, however, even Hitler considered the use of nerve gases, urged on by fanatical Nazi leaders such as Bormann, Goebbels and Ley. Fortunately, saner heads prevailed.[18]

Roosevelt, also, held a strong aversion to chemical warfare. Using gas, he said, "would violate every Christian

ethic I have ever heard of and all the known laws of war."[19] In 1937, he stated that he was "doing everything in my power to discourage the use of gases and other chemicals in any war between nations."[20] Until the outbreak of World War II, he prohibited preparation for chemical warfare per the provisions of the Washington Arms Conference (even though it had never been ratified).[21] He stated categorically that the United States would "under no circumstances resort to the use of such weapons unless they are first used by our enemies."[22] It was only after confirmation of the Japanese use of chemicals in China that Roosevelt agreed to a U.S. buildup.[23]

Churchill's views concerning chemical weapons were previously outlined in Chapter II. Suffice it to say here that while he was generally opposed to their use, he was also a realist and was prepared to use poison gas when Britain's survival was at stake or if the war could have been significantly shortened.

Moving now to the effect of political policy itself on chemical warfare restraints, what was probably the single most important action of the entire war occurred at the outbreak in September 1939. Within hours of the declaration of war, the British Ambassador in Berne paid a visit to the Swiss Foreign Ministry and delivered a short message for Hitler from the British and French governments. The remarkable message stated that the two countries promised to abide by the Geneva Protocol and refrain from using poison gas and germ warfare if Germany did the same. A few days later, the German Ambassador signalled agreement.[24]

A similar pledge was also exchanged between Britain/France and the Italians. A British pledge making the same offer to Japan resulted in only an evasive response, however. This lack of assurance by Japan, coupled with the fact that they had not ratified the Geneva Protocol, was to serve as a stimulus to U.S. chemical warfare preparedness. The Japanese, in fact, made no firm pledge to refrain from chemical warfare until 1944, after an article appeared in the New York Times (30 January 1944) arguing that increasing brutality in the Pacific was removing any compunctions the American public had toward the use of toxic agents against Japan.[25]

The final political factor that was to play a role in restraining the use of chemicals was coalition warfare. It was soon discovered that the demands of coalitions placed severe restraints on chemical policy alternatives. Allies had to be considered in all decisions, which in turn, magnified restraints because allies could be held "hostage". The impact for the United States was that after September 1939, the determination of American chemical warfare policy was essentially out of U.S. hands, depending heavily on the decisions made by the other powers during the early stages of the war. While overall, coalition warfare was a stabilizing factor in chemical deterrence, there was also the risk of being drawn into an undesirable situation by the dicisions of others.[26]

An example of coalition warfare at work was in May 1942, when the Soviets believed the Germans were about to use gas against them. Churchill made a public statement that reiterated

the 1939 resolve of "no first use" but warned that preparations had been made. He further stated that unprovoked use of chemical warfare against the Russian ally was the same as use against England and that he would apply his air superiority to carry gas warfare to Germany. "It is up to Hitler," said Churchill, "whether he wishes to add this additional horror to aerial warfare."[27]

In summary, there is adequate evidence to demonstrate the important role played by political leaders and coalitions in deterring chemical warfare. The personal aversions of some of the major leaders undoubtedly made a difference. It is noteworthy, however, that even the staunchest advocates of banning chemical weapons changed their mind when faced with crisis.

MORAL

The fourth category of restraints which operated to prevent chemical warfare during the Second World War can be classified as moral or socio-psychological. Given the general repugnance to poison gas which emerged from the First World War, it would be expected that public opinion and moral considerations would be primary and direct factors in preventing chemical warfare in World War II. As it turned out, in the heat of war the effect of moral constraints was rather limited.

The genesis of the moral discomfort caused by chemical war can be traced to the circumstances surrounding its first use in World War I. It arrived at a peak of Allied indignation against a series of alleged German abuses, in particular, regarding the

treatment of prisoners. The world was left aghast at this new atrocity. Propaganda cast the Germans as the personification of evil and gas was portrayed as the ultimate evidence of their degeneracy. It violated the traditional aspects of chivalry and relegated soldiers to the status of rats and bugs.[28] Thus was established the general public attitude that carried forward into the post-war era.

After World War I, public opinion demanded that poison gas be banned. It had been proven that existing pre-war international law was ineffective. The Washington Arms Conference (1922) and Geneva Protocol of 1925 were soon to demonstrate, however, that while there was general international agreement that poison gas should be banned, it was impossible to develop effective verification procedures and sanctions.

