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### INTRODUCTION

It is the purpose of this paper to give a resume of military and civilian attitudes and US national policies concerning the effectiveness and use of gas warfare from the Hague Convention of 1899 through the Korean War. It is not intended to do more than mention some of the readily accessible factors. Policies since the Korean War are discussed in ORO-SP-89.<sup>4</sup>

Throughout the years since 1899, there have been two contrasting estimates of the effectiveness of gas warfare, each of which has led to opposing schools of thought on its employment. Among those who have maintained that gas is an extremely effective weapon, some have insisted that it should therefore be used in large enough quantities to enable it to be decisive; others have argued that for humanitarian reasons it should not be used. On the other hand, among those who have insisted that gas is not capable of being a decisive weapon, some have believed that its peculiar property of pervasiveness makes it a desirable member of the family of tactical antipersonnel munitions; others have maintained that its effectiveness is so unpredictable because of its sensitivity to factors beyond the user's control, such as weather, terrain, and the state of enemy gas defenses, that its disadvantages outweigh its advantages even as a tactical weapon. In the 60 years during which such arguments have been going on, the proponents of each of these views have often presented personal prejudices rather than informed judgments, and national policies have sometimes been determined on these bases.

### ATTEMPTS AT INTERNATIONAL PROHIBITION OF GAS WARFARE

Much of the public discussion of the use of gas has centered around attempts to secure international agreement to prohibit its employment as a weapon because of its alleged inhumane character. In the Hague Declarations of 1899, reiterated in 1907, the contracting powers agreed "to abstain from the use of projectiles the object of which is the diffusion of asphyxiating or deleterious gases."<sup>4</sup> This was signed by all the major powers except the US. Captain A. T. Mahan, the US Naval Delegate, who had consistently cast a negative vote during the deliberations, stated his objections cogently. In the first place, no such projectiles had then been developed and their capabilities were unknown; second (in an argument that has been the nemesis of all efforts to limit the means for conducting wars), "It was illogical, and not demonstrably humane, to be tender about asphyxiating men with gas, when all were prepared to admit that it was allowable to blow the bottom out of an ironclad at midnight, throwing four or five hundred into the sea, to be choked by water, with scarcely the remotest chance of escape."<sup>4</sup>

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The Hague Convention did not prevent Germany or the Allies from employing gas in projectiles as well as cylinders in WWI (see ORO-SP-88<sup>2</sup>). The convention did, however, serve as a locus for a great deal of emotional argument—some of this deliberately generated propaganda—over precisely what types of gases and delivery means were prohibited and which side had committed the first violation.<sup>5</sup>

In the Treaty of Versailles following the war, among the limitations imposed to prevent redevelopment of German military power, Article 171 specified, "The use of asphyxiating, poisonous or other gases and all analogous liquids, materials or devices being prohibited, their manufacture and importation are strictly forbidden in Germany." Similar articles were included in the treaties with the other Central Powers.<sup>6</sup>

In the international conferences on limitation of armaments in the 1920s the prohibition of gas warfare was again attempted by victor and neutral countries. At the Washington Conference on naval limitations in 1921-1922, in which France, Great Britain, Italy, Japan, and the US participated, a treaty was formulated "relating to the Use of Submarines and Noxious Gases in Warfare."<sup>7</sup> In the early sessions of the conference the Subcommittee on Poison Gas, composed largely of "gas experts" from the five participating countries, concluded that an attempt to prohibit gas warfare was neither desirable nor feasible. However, the US delegation's 21-member Advisory Committee, appointed by President Harding "to represent public opinion," unanimously adopted a resolution drafted by the Subcommittee on Land Armament, of which Gen John Pershing was chairman, that, "Chemical warfare should be abolished among nations, as abhorrent to civilization. It is a cruel, unfair and improper use of science. It is fraught with the gravest danger to noncombatants and demoralizes the better instincts of humanity."<sup>8</sup>

It has been suggested that the Advisory Committee had been strongly influenced by the imaginative description of gas-warfare horrors in Will Irwin's The Next War,<sup>9</sup> and they had apparently conducted some kind of a preliminary poll of US public opinion that resulted in 385,170 votes for the prohibition of gas warfare and 169 for its retention.<sup>10</sup> They were further moved by a report from the General Board of the US Navy, which concluded that, "Gas warfare threatens to become so efficient as to endanger the very existence of civilization."

The Committee on Limitation of Armaments, impressed with the views of the US Advisory Committee, the General Board of the US Navy, and General Pershing, overrode the Subcommittee on Poison Gas,<sup>7</sup> and Article V appeared in the treaty:

The use in war of asphyxiating, poisonous or other gases, and all analogous liquids, materials or devices, having been justly condemned by the general opinion of the civilized world and a prohibition of such use having been declared in treaties to which a majority of the civilized powers are parties,

The Signatory Powers, to the end that this prohibition shall be universally accepted as a part of international law binding alike the conscience and practice of nations, declare their assent to such prohibition, agree to be bound thereby as between themselves and invite all other civilized nations to adhere thereto.<sup>11</sup>

Elihu Root of the US delegation, answering the argument that no sanctions were provided in the treaty, declared:

We may grant that the most solemn obligation assumed by governments in respect of the use of implements of war will be violated in the stress of conflict; but beyond diplomats and beyond governments there rests the public opinion of the civilized world, and the public opinion of the world can punish.<sup>12</sup>

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This treaty was ratified by four of the five powers, including the US, but not by the French, who objected to the anti-submarine article; thus the treaty failed to go into effect.

In a protocol developed at the conference on international trade in armaments in Geneva in 1925, the prohibition of "the use in war of asphyxiating, poisonous or other gases, and of all analogous liquids, materials or devices" was reiterated as "binding alike the conscience and the practice of nations."<sup>11</sup> With this was coupled bacteriological warfare. This protocol was to come into effect for each signatory power on the date of deposit of notice of ratification, and each was to "be bound as regards other powers which had already ratified."<sup>11</sup> The protocol was ratified by 38 nations in the next 11 years, but not by Japan or the US, although both had been signatories.<sup>6</sup>

A similar convention was prepared in draft for the League of Nations General Disarmament Conference of 1932, but this entire effort to legislate for international peace came to naught.<sup>6</sup>

Gas was but one of several instruments of war that, in one or another of these international conferences, it was proposed to outlaw; others were torpedoes, underwater mines, submarines, projectiles delivered from balloons, bacteriological warfare, heavy artillery, tanks, aircraft, and capital ships. Few of these attempts at prohibition reached actual treaty form, however, but the fact that the protocol on toxic gas and bacteriological warfare received the largest number of ratifications shows the strength of feeling concerning these agents.

### PUBLICATIONS ON GAS WARFARE BETWEEN WWI AND WWII

In the 20 years between the two World Wars, discussions of gas warfare went on at many different levels. For one, the experiences of WWI were related and analyzed in many books and articles. The reader seeking evidence from these of the role played by gas in WWI cannot avoid being impressed by the few and brief references, and frequently the complete omission of the subject, in material emanating from all the belligerent nations, including the writings of officers who had themselves participated in the conflict. Any temptation to suggest the existence of a universal censorship, officially imposed or tacitly adopted, is scotched by the fact that books and articles written by chemists or men who had served in the field as "gas experts" and analyzing WWI gas warfare in great detail also appeared in all these countries. The alternative conclusion seems to be that, in the minds of most military authors who were not specialists in gas warfare and in the judgment of historians who drew on military sources, gas as employed in WWI was not a decisive factor. For example, Sir James E. Edmonds, author of the British official history of WWI, states: "Gas achieved but local success, nothing decisive; it made war uncomfortable, to no purpose."<sup>12</sup>

Another type of public literature about gas warfare undoubtedly had far greater influence on public opinion—the books and articles that portrayed wars of the future in which extremely lethal gases would be dropped by plane on non-combatants in cities. Some of the writings were serious efforts to point out the military implications of the rapid development of the airplane with emphasis on strategic bombing, e.g., Fuller,<sup>13</sup> others were more or less lurid examples

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of science fiction, e.g., Wells.<sup>14</sup> They had in common a very superficial knowledge of toxic gases, but they served to keep alive and reinforce the memories of those who had personally experienced gas in WWI and those who had absorbed the horror stories circulated as WWI propaganda.

Official publications about gas warfare formed another category. In the years immediately following WWI, the governmental agencies dealing with CW, being "Johnny-come-latelies," had to fight hard for continued support during the peacetime drives to cut back military establishments. These pressures led to public and intragovernmental publications in which sometimes extravagant claims for the munitions were made, apparently to publicize agencies or possibly to influence appropriations.

Ratifications of the Geneva Protocol, which specifically prohibited gas warfare, dealt a blow to CW organizations<sup>15</sup> and also affected the US Chemical Warfare Service (CWS), even though the US did not ratify the protocol. Appropriations by Congress for the CWS (reflecting in part of course the general peacetime reduction in military expenditures) remained about \$1.25 million a year from 1927 to 1935, were slightly increased in 1936 to 1938, and were over \$2 million in 1939 to 1940.<sup>16</sup> According to the usual official interpretation of the protocol, defense against gas continued to be a legitimate concern, since Germany in WWI and later Italy in the Italo-Ethiopian War (see ORO-SP-87<sup>3</sup>) had made it obvious that international law was not necessarily binding. Defense might be stretched to include preparations for retaliatory action, the elasticity depending on the attitude of the government in power, but it could not, at least insofar as the public was to be informed, extend to preparations for initiating war in any form, including gas warfare.<sup>15-16</sup> The results were to limit the appropriations available for research in and development of war gases and delivery means, and, although these programs continued on a small scale, to force them into secrecy. In the years just preceding WWII, therefore, each government was aware of its own lack of preparedness for CW and worried about the extent to which the others were prepared, whereas the general public, unmindful of the Italian use of gas in Ethiopia, tended more and more to regard the possibility of gas attacks on noncombatants as science fiction. Curt Wachtel, German gas-warfare expert, found in Europe in the mid-1930's that in regard to civilian defense against gas only the Russian people seemed to be somewhat "gas-conscious."<sup>17</sup>