The solution that tacitly evolved was the use of public opinion as a sanction. If world opinion could be sufficiently aroused against gas warfare, no nation would dare use it. Given the general public abhorrence of poison gas, this was not hard to accomplish. Gas directly attacked a basic human instinct -- the process of breathing. It was not an "honorable" weapon. Volumes of anti-gas literature were published between the wars.[29]

The anti-gas campaign was to continue for two decades and proved to be extremely effective. No other area of military policy was more circumscribed by public opinion than chemical warfare. It directly impacted the chemical readiness of nearly every major power, effectively restricting preparations to defensive measures. In this environment, decisions were often

directed by irrational public attitudes, rather than by rational professional evaluation. It was an environment that was deliberately created as a sanction against future gas warfare.[30]

The one nation that was little affected by all this was Japan. The Japanese had not participated in gas warfare in World War I and, as a result, there were no personal memories to affect either the military or general public. They well understood, however, the strong anti-chemical warfare sentiment of the American people and were to take advantage of this in their decision to use gas warfare in China.[31]

The effectiveness of moral restraints began to rapidly diminish as the danger of war increased. In Europe, there was a general revulsion against chemical warfare, reinforced by the vivid memories of World War I and the awareness of vulnerabilities to surprise attack. Evaluations of the ability to protect populations were pessimistic. There was a recognized need to educate the public but, at the same time, it was feared that realistic training could be so frightening as to cause panic and defeatist attitudes.

This changed dramatically starting in 1935. As tensions increased, both England and Germany started massive civil defense campaigns which were widely accepted by the public. By the outbreak of war, the British people had long been conditioned to expect gas warfare and would probably not have objected to its tactical use against German troops. In the United States, also, there was a reversal of public opinion as the war ground on. Fanatical resistance by the Japanese provided a stimulus to

reconsider the use of gas. By 1944, articles were appearing in the press discussing the potential of chemical warfare. A poll taken in September 1944 found 23% in favor of the use of toxic gas against Japan. By June 1945, this had risen to 40%.[32]

Based on the above, it is clear that the effectiveness of moral restraint, in and of itself, is limited. While it played an important role in limiting offensive chemical preparedness prior to World War II, in the crucible of war morality became relative and public opinion shifted significantly. In the final analysis, the value of moral restraint as a deterrent to chemical warfare lies in the indirect influence it can exert in reinforcing other operative restraints such as military, political or legal.

LEGAL

The final category of restraints to be discussed is legal. While this is the area of chemical deterrence that received the most international emphasis and energy between the wars, it turned out to be the least effective restraint in practical terms. The key international conferences and agreements which occurred during the interwar period were discussed in Chapter II and will not be repeated here. Rather, the actual impact of these agreements will be assessed.

At the outbreak of World War II, only the United States and Japan among the major powers were not bound by the Geneva Protocol of 1925. Both, however, had accepted the provisions of the Hague Convention of 1907, which prohibited weapons causing

"unnecessary suffering". This convention, unfortunately, was open to highly subjective interpretation, since some would argue that a relatively quick death from poison gas may be more humane than being maimed by shrapnel or bullets. Nevertheless, because of strong public opinion, the United States considered itself bound by the general customary law that had developed during the interwar period prohibiting gas as a weapon of war. President Roosevelt was on record as being "unequivocally opposed" to gas warfare.[33] Japan, on the other hand, being a totalitarian state with non-Western values, was not affected by public opinion and did not feel bound by any legal restraints.

As has already been discussed in the section on political restraints, one of the first actions taken by the British within hours of the outbreak of war was to invoke the Geneva Protocol of 1925 and attempt to get other belligerents to also reaffirm support. Not surprisingly, the British were also among the first to seriously consider using poison gas when it appeared in their best interest. This behavior clearly demonstrates that when a nation has its back to the wall, it is highly unlikely to place legal obligations, such as the Geneva Protocol, ahead of military expediency. In fact, there is no evidence to indicate that the banning of chemical weapons under international law was ever a major consideration in any decision during the entire Second World War.[34]

What role then, if any, do legal restraints have in preventing chemical warfare? As currently structured, legal restraints are not a dominant factor. Rather, their value is to

act as a reinforcement to other restraints or trends. International protocol serves as a touchstone on which discussions and negotiations can be based. It can focus public attention and be invoked by leaders to establish expected norms of international behavior. But to be truly effective, an international protocol needs a realistic mechanism for applying sanctions or punishment to offenders. And that is the missing ingredient which could potentially change legal restraints from a supporting to a dominant role.