### CONTINUING INFLUENCE OF WWI ATTITUDES

Various types of opposition toward gas warfare that were manifested among the military in WWI were handed down or perpetuated through men who were still in service at the outbreak of WWII. Among these men were, first, the old-line officers who resisted experiments with new ideas or new weapons. The German plan for the first large-scale employment of gas in WWI was reported to have been "rejected categorically" by "the majority of the higher-ranking officers, including some in top-level positions... partly out of strong skepticism."<sup>18</sup> Hindenburg, for example, both in WWI and in the subsequent years when he headed the German state, opposed gas warfare.<sup>19</sup> In the US the fight in 1919-1920 to establish the wartime CWS on a permanent basis was a

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rough one. No additions had been made to the Army's technical services since the establishment of the Signal Corps in 1860. The War Department officially recommended placing responsibility for CW with the Corps of Engineers (CE), where it would have had a subordinate status.

Testimony from WWI officers was divided. General Pershing, although he believed that "it would be very well if we could avoid [chemical warfare],"<sup>20</sup> felt that the CWS should be maintained as "a department of investigation."<sup>21</sup> The incumbent CWS officers got support not only from Bernard Crowell, Assistant Secretary of War, who was himself a chemist, but also from scientists and industrialists outside the Army who foresaw a growing place for chemistry in warfare, and the CWS won its battle to be included in the Army organization.<sup>20-22</sup> Debate over definition of its functions and its precise place in the military organization continued, however, for years, particularly with the Corps of Engineers, Medical Corps, Ordnance Corps, and the Navy Department.<sup>23</sup>

Also opposed were officers who had permitted gas to be used on their fronts and had been disillusioned over the results, either because the weather had proved unfavorable or they had expected too much from being oversold or ignorant of the weapon's capabilities (see ORO-SP-88<sup>2</sup>). These memories died hard.

Others were officers who had been undertrained in the tactical employment of CW and overtrained in protection against it, so that it seemed to them not a useful weapon system but a menace to be avoided at all costs.<sup>23</sup> As the Director of Artillery in the British War Office said in 1930, "To professional soldiers chemical warfare means tears, tears, and blisters."<sup>24</sup> Amos A. Fries, who had been in charge of the CWS in France during WWI, thus described the problems of defense against mustard: "Suppose we get perfect protection, the burden you would put upon an army forced to wear gas-proof clothing, to wear the mask, to disinfect shellholes, and all that, is one of the greatest burdens you could put on a war machine and . . . the reduction in physical vigor alone would pay for all we could ever spend on it."<sup>25</sup> Fries was attempting to emphasize the effectiveness of mustard against an enemy, but of course what he said applied with equal force to both sides if both were employing mustard. This nightmare drag imposed by defense did much to make gas warfare unpopular among the military.

This attitude was strengthened in civilians as well as the military after ratifications of the Geneva Protocol had suppressed open discussion of all phases of gas warfare except defense, and was reinforced in the late 1930's when WWII was impending and governments began nervously considering the need to build up the defense of noncombatants as well as troops against air-delivered gas attacks.

Some men also opposed the use of gas because of their personal experiences with its effects. For example, in 1919 Gen Peyton C. March, Chief of Staff of the US Army, related having seen 195 gassed French children in a Paris hospital: "The sufferings of these children, particularly, were horrible and produced a profound impression on me."<sup>26</sup> The use of such a weapon on noncombatants, he felt, presented "a picture of ruthless barbarity repugnant to the conscience of the civilized world," and he afterward affirmed what his testimony before congressional committees had indicated—that his efforts to abolish the CWS stemmed directly from his emotional reaction to what he had seen.<sup>26</sup>

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Even today there are many people who recall their own experiences or tales told by WWI soldiers that have left a lingering impression of horror attached to the very words, "poison gas." It has been suggested that Hitler's WWI experience of temporary blindness from mustard was a considerable factor in preventing the German employment of gas in WWII. <sup>10-15</sup> President Roosevelt's attitude, voiced in 1937 when he vetoed a bill to change the name of CWS to "Chemical Corps," undoubtedly echoed the feelings of many people:

It has been and is the policy of this Government to do everything in its power to outlaw the use of chemicals in warfare. Such use is inhuman and contrary to what modern civilization should stand for.

I am doing everything in my power to discourage the use of gases and other chemicals in any war between nations. While, unfortunately, the defensive necessities of the US call for study of the use of chemicals in warfare, I do not want the Government of the US to do anything to aggrandize or make permanent any special bureau of the Army or the Navy engaged in these studies. I hope the time will come when the Chemical Warfare Service can be entirely abolished.