ENDNOTES

1. Brown, pp. 152, 176, 232-235, 293 and 295.
2. Ibid., pp. 235-237.
3. Harris and Paxman, pp. 62-64.
4. Ibid., pp. 135-136.
5. Brown, pp. 206,227 and 245.
6. Ibid., pp. 246,250,257 and 259-260.
7. Harris and Paxman, p. 135.
8. Brown, pp. 72, 151 and 155.
9. McCarthy, p. 10.
10. Brown, pp. 72,151 and 155.
11. Ibid., pp. 238-240.
12. Matthew Meselson, ed. Chemical Weapons and Chemical Arms Control, p. 72.
13. Brown, pp. 259 and 282.
14. Harris and Paxman, pp. 135-136.
15. Brown, p. 290.

16. Harris and Paxman, p. 205.

17. Brown, pp. 235-237.

18. Harris and Paxman, p. 62.

19. Ibid., p. 117.

20. McCarthy, p. 9.

21. Brown, p. 149.

22. McCarthy, p. 9.

23. Harris and Paxman, p. 117.

24. Ibid., p. 107.

25. Brown, pp. 198 and 248.

26. Ibid., pp. 187, 206, 218 and 295.

27. Ibid., p. 210.

28. Hugh Stringer, Deterring Chemical Warfare: U.S. Policy Options for the 1990s, p. 1.

29. Brown, pp. 177-179.

30. Ibid., pp. 152 and 176.

31. Ibid., pp. 246 and 250.

32. Ibid., pp. 170, 215, 228 and 287.

33. Ibid., pp. 184-186.

34. Harris and Paxman, pp. 115 and 134-136.

CHAPTER IV

TRADITIONAL RESTRAINTS CHALLENGED

To eventually solve the chemical proliferation problem, it is first necessary to understand the global economic, political and military changes which have taken place in recent years and the impact they have had on chemical restraint. Keeping in mind the traditional restraint system examined in the last chapter, the study will now extrapolate those restraints into the modern era to determine what changes have occurred to render them less effective today.

FEAR OF RETALIATION

Not surprisingly, the power of retaliation as a restraint has been little affected by recent events and remains the dominant constraint to chemical warfare even today. In wars between belligerents of approximately equal strength or retaliatory capability, the threat of chemical warfare seems no more likely today than during World War II. At the same time, recognition of the value of potential retaliation as a deterrent has itself contributed to the proliferation problem, especially among turbulent Third World countries perceiving external threats to their security. The roster of countries who have either recently acquired or are seeking chemical weapons is growing and now includes Iraq, Iran, Egypt, Libya, Syria, Ethiopia, Israel, Burma, Thailand, North Korea, South Korea, Taiwan, Cuba, Vietnam, China and South Africa.[1] The perception is that even a relatively weak country

may be able to raise the cost of a threatened invasion to an unacceptable level through the threat of chemical response.[2] Additionally, this concept has been elevated to a new plateau in NATO, where it is widely understood that a chemical attack by the Warsaw Pact might well be considered such a grave escalation as to compel a nuclear response.[3]

In short, the effectiveness of fear of retaliation as a restraint remains unchallenged. Since World War I, there has never been a case of poison gas being used against a country which possessed a credible chemical response capability.

MILITARY

While fear of retaliation remains an effective restraint even in today's world, the military aspect of restraint has undergone a major evolutionary process which has greatly diminished its influence in preventing chemical warfare. The evolution started with strategic fire bombing of cities in World War II; was stimulated by the unleashing of atomic warfare on Japan; and continues today, as evidenced by the use of poison gas in the Iran-Iraq War.

The use of the atomic bomb to end World War II was a significant event affecting worldwide attitudes concerning weapons of mass destruction. For the first time, such a weapon had been used effectively to force a nation to its knees. Most importantly, it was employed by the United States, looked upon in the eyes of the world as a highly moralistic society. The threshold for employment of weapons of mass destruction was significantly

lowered. Some would also argue that the U.S. use of riot control agents, napalm and defoliants in Vietnam also worked to lower the chemical threshold.[4] Coupled with recent Third World uses of toxic agents, the ultimate result is a greatly increased assimilation of chemical warfare by military leaders and planners, especially in the Third World.