To dignify this service by calling it the "Chemical Corps" is, in my judgment, contrary to sound public policy.<sup>6</sup>

### WHY GAS WAS NOT USED IN WWII

The question of why gas was not used in WWII is an intriguing one. Some of the influences at work are described above. Many parts of the answer still lie in unpublished archives. Fundamental was the fact that no one knew what could actually be accomplished with toxic gases, given air delivery and the possibility that somewhere new gases had been or would be developed. Decisions concerning the use of gas were apparently made on the ambivalent basis that gas warfare, insofar as the decision-makers' own knowledge of the art extended, probably could not be decisive, but there was a chance that, as developed by the enemy, it might be. No man with power to make such decisions was willing to test this possibility by initiating the use of gas and thereby inviting retaliation. When significant retaliation was unlikely, the unreasoning feeling, reinforced by the Geneva Protocol, that it was a "dirty" weapon, or the awareness that many other people so regarded it, had a deterrent influence, but it appears probable that this would not have been overriding if the decision-makers had believed or had had conviction forced on them by military authorities that gas would in their hands be a decisive weapon. As Dr. O. M. Solandt of the Canadian Defence Research Board has said,

The most important reason why the [toxic gases] have not been used [in recent years] is there has never been a major field commander who was convinced that he could win a war or a major battle by their use which he couldn't win with conventional weapons. . . but if we go on having wars, either limited or global, I think this situation will occur and that these weapons will be used.<sup>23</sup>

### Initial Unpreparedness

At the outset of WWII no country was sufficiently prepared for CW to attempt more than a very small-scale and brief employment. The stockpiles of

<sup>6</sup>General Douglas MacArthur, on the other hand, was gassed in WWI but remained a proponent of CW.

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gas and gas-production facilities were negligible. <sup>18</sup> troops specially trained in CW were few, and neither armies nor civilians were sufficiently educated and equipped in gas defense to meet enemy retaliation. The major belligerents on both sides undertook to remedy these deficiencies and by 1943 had launched major research programs and had stocks of gas munitions and defensive equipment adequate for employment of gas as a tactical weapon. By the end of 1944 the stocks had been sufficiently increased to admit at least the possibility of large-scale employment.

Because gas warfare had been the subject of treaties and international law, final decisions in regard to it lay beyond the scope of the military, with the heads of governments. The interplay of opinions and influences went on, therefore, in the realm of diplomacy as well as within the armed forces.

According to Karl F. F. Brandt, a protégé of Hitler who was General Commissioner for Reich Medical Services during WWII, "At all times Hitler was against the use of gas, except purely in retaliation against CW attack by the Allies. The hazard to the civilian population [of Germany] loomed largely in Hitler's mind, and production effort would not support the initiation of CW by the Germans."<sup>20</sup> In addition Brandt believed that the whole of the German General Staff was against the use of CW. In Germany, however, as in the other belligerent countries, CW had its advocates, and initiation continued to be debated as occasions arose that were possibly favorable for the use of gas.

On 3 September 1939, the day Great Britain and France declared war on the Axis, Great Britain sought assurances from the belligerents that they would observe the Geneva Protocol prohibiting asphyxiating gas and bacteriological warfare. The replies from Germany, Italy, Japan, Bulgaria, Romania, and Finland were affirmative, but, in the light of past history, were not regarded as any certain guarantee.<sup>6</sup>

The German plans for WWII envisaged a speedy victory achieved by rapid advances with tanks and air attacks. The prevailing attitude was that gas was essentially a defensive weapon and in a blitzkrieg the German military saw no need or opportunity to use it, nor did they wish to be burdened with the impedimenta of gas defense. They gambled against the possibility that the Allies might seek to slow their advance by using gas on spearhead columns and as barriers, and were relieved when they reached the Weygand line without encountering this type of opposition.<sup>19</sup>

Churchill, from the outset of the war, ceaselessly badgered the Minister of Supply to build up stockpiles of mustard and phosgene, gas shells and bombs, and the Home Secretary to provide gas masks and training in gas defense for civilians. By the end of 1940 it was known that German plans were afoot to invade England, and Churchill was debating with himself how to prevent German use of gas:

Sometimes I have wondered whether it would be any deterrent on the enemy if I were to say that we should never use gas ourselves unless it had first been used against us, but that we had actually in store many thousands of tons of various types of deadly gas with their necessary containers, and that we should immediately retaliate upon Germany.<sup>21</sup>

<sup>6</sup> Germany, limited by the Versailles Treaty, had not begun large-scale manufacture of gas until 1924.<sup>18</sup> Great Britain in December 1940 had about 2000 tons of mustard in stock and expansion of production was slowed by lack of additional storage space and of unfilled shells and mortar shells; the US in December 1941 had 4000 tons of mustard and capacity to produce 6000 tons monthly.<sup>21</sup>



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He concluded, however, that it was probably best to say nothing, because "we would certainly say we had threatened them with gas warfare," and besides, "there would be too much stuff in any such statement."<sup>21</sup>

Seven months later Churchill was assuring Roosevelt's emissary, Harry Hopkins, "The enemy may use gas, but if so it will be to his own disadvantage since we have arranged for immediate retaliation."<sup>22</sup> This was still bluff. At the same time Churchill was urging "super priority" for the laggard production of gas containers.<sup>23</sup>

The Germans had in fact considered using gas in their proposed invasion of England. They decided against it, however, because the prevalent wet weather would have limited its effectiveness; gas equipment for ground delivery would have taken up precious shipping space; and the likelihood that the English would retaliate by spraying mustard from aircraft and laying it in barriers would have forced shipment of decontamination materiel as well.<sup>24</sup> Churchill had in fact approved the use of mustard against German invaders as a last-ditch measure.