Militarily, there are sound reasons why this assimilation has occurred. First of all, in every instance of use in recent years, chemical weapons have proven quite effective.[5] They cause minimal property damage and can reach the occupants of even heavily fortified structures.[6] Their utility has been reinforced with the advent of nerve agents which are highly suited to mobile warfare.[7] With nuclear capability beyond the reach of many nations, chemical weapons have become the "poor man's atomic bomb."[8] They are relatively cheap, easy to produce and provide a significant combat power multiplier. When coupled with a ballistic missile, chemical agents present a potent strategic threat. As an example, the Chinese CSS2 missile, which is being widely marketed in the Middle East, has a range of 1,500 miles and can easily accomodate a chemical warhead.[9] Even among nuclear powers today, chemical munitions are sometimes viewed as another available step in escalation before resort to nuclear weaponry.[10]

POLITICAL

If the extent of the changes to military aspects of restraint are described as evolutionary, the political restraint

system has experienced a revolutionary change. The shifting balance of world power, changing norms of acceptable political behavior and the emergence of terrorism as a tool of diplomacy, have all worked to dramatically weaken the effect of traditional political constraints on chemical warfare.

The balance of world power has undergone a significant change since World War II. This is the result of a number of factors such as shifting economic power, oil politics and the emergence of Islamic fundamentalism. Where power was once divided primarily between Eastern and Western spheres of influence, the world is now multi-polar. The influence of the big powers has been greatly reduced as economic clout has become nearly as important as military might. Emerging Third World countries are more independent and less responsive to outside influence. And Islamic fundamentalism has brought a whole new set of non Western values into the world arena.

A second change that has reduced the impact of political factors on chemical restraint is the willingness of many western nations to provide Third World countries with the technology necessary to produce toxic chemical agents. Countries such as Japan, West Germany and even overseas subsidiaries of some U.S. companies have been implicated in either helping to build facilities or providing constituent materials for toxic agents.[11]

It is not always an easy task, however, to ascertain the final product of a planned manufacturing facility. The same factory that produces pesticides or fertilizer can be converted to make poison gas. And the same chemicals that go into textiles,

paint, plastic and ink can also be used for toxic agents. It is estimated that over 100 countries now have the industrial base necessary to produce chemical weapons.[12]

A case in point is the existing Iraqi nerve gas production facility. After chemical engineering firms in the United States, Britain and Italy refused to design or build a "pesticide" plant in Iraq because it seemed suspicious, a West German firm, Karl Kolb, obliged in the early 1980s. As a result of the recent Iran-Iraq War, it came to light that the "pesticide" plant had been diverted to production of nerve gas since 1984.[13]

A final turn of events which has a frightening potential to impact the political aspects of chemical restraint is chemical terrorism. Former Senator John Tower summed up the possibilities when he stated:

> "What distinguishes the present era from previous periods is the coincidence between vastly greater means available to terrorists and an increase in the number of targets, especially in urban, industrialized...societies in a world of political turmoil. In the late twentieth century, terrorism has...become a global problem of expanding proportions."

While an incident of chemical terrorism has yet to occur, the potential evokes the disturbing spectre of a terrorist organization releasing a toxic chemical agent against a city for purposes of political blackmail or revenge. And the idea is not so far-fetched as terrorist organizations continually strive for ever greater heights of brutality and sensationalism in order to capture headlines and television exposure.[14]

The upshot of all these political developments is the increasing difficulty experienced today in attempting to bring

political pressure to bear on violators of accepted norms of international behavior, such as the users of chemical weapons. An entangling web of political and economic interests, coupled with the reduced influence wielded by the major powers, make consensus on any issue extremely hard to obtain.

MORAL

For many years following World War II, the moral aspect of chemical restraint remained little changed with a general undercurrent of world opinion existing against chemical weapons. Over time, however, public feelings became desensitized by several factors including the threat of nuclear holocaust, the ever more lethal conventional weapons being deployed on the modern battlefield and the increased general level of violence around the world.[15]

Very recently, however, the publicity given the rapid proliferation of chemical weapons in the Third World, coupled with the events of the Iran-Iraq War, have served to mobilize world opinion once again. Gas warfare is no longer looked upon as just another remote conflict between Third World countries. The issues of indiscriminate mass killing and genocide have come to the forefront. While government leaders around the world are calling for international negotiations to ban chemical weapons, the ultimate outcome of these efforts remains to be seen.

LEGAL

As with moral restraints, except for a recent flurry of activity, little of substance has occurred with legal constraints since the Geneva Protocol of 1925. While there has been debate and posturing in the United Nations over various allegations of poison gas usage, no sanctions stronger than condemnation by the Security Council have ever been imposed.[16]

The recent concern generated by the Iran-Iraq War, however, has once again elevated chemical warfare to top priority on the international agenda. The United States and Soviet Union are conducting bilateral negotiations over chemical reductions. The long-running Geneva Conference on Disarmament involving 40 nations, is considering a ban on both possession and production of chemical munitions.[17] President Reagan, in a speech before the United Nations General Assembly on 26 September 1988, called for "all civilized nations to ban, once and for all, and on a verifiable and global basis, the use of chemical and gas warfare."[18] A few days later, French President Mitterand urged the United Nations to endorse an international embargo of "products, technologies and...weapons" against any nation using poison gas.[19]

In January 1989, France sponsored a highly publicized 149 nation conference in Paris designed to galvanize world opinion against chemical weapons and extend coverage of the 1925 Geneva Protocol. The results of the conference, while not all that the United States had hoped for, were nevertheless encouraging in many respects. Through compromise, a "no-use" declaration was

forged and unanimously endorsed by all 149 nations represented. The communique stated: "They solemnly affirm their commitments not to use chemical weapons and condemn such use." In recognizing the urgency of the current situation, the communique declared: "The states participating in the conference are gravely concerned by the growing danger posed to international peace and security by the risk of the use of chemical weapons as long as such weapons remain and are spread." Support for a United Nations role in investigating future charges of poison gas use was also included in the declaration, as was an exhortation for early completion of the total-ban treaty that has long been under discussion at the 40 nation Geneva Conference on Disarmament. An additional achievement of the week long conference was that 10 more nations, including North and South Korea, signed the 1925 Geneva Protocol, bringing total signatories to 123.[20]

Disappointing was the fact that United States calls for export controls and economic sanctions against users of poison gas were omitted from the final document. "The Third World sees an issue like sanctions as a red flag," stated one senior American Official. "They believe it is aimed at preventing their economic growth."[21]

Also of significance is the opposition to use of the word "proliferation" in the final communique. Failure to include this word, in effect, puts possession of chemical weapons by the United States and other industrial nations on the same level as acquisition by Libya and other small countries.[22] This, in turn, further emphasizes the importance of the United States and

Soviet Union taking the lead in chemical disarmament and reaching an early bilateral agreement.

While the conference did not achieve all that was hoped for, its major value is that with the unanimous "no-use" endorsement, it should be more difficult for a nation to employ chemical weapons in the future. Major General William F. Burns, who headed the U.S. delegation, stated that the conference "forged a powerful global consensus" against further poison gas use.[23] Unfortunately, however, the questions of verification and tough international sanctions remain as troubling unresolved issues.

ENDNOTES

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2. Stockholm International Peace Research Institute, The Problem of Chemical and Biological Warfare. Vol V: The Prevention of CBW, pp. 28 and 98.

3. The Aspen Strategy Group/European Strategy Group, Chemical Weapons and Western Security Policy, p. i.

4. McCarthy, p. 46.

5. Douglass and Livingstone, p. 5.

6. Rose, p. 158.

7. Stockholm International Peace Research Institute, Vol V, p. 28.

8. Neil C. Livingstone and Joseph D. Douglass, Jr., CBW: The Poor Man's Atomic Bomb, p. 6-8.

9. "2 Weapons Troubling to Shultz," Washington Post, 30 October 1988, p. A35.