After Pearl Harbor the US was faced with the possibility that the Japanese might employ gas against American forces in the Pacific. It was known that the Japanese had already used it in China, and it was rumored they had taken hydrogen cyanide grenades into Malaya. All the incidents, however, were thought to have been in the nature of small field experiments, except at Ichang, where Japanese troops had extricated themselves from a bad tactical situation by using enough mustard to cause a rumored 3000 Chinese casualties. It was believed that the small Japanese chemical industries could hardly support large scale gas warfare, but it was recognized that Japan, not having ratified the Geneva Protocol, was not even legally bound to abstain from gas warfare.<sup>25-26</sup> Some weeks before Pearl Harbor, Roosevelt had approved the request of Secretary of War Henry Stimson to send the few mustard shells available in the US to the Philippines for use in case the Japanese attacked with gas. Loading had not been completed by 7 December, and the order was immediately canceled. The Japanese, however, promptly claimed that General MacArthur had actually used gas, which seemed to indicate that they were looking for an excuse to employ it. There had also been a disquieting rumor from Germany that Field Marshal von Brauchitsch had been removed from command partly at least because he had been unwilling to use gas.<sup>27</sup>

In January 1942 Secretary of State Cordell Hull raised with Stimson the question of the advisability of the US stating unilaterally its intention to observe the Geneva Protocol, although, like Japan, the US had no legal obligation to do so. Stimson vetoed the idea. He believed that through the introduction of domestic, political, and moral issues, such a declaration would impede war preparations, reduce potential combat effectiveness, and be considered by the enemy as an indication of national weakness. In his own hand Stimson added: "I strongly believe that our most effective weapon on this subject at the present time is to keep our mouths tightly shut."<sup>28</sup> This official pronouncement at least left the door open to US preparation for gas warfare.<sup>29</sup>

A War Plans Division (General Staff) survey at the same time made abundantly clear that US current capabilities in CW were virtually nil. The climate for its development was, however, considerably more favorable than it had been a year earlier, when Maj Gen Walter C. Baker, Chief, CWS, had believed that gas could serve only as a supplement to other weapons.

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The new Chief, CWS, Maj Gen William N. Porter, who took office in April 1941, advocated tirelessly throughout the war that the US should regain the initiative in war by starting large-scale use of gas as soon as the means could be made available. Chief of Staff Gen George C. Marshall, although not accepting Porter's extreme views, gave his personal support to preparedness for retaliation in CW.<sup>16-27</sup>

The official view of the War Department in the spring of 1942 was that the enemy might sooner or later use gas and if he did the US should beat him at the game. Accordingly the build-up of the CWS was put underway. However, to prevent any impetuous use of gas in the field, which might provoke retaliation, General Marshall on 25 April cabled all theater commanders not to use gas without prior approval of the War Department.<sup>16</sup>

### UK and US Policy Declarations

In March 1942 there were indications that the Germans might use gas against the USSR in their spring offensive. With the approval of the British Cabinet, Churchill offered to Stalin to make a public statement that Great Britain would drop gas bombs from aircraft over all suitable objectives in Western Germany from the moment that your armies and people are assaulted in this way.<sup>26</sup> He added, however, "Before I take a step which may bring upon our cities this new form of attack I must of course have ample time to bring all our anti-gas precautions to extreme readiness."<sup>26</sup> Stalin's reply was non-committal. "I wish to express to you the Soviet Government's gratitude for the assurance,"<sup>26</sup> but on 10 May Churchill pronounced the promised public warning of retaliation to Germany.<sup>27</sup>

This produced from Chiang Kai-shek a request that the US give a similar warning to Japan.<sup>31</sup> In a press conference on 5 June President Roosevelt stated:

Authoritative reports are reaching this government of the use by Japanese armed forces in various localities of China of poisonous or noxious gases. I desire to make it unmistakably clear that, if Japan persists in this inhuman form of warfare against China or against any other of the United Nations, such action will be regarded by this Government as though taken against the United States, and retaliation in kind and in full measure will be meted out. We shall be prepared to exact complete retribution. Upon Japan will rest the responsibility.<sup>31</sup>

This statement, although promising retaliation, intentionally or not said nothing about US policy on initiation. The Secretaries of War and the Navy and the Director of Civil Defense, Fiorello La Guardia, were not expressly consulted on this pronouncement, but it was in accord with the expressions of their views made earlier in the year, and it embodied directly the draft written by Sumner Welles of the State Department.<sup>24</sup>

The Germans decided not to use gas against the Allied invasion of North Africa in November 1942, partly at least because tight shipping and long supply lines prevented the shipment of gas equipment except at sacrifice of necessary conventional materiel.<sup>16</sup>

At the end of 1942 a suggestion made earlier by General Marshall to the combined Chiefs of Staff bore fruit with the first meeting of the US-UK committees on CW. These bodies eventually developed into a US and a UK committee, both meeting in Washington and working closely together on their mu-

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tial production and logistics problems in CW. Although they were not primarily policy-making bodies, it is interesting to note that the US group consistently regarded gas as a decisive weapon, whereas the UK members held it to be supplementary and tactical.<sup>28</sup>

Churchill, in response to a request from the USSR, made another public statement on 21 April 1943:

Reports have been received from several sources that Hitler is making preparations for using poison gas against the Russian front. Accordingly His Majesty's Government take early occasion to renew the warning which the Prime Minister gave last year, viz. that any use of poison gas against their Russian ally by Nazi or other satellites will immediately be followed by fullest possible use of this process of war upon German military centres, seaports and other military objectives throughout the whole extent of Germany. British resources and scale of delivery have greatly increased since last year.

The necessary precautionary measures against German reprisals have already been enjoined by competent authorities throughout the United Kingdom.<sup>29</sup>

Great Britain suggested that the US might also renew its declaration. Secretary of State Hull felt that the decision must rest with President Roosevelt.<sup>30</sup> Roosevelt's first reaction was that he "saw no useful purpose," but next day he asked Hull to draft a statement. The War and Navy Departments were apparently not consulted, and the press release the President issued a month later, 8 June 1943, followed the State Department draft exactly:

From time to time since the present war began there have been reports that one or more of the Axis powers were seriously contemplating use of poisonous or noxious gases or other inhumane devices of warfare.

I have been loath to believe that any nation, even our present enemies, could or would be willing to loose upon mankind such terrible and inhumane weapons. However, evidence that the Axis powers are making significant preparations indicative of such an intention is being reported with increasing frequency from a variety of sources.

Use of such weapons has been outlawed by the general opinion of civilized mankind. This country has not used them, and I hope that we never will be compelled to use them. I state categorically that we shall under no circumstances resort to the use of such weapons unless they are first used by our enemies.

As President of the United States and as Commander in Chief of the American Armed Forces, I want to make clear beyond all doubt to any of our enemies contemplating a resort to such desperate and barbarous methods that acts of this nature committed against any one of the United Nations will be regarded as having been committed against the United States itself and will be treated accordingly. We promise to any perpetrators of such crimes full and swift retaliation in kind and I feel obliged now to warn the Axis armies and the Axis peoples, in Europe and in Asia, that the terrible consequences of any use of these inhumane methods on their part will be brought down swiftly and surely upon their own heads. Any use of gas by any Axis power, therefore, will immediately be followed by the fullest possible retaliation upon military centers, seaports and other military objectives throughout the whole extent of the territory of such Axis country.<sup>31</sup>

This statement to the press, announcing "categorically" that the US would use gas only in retaliation, left no loopholes for modification. It could be changed only by a bald reversal of policy, and this it was generally believed Roosevelt would never approve even if there were others willing to risk antagonizing "the public opinion of the civilized world" that Roosevelt had long ago warned "can punish."

These public pronouncements probably had a definite deterrent effect on German plans for the use of gas against Russia. According to German Lt General Günsaer,<sup>32</sup> the always overstrained supply lines to the Russian fronts did not allow the addition of sufficient gas equipment to conventional materiel to permit large-scale employment in the east. However, serious consideration

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was given to using gas against Russian Partisans to drive them out of their hiding places; it could perhaps be argued that these forces, being irregulars, were outside the scope of the Geneva Conventions. The project was finally discarded, because the Partisans, though an acute nuisance, were not enough of a menace to warrant risking Allied retaliation.

No suggestion has been found that the Russians might have done their own retaliating, nor indeed any direct official Russian statements as to their policies on the use of gas in WWII. As Ochsner<sup>19</sup> pointed out, however, Russian manuals on gas warfare written prior to or during WWII made no mention of gas as a decisive weapon, but emphasized instead its use subsequent to successful penetration of enemy lines as an aid to exploiting successes during pursuit or simply as a casualty-producing agent. It was his opinion that massive employment of gas on the tremendously wide fronts on which Russian offensives were launched would have been prohibitively expensive.

Neither Great Britain nor the US was yet prepared in the spring of 1943 to carry out the promises of their heads of government. Reports from the US theater commanders indicated that greatly increased supplies of gas munitions would be needed. Only defensive equipment was in adequate supply in the field, and this was for the most part stored in rear areas, whence it could be issued to troops only after considerable delay. The training of troops in gas defense was rated good to fair. General MacArthur showed interest in active retaliation, reporting plans for immediate air attacks with mustard, but it was noted by the War Department that all his theater stocks of mustard bombs were stored remotely in Australia.<sup>27</sup>