10. Stockholm International Peace Research Institute, Vol V, p. 97.

11. David Ignatius, "Iraq's 13-Year Search for Deadly Chemicals, Washington Post, 25 September 1988, p. C1.

12. Robin Wright, "Chemical Arms: Old and Deadly Scourge Returns," Los Angeles Times, 9 October 1988, p. 1.

13. Ignatius, p. C1.

14. Livingstone and Douglass, pp. vii and 6.

15. Stockholm International Peace Research Institute, Vol V, p. 28.

16. Levran and Eytan, p. 219.

17. Wright, p. 1.

18. Julie Johnson, "U.S. Asks Stiff Ban on Chemical Arms," New York Times, 27 September 1988, p. A1.

19. R. Jeffrey Smith, "Mitterand Urges Sanctions on the Use of Poison Gas," Washington Post, 30 September 1988, p. A21.

20. Edward Cody, "149 Nations Vow to Shun Poison Gas," Washington Post, 12 January 1989, p. A1.

21. Michael R. Gordon, "Chemical Weapons Parley Labors On," New York Times, 11 January 1989, p. A8.

22. Cody, p. A1.

23. Ibid.

CHAPTER V

PROPOSED STRATEGY

What now remains is the primary objective of the study, the development of a comprehensive and realistic strategy to put the chemical genie back in the bottle. In the preceding chapters, the historical framework of the chemical warfare problem was outlined and analyzed to determine how a traditional restraint system evolved and why recent world events have worked to undermine the credibility of that system. Analysis will now focus on the elements necessary for an effective international chemical weapons agreement, the key obstacles to such an agreement and finally, a proposed strategy.

THE MODEL

What should a comprehensive chemical weapons treaty contain? From analysis of the foregoing chapters, the following basic elements are proposed as being essential:

> --Clear concise protocol. Terms must be precise as to what is covered and what is expected. It must be specific, for instance, on what type of chemical agents, facilities and activities are covered, what must be stopped and the action taken in case of a violation.1
>
> --Universal agreement. The protocol must be widely accepted and supported around the world. While one hundred percent ratification is desirable, it is not absolutely essential. For the agreement to be credible, however, it is necessary that it be accepted by an overwhelming majority of the countries of every geographic region and political grouping worldwide.
>
> --Universal governing body. An overall governing body must be established with representation widely approved by all nations who are party to the protocol. Investigative, technical and judiciary elements must be

established to assist in monitoring and compliance determinations.2

--Verification procedures. It is necessary that procedures be established for various types of investigations and inspections ranging from data exchanges to on-site challenge inspections. These do not have to be one hundred percent efficient in identifying violations, rather just thorough enough to establish a reasonable confidence level.3

--Sanctions. For the protocol to remain credible over a long period, there must be an established mechanism for consistently imposing tough sanctions on violators. Sanctions can be economic, political or psychological (in rare instances, even military), but in every case must be tailored to ensure the punishment outweighs the benefit gained from employing banned chemical weapons.

When measured against these basic elements, the long lived but ineffective Geneva Protocol of 1925 satisfies only one -- "universal agreement."

THE OBSTACLES

It is the verification and sanctions problems more than any others that block attainment of an international ban on chemical arms. The munitions themselves are not easy to count or verify by national technical means, as is the case with nuclear weapons. The industry capable of producing them is highly competitive, intensely proprietary and widely distributed throughout the economies of all industrialized countries, to include the Third World. And the precursors required for manufacture of toxic agents have legitimate uses in the civilian sector.[4] Verification proposals of necessity, therefore, tend to be intrusive and rely on some form of on-site inspection. This idea has not been well received.[5]

Recently, however, there has been progress. At Geneva, the 40 nation chemical disarmament talks, which include the U.S. and Soviet Union, have reached agreement, in principle, on certain types of on-site inspections.[6] In separate bilateral negotiations, the United States and Soviet Union have also agreed in principle to verification by on-site observers of the destruction of chemical stocks and to 48 hour advance notice inspections of toxic agent manufacturing facilities.[7] Initial implementation has already taken place through an exchange of on-site visits to chemical facilities. This new openness toward negotiations may well pave the way to further breakthroughs.

It should be noted that there will always be some risk because, realistically, no verification scheme is foolproof. There is always the possibility of some quantity of chemical agents or weapons being quietly hidden away and escaping detection. The real value of verification is that when coupled with other political and legal instruments, it prevents large scale research, production or stockpiling through fear of the political consequences of detection. If an environment of political will and openness exists, however, techniques can be devised which produce high levels of confidence. In the end, the issue to be decided is what constitutes a tolerable level of risk.[8]

The second major area blocking progress toward a viable international ban is obtaining agreement on sanctions against violators. As the recent Paris Conference so vividly pointed out, sanctions are viewed with great suspicion, especially among the developing nations of the world. The extent of disarray over

this issue is well illustrated by the fact that even after the great outcry in the United States over the Iraqi use of poison gas against defenseless Kurds, the U.S. government was unable to reach even an internal agreement concerning appropriate sanctions against Iraq; much less obtain any type of international consensus. Clearly, this is a difficult area, but one which has proven historically to be essential if a meaningful international ban on chemical weapons is to be achieved.

THE STRATEGY

It is obvious by now that there is no single answer or simple set of solutions to the problem of chemical arms control. If there were, the problem would have been resolved long ago. Instead, what is required is a multifaceted, well structured approach that can both verify compliance and bring heavy pressure to bear on offenders through a well orchestrated combination of political, economic and legal elements. Negotiations are highly complex, requiring extensive discussions ranging from overarching principles to "nuts and bolts" technical issues. And the starting point should be to build on the progress already realized by current ongoing efforts.

The historical effectiveness of various types of restraints in deterring chemical warfare should be clear from the analysis in the preceding chapters. Political, moral and legal restraints have proven effective only as reinforcement to other restraints. Military related constraints, especially nonassimilation, have a greatly reduced impact today as more advanced agents and

techniques have evolved. The only restraint that has remained effective over the long term is fear of retaliation. But because it has bred proliferation, its success has also proven to be its downfall.

The proposed strategy, therefore, is to develop a restraint system that uses fear of retaliation as its basis -- but not fear of military retaliation. Rather, it depends on the ability to impose such strong economic, political, moral and legal sanctions that violations are discouraged. This would be accomplished in a two-phase approach, with Phase I oriented on goals and objectives that can be completed in 2 to 3 years. Full implementation in Phase II may require up to 10 years to complete. The whole framework should be negotiated, established and governed under the auspices of the United Nations. The ultimate objective is a total ban on research, production and possession of toxic chemical weapons.

Major actions to be accomplished in Phase I include:

--Convene a worldwide Chemical Arms Convention analogous to the Geneva Convention of 1925, but in a different location to remove the stigma of ineffectiveness now associated with "Geneva." The objective of the conference is to negotiate a totally new chemical weapons protocol that is ratified, without reservations, by every country. The new protocol will include heavy emphasis on realistic sanctions against violators.

--Negotiate an immediate freeze on chemical munitions at current levels. There should be no further production, export or import of munitions, technology, equipment or materials known to be specifically connected to toxic chemical weapons. This includes export of ballistic missiles or similar strategic weapons to countries known to have toxic chemicals.

--Establish an international governing body and an investigative mechanism with clear and timely access

guaranteed in case of alleged violations. The International Red Cross and World Health Organization should be linked into this.9

--Negotiate a verification system to include on-site inspections, monitoring of the destruction of existing stocks and challenge inspections. Continue development of improved monitoring methods and techniques for all aspects of chemical weapons from research to storage. Especially important is the development of reliable methods to monitor precursors. The chemical industry itself should be actively involved in this process.10

--Establish a judicial process that can be brought into play as necessary. This could possibly be linked to the International Court of Justice.

--Establish a set of realistic and viable sanctions bringing together economic, legal and political elements. Tie global organizations such as the International Monetary Fund, World Bank and International Court of Justice into this process.11

--Establish a "Suppliers Group" similar to the one connected with nonproliferation of nuclear weapons. The purpose of this group is to discourage the flow of materials, technology and equipment essential to the production of toxic chemical agents and to publicize violations.12

--Disclosure by each country, as of a established date, of the quantity and location of all chemical warfare stockpiles, research and production facilities, and storage areas. Open exchange of data is encouraged with no stigma attached.

--Very importantly, accelerate the bilateral chemical arms reduction negotiations between the United States and Soviet Union. The superpowers should set the example through massive chemical arms reductions, inspection agreements and mutual monitoring of destruction operations. If successful, this would be an invaluable confidence builder and encourage other countries toward cooperation.

Phase II, to be completed in approximately 10 years, leads to the ultimate objective of a total ban on research, production and possession of toxic chemical weaponry and includes the following:

--Full implementation of the formal governing mechanism established in Phase I. This includes monitoring, inspections, investigations, judiciary proceedings and sanctions.

--By an established date, each country submit plans for destruction of all toxic stocks and dismantling of research and production facilities. Initiate international monitoring of the destruction/dismantling process.13

--Establish a monitoring system requiring each country to periodically report onhand quantities of certain key chemical precursors.

--Continue the implementation of the bilateral chemical disarmament effort between the United States and Soviet Union which should be well established by this time.