It was the view of the Chief, CWS, that Roosevelt's statement gave the initiative to the enemy and increased the likelihood that both Germany and Japan would take it. By midsummer the CWS had decided to make a concerted effort to convince the War Department that gas could be a decisive weapon in all theaters. The CWS from then on concentrated much effort particularly on promoting the initiation of large-scale air-delivered gas attacks in the Pacific after the war should end in Europe. Major emphasis was placed on mustard, but phosgene was also to be stocked.<sup>27</sup> The reasons for this emphasis on the Pacific area probably lay in the belief that gas would be the most effective weapon against the caves and bunkers in the Japanese-occupied islands and a useful preparation for invasion of Japan itself. Furthermore, General MacArthur had shown interest in CW and Adm Chester Nimitz was reported to be willing to use it provided this was authorized by Washington.<sup>27</sup>

The UK and US declarations in 1943 were issued a few weeks before the Allied invasion of Sicily. It is unlikely that Italy, in view of the fact that its army in the main operated jointly with German forces, would have felt free to decide independently on the use of gas. But it would be interesting to know the nature of Italian recommendations, if any, on the subject, in view of their experiences in employing gas in the Italo-Ethiopian War (see ORO-SP-87<sup>3</sup>).

The UK and US declarations seem to have definitely paid off in one respect. In Germany in 1943 strict orders were issued that all gas shells and bombs must be stored within the boundaries of the Reich to prevent any accident that might give excuse for Allied retaliation. When the Allied landings in Normandy took place in June 1944, therefore, the Germans, although they realized that the beaches were fine targets for gas, were forced to recognize that they could not

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bring the munitions up to the front, both because the ground supply routes had been so damaged by Allied bombing that they were sadly inadequate even for necessary troop transport and because they lacked planes for air delivery. Furthermore, in view of Allied air superiority they dared not risk retaliatory gas bombing of their homeland cities.<sup>29</sup> Delivery was undoubtedly the limiting factor, because after the war when the Allied forces entered Germany they found ample evidence that rumors about German capabilities in CW had not been exaggerated insofar as munition stockpiles were concerned. It was then reported that 125,000 tons of toxic agents were discovered in bulk storage<sup>32</sup> and nerve gases had been developed. In May 1945 Brig Gen. Alden H. Waitt, CWB, found at Raubkammer Proving Grounds alone 130,000 bombs (250 and 500 lb.) as well as large numbers of artillery gas shell.<sup>33</sup>

By the spring of 1944 both the US and UK gas stocks were considered satisfactory,<sup>27,34</sup> and when the launching of the Normandy invasion passed without the enemy's employing gas there was a general relaxation of concern over the possibility of having to defend against large-scale enemy employment in Europe,<sup>35</sup> although US gas supplies continued to be stocked in the European and Mediterranean theaters of operations.

The high rate of German V-1 firings against England in July 1944 stimulated some pressures to consider initiating large-scale saturation gas bombings of Germany in reprisal. Against this it was argued that, apart from the moral hazards of indiscriminate attack on civilians, the compulsion to abide by the Hague Conventions by giving advance notice of the targets selected—rocket-launching sites and specific cities—would in effect be negotiation with the enemy and admission of partial defeat as a result of the V-1 attacks. Furthermore the Allied bombers used for this type of reprisal would have to be diverted from conventional bombing of prime targets already agreed on. General Dwight Eisenhower, Supreme Commander of Allied Expeditionary Forces, accepted these objections and advised the British Chiefs of Staff, "As I have before indicated, I am opposed to retaliation as a method of stopping this business. . . . Please continue to oppose."<sup>36</sup>

### Question of US Initiation against Japan

As the invasion of Europe progressed and the end of war in that theater seemed likely by January 1945, the US Joint Chiefs of Staff (JCS) in October approved plans for retaliatory use of gas against Japan should the Japanese employ CW against US forces. They set a readiness date of 1 January 1945 for tactical employment and of 1 April 1945 for strategic use on the Ryukyus and the Japanese home islands. When the war in Europe continued into 1945, the latter date was changed to 1 November 1945.<sup>16-37</sup>

Although the JCS had given approval in principle to retaliatory large-scale strategic gas bombing of Japan, they at no time ordered theater commanders to bring gas stocks to positions from which immediate attacks could be made. Following the collapse of Germany, permission was granted to theater commanders to bring stocks forward if any extra shipping space existed. Immediate response by starting shipments to Luzon. The rest of the Pacific stocks remained in the FI, Hawaii, Australia, and New Guinea. When Admiral LeMay in June 1945 urged that the JCS make a definite decision on whether or

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not "we should take a calculated risk by failing to move the required gas munitions forward," Marshall replied that he seriously questioned the military advisability of forward stocking "unless we are contemplating its use on other than a retaliatory basis."<sup>16,27</sup>

The heavy casualties suffered by the Marines in taking Tarawa late in 1943 had given the advocates of US initiation of gas warfare a focus for their claims that gas would have done a much better job than HE in penetrating the caves and tunnels where the enemy had sheltered. Some US newspapers, notably the New York Daily News, took up the theme. Public interest further increased after the heavy US losses in taking Iwo Jima and Okinawa.<sup>27</sup>