The primary strength of this strategy is that it builds on organizations and negotiations already in place or in progress. It is admittedly an ambitious undertaking. It requires building a global sense of confidence and its success rests heavily on the willingness of powerful and independent nations to sometimes subordinate national interests for the broader good.

CONCLUSIONS AND RECOMMENDATIONS

Is it realistic to expect that a total ban on the production, possession, export and use of toxic chemical weapons is achievable? Historically, the only effective long term deterrent to the use of chemical weapons has been fear of retaliation. It can be argued, therefore, that as long as there are vulnerable and desperate nations in the world, they will always seek simple, economical weapons of mass destruction. In today's global environment, it is difficult to conceive of a totally effective and completely foolproof ban on toxic chemical munitions being accomplished in the near future. Taken one step at a time, however,

the ambitious strategy proposed in this study could well bring about significant reductions in world-wide proliferation, stockpiling and use of poison gas, and eventually lead to a total ban. This potential makes the effort worthwhile.

In the interim, while negotiations are underway toward the ultimate objective of banning chemical weapons, a realistic approach is required. Actions should be aimed at encouraging nations to forego the acquisition and use of chemical weapons. Clearly, no small country in today's world can be expected to unilaterally destroy its chemical stockpile. There is little reason, however, why the United States and Soviet Union, with sufficient alternative weapons available to counter any conceivable threat, should not be able to quickly reach bilateral agreement for the complete dismantling of their respective chemical munition stockpiles. This, in turn, would demonstrate they are serious about the proliferation problem and would help build confidence that an eventual total ban on chemical weapons might be achievable. It would also allow the United States and Soviet Union to lead future chemical disarmament negotiations from the moral high ground.

Another action which the superpowers should undertake to discourage proliferation and use of chemical weapons is to provide a "defensive umbrella" guarantee to any nation threatened with or subjected to an unprovoked chemical attack. This guarantee could be in the form of both economic and military assistance, with heavy emphasis on defensive chemical equipment and training. At the same time, a high priority cooperative

research and development effort should be launched to improve the effectiveness of chemical defensive measures and techniques. The objective of all these efforts, of course, is to reduce the potential influence of toxic chemical agents on the battlefield and thus diminish the liklihood of guaranteed success from their use.

Maximum efforts should also be continued to establish a strong international moral stigma against the use or export of chemical weapons and associated materiel and technology. While moral restraint alone has limited effectiveness, it can become a powerful tool as reinforcement to other constraints. Violating nations or individual companies must consistently be singled out for censure, both at home and abroad. Recent efforts by the United States in publicly identifying the West German suppliers of the Iraqi and Libyan chemical plants demonstrate that this approach can be effective in bringing unwanted pressure and notoriety to bear on offenders. To help police this effort, an international chemical "suppliers group" should be established to help identify and publicize violations. In short, every effort must be made to ensure that violators do not escape with impunity.

Banning chemical weapons has been tried before with no lasting success. Now, however, world attention is more focused on the problem than at any time since the end of World War I. There is general consensus that proliferation must be stopped and chemical weapons eliminated. Former President Reagan and Soviet Premier Gorbachev have publicly affirmed a joint commitment to accelerate negotiations leading to a total chemical weapons

ban.[14] Recent bilateral U.S./Soviet negotiations have resulted in breakthroughs undreamed of only a few years ago. President Bush is on record supporting a complete and total ban on chemical weapons. The world is fresh from the 149-nation consensus forged at the 1989 Paris Chemical Warfare Conference. The time is ripe. We may never be presented with a better opportunity to put the chemical genie back in the bottle.

ENDNOTES

1. Stockholm International Peace Research Institute, Vol V, p. 105.

2. Charles C. Flowerree, "Elimination of Chemical Weapons: Is Agreement in Sight?", Armed Forces, August 1988, p. 351.

3. Stockholm International Peace Research Institute, Vol V., p. 137.

4. The Aspen Strategy Group/European Strategy Group, p. 33.

5. Stringer, p. 24;

6. Flowerree, p. 352.

7. Joe Poyer, "Chemical Warfare", International Combat Arms, November 1988, p. 72.

8. Meselson, pp. 5 and 77.

9. Rose, p. 160.

10. Flowerree, p. 354.

11. Albert Gore Jr., Clamping Down on Chemical Weapons," Christian Science Monitor, 6 October 1988, p. 14.

12. Aspen Strategy Group/European Strategy Group, p. 44.

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