Within the War Department the old contest was on between those who believed that gas might be a useful tactical weapon against Japanese in caves and bunkers but ineffective as a strategic weapon against Japanese cities, and those who thought it could be a decisive weapon by preventing US casualties and shortening the task of invading Japan itself. In the Army Air Force, now actively interested because the newly conquered islands provided convenient bases for approach to Japan and B-29's gave the means for transporting large loads, the contest was on between advocates of gas and of incendiaries.<sup>16,27</sup>

The succession of Harry S. Truman to the Presidency in April 1945 opened up the possibility that Roosevelt's pronouncement against initiation of gas warfare might be reversed, and the collapse of Germany in early May focused attention on rapid termination of the war in the Pacific. A move to approach President Truman for a decision apparently stemmed from or was at least encouraged by a US Army Operations and Plans Division study of 14 June. In presenting the study it was pointed out that faking an excuse for retaliation on Japan was too dangerous. Public opinion in the US, the reactions of the Allies, and even the probable attitudes of the Japanese people to US initiation would have to be considered. It was suggested that Truman might take up the question at the forthcoming Potsdam Conference. The study stressed that, "Gas is the single weapon hitherto unused which we can have readily available and which assuredly can greatly decrease the cost of American lives and should materially shorten the war."<sup>27</sup> The belief was expressed that American public opinion could be brought to support its use. This, incidentally, seems a sound assumption in view of the fact that affirmative answers in Gallup Polls to the question, "If it means an earlier end of the war in the Pacific, would you approve of the Allies using poison gas against Japanese cities?" increased from 23 percent in October 1944 to 40 percent in August 1945.<sup>16,27</sup>

General Marshall undertook to get the reactions of the JCS to discussing a reversal of policy with Truman. Gen H. H. Arnold's reply has not been found, Adm Ernest King agreed, and Admiral Leahy answered that he did not believe Roosevelt's statement could be reversed but he was willing that the matter be discussed with Truman "by anyone who believes in gas warfare."<sup>16,27,27</sup>

It may be assumed that the JCS members were in touch with the progress of the Manhattan Project and understood Marshall to be exploring the possibilities of initiating gas as an alternative in case atomic-weapon development was delayed. No decision was reached on the subject in the JCS prior to the Potsdam Conference, and the successful atomic explosions at Alamogordo on 16 July and in Japan in August ensured that gas would not be needed in WWII.

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### Reasons for Nonuse of CW in WWII

The principal reasons, applicable at one time and place or another, why gas warfare was not used in WWII were:

(a) Experience with gas as it was employed in WWI did not engender enthusiasm except among those who were directly involved in the development of CW.

(b) At the outset of WWII no country was prepared for large-scale use of gas.

(c) Advocates of tactical employment were deterred somewhat by the Geneva Protocol, but primarily by fear of large-scale retaliation. US and UK declarations served to reinforce this fear even though at the time they were issued they were mainly bluff.

(d) Advocates of the initiation of large-scale gas warfare were in no country sufficiently numerous and powerful to reverse the opinions of ranking military officers that gas was not a decisive weapon or of the nonmilitary heads of governments that it should not be used, or to force the substitution in overburdened supply lines of gas munitions and equipment in place of conventional materiel. After V-E Day, when US shipping could accommodate these supplies and feasible air bases and planes had become available in the Pacific, initiation of gas warfare was regarded as a second-string measure, which was made unnecessary by the successful development of atomic weapons.

### POLICY AFTER WWII

In the years subsequent to WWII, concentration on the development of nuclear weapons in the US has diverted both public and military attention still further from consideration of gas warfare. To be sure, policy statements and field manuals on CW have been issued from time to time, and an occasional article has appeared in the public press. These all recognize that initiation of, as well as retaliation with, toxic gases by the US or other countries is a possibility and that new types of gas and new delivery means may enhance the effectiveness of this kind of warfare. Much more has been enunciated as policy and doctrine about CW, however, than has been implemented in detailed planning, maneuvers, and officer and troop training.

Toxic gases were not employed in the Korean War. An ORO study<sup>20</sup> in the early months of that war detailed a tactical situation in Korea in which mustard might be used effectively. The Commander in Chief, Far East, commented that the conclusions on the basis of conditions assumed in this instance "are considered valid," but went on to state the belief that "the decision to use chemical warfare by UN forces, if made, should be based on full use in all situations in order to achieve maximum exploitation of this method."<sup>20</sup> As essential considerations in estimating the feasibility of embarking on such a course the commentary listed these factors:

- (1) Current policy prohibits the maintenance of depot stocks of chemical warfare agents in the Far East Command.
- (2) Sufficient quantities of gas masks and protective clothing to equip all elements of United Nations Forces are not available in the Far East Command.

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(3) A program of intensive training in chemical warfare would be required prior to use of chemical agents by friendly forces. This is particularly true in the case of ROKA troops who have had only limited training in chemical warfare.

It appears, then, that although in the Korean War the probability of enemy retaliation in kind was slight, the UN governments participating had no disposition to initiate the use of gas, nor, in view of the inadequacy of training in its employment, did CinCFE wish to urge a change in this policy.