

# Chemical Warfare in the Future



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CHEMICAL warfare offers tremendous potentialities, not only in making war less cruel and less destructive, but in making it less frequent.

This statement will cause astonishment to those who, under the influence of widespread pacifist propaganda, are convinced that gas, the submarine and aircraft operate to make wars more frequent and more terrible. But those who have approached the subject of modern war from a rational and not from an emotional standpoint know that the statement is true. They know, moreover, that it is not so much the militarist as the pacifist who today, when democracy has become a widespread force, is the greatest menace to peace. This is because the professional pacifist's stock in trade is emotionalism, and not facts but illusions: the stuffs of which modern wars are made. The pacifist, who was the catspaw of Germany throughout the war, showed a remarkable contempt for facts; facts hampered his arguments and cramped his style. Nevertheless, without taking the pains to investigate, he was ready to render a ready-made final judgment upon any subject under the sun.

The prejudice against gas arose as a natural and wholesome reaction against the manner in which it was first introduced. Contrary to her pledged word, Germany released a particularly deadly and cruel gas, chlorine, in a treacherous cloud attack against defenseless men. The horror of it became, quite naturally but illogically, attached to the weapon more than to the wielder. We have largely forgiven the Germans, but we have not yet forgiven the gas.

And yet, as a nation, we have never in the past, in times of calm judgment, opposed the use of gas in war. When at The Hague, in 1899, the subject of its prohibition in war was raised, the American delegates refused to support it. When the dec-

laration was drawn up, our representatives refused to sign it. The American naval delegate, Captain A. T. Mahan, made in his report a concise statement of the reasons for not signing:

The United States naval delegate did not cast his vote silently, but gave his reasons, which at his demand were inserted in the report of the day's proceedings. These reasons were, briefly: 1. That no shell emitting such gases is as yet in practical use . . . 2. That the reproach of perfidy, addressed against these supposed shells, was equally uttered formerly against firearms and torpedoes, both of which are now employed without scruple. Until we know the effects of such asphyxiating shells, there is no saying whether they would be more or less merciful than missiles now permitted. 3. That it is 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 men into the sea, to be choked by water, with scarcely the remotest chance of escape.

There was but one other dissenting voice: that of Great Britain. But when Germany used gas in 1915 every belligerent nation was bound by the prohibition, for Great Britain adhered to it in 1907. Our country was therefore the only great civilized Power that refused to subscribe to the provision forbidding the use of gas. Nevertheless we took no steps to employ gas in warfare. Germany, on the other hand, ratified the agreement on September 4, 1900, but in 1904 began to experiment with gas for war purposes. Some of the German gas apparatus captured by the Allies bore the dates 1907 and 1908. Gas was first used in war by the Germans in 1915. The Allies, of course, found it necessary to employ it in self-defense. Nevertheless, as late as June, 1916, the French used only lachrymatory gases in retaliation. It was not until June 28, 1916, that they began to use lethal gases.

Meanwhile the Germans had introduced not only chlorine gas but phosgene. In 1917 mustard gas was used. Then a sneezing gas was introduced to neutralize the protection of the gas-mask, and then a lethal gas was sent over into the same area to finish the work begun.

By the time of the armistice three classes of gas were in use: irritant gases, lachrymatory gases, and vesicant gases. The first affect the respiratory system and are generally fatal in high concentrations. Chlorine and phosgene are examples. The second

affect temporarily the eyes. Brom-acetone is an example. The third act on the skin, causing a "burn." Mustard gas is an example, although, if used in high concentrations, it affects the eyes and the respiratory and even the digestive system.

Tactically, gases are classified by their persistence. The degree of persistence is dependent not only upon the type of gas but also upon the degree of concentration, the method of projection, the terrain and the weather—temperature, moisture, wind, etc. The characteristically persistent gases are slightly volatile liquids, and it is the gradual vaporization that gives to them their persistent character. The non-persistent gases are quickly dissipated by the wind.

Now only two gases are effective in other than high concentrations: mustard gas and, to a certain extent, chloro-picrin. But high concentrations are difficult to achieve except under extraordinary conditions, in normal mobile warfare. And it must not be imagined that the stabilized warfare that characterized the greater part of the World War on the Western Front is a permanent characteristic of modern war. In many cases so infrequent will be the opportunities to use the majority of gases that, if any are used, it will be those that promise results in low concentrations. Our own Army gained its experience largely in semi-stabilized and in mobile warfare.

Except in the case of mustard gas, and in the event that the soldier has previously been exposed to a sneezing gas, the mask is a complete protection. Therefore among the most important uses of gas is that of reducing the physical and moral resistance of troops by forcing them to wear the mask for long periods. There is a second important characteristic of gas warfare: that the effect of a mild concentration is very difficult to diagnose, and continued activity on the part of a mildly gassed soldier may lead to serious consequences, while, if he remain inactive, he may suffer no ill-effects; and since a soldier must be given the benefit of the doubt, among troops of low morale a great opportunity for malingering is provided. Gas, therefore, by emphasizing the moral factor in war, decreases the stubbornness of the resistance of the side weaker morally, and decreases bloodshed thereby. From these arguments it will be seen that tactical

requirements have reduced the number of gases that can be employed economically, and have largely restricted the uses of gas to the inflicting of mild and temporary casualties. That this is actually the case is strikingly confirmed by the casualty statistics of our Army.

Thus, of a total of 274,217 casualties, 74,573, or 27.3 per cent, were caused by gas. Of the total casualties, 23.4 per cent died. Of the total casualties, .429 per cent, or less than one-half of one per cent, died from gas! The total deaths in battle were 48,059. The total deaths in battle caused by gas are estimated at 206. The total number of all deaths from gas were 1,400.

The really significant figures are those showing that while gas caused 27.3 per cent of all casualties, of these only 1.87 per cent died! That is less than one-twelfth the percentage that died from the effects of other wounds. Gas, moreover, does not mutilate nor disfigure, and that it plays any part in causing tuberculosis it is difficult if not impossible to prove.

But it is not only that gas is, as now employed, by far the most humane of all the weapons yet devised, but, if we continue our research, as we are now doing, there are great possibilities that the humane characteristics which it has developed may be indefinitely increased. If the types causing only temporary disability, such as the tear gases and the sneezing gases, were developed to a point where they would become the most important tactically, many more serious casualties by shot and shell could be prevented. This is precisely what gas does now.

Not only is chemical warfare more humane in battle, but it decreases the likelihood of war. It excludes whole groups of peoples from fighting. For example, no longer can a savage people, or even a non-industrial nation, hope successfully to go to war with a power that uses gas. In conjunction with the submarine and with aircraft it so complicates a modern overseas campaign that again certain nations are excluded from fighting each other.

Finally, had we not wilfully thrown away the opportunity at the clamor of the emotionalists, there would have been placed in the hands of America the power to forbid war. No other nation is so favorably situated as regards wealth, position and re-

sources, as to have no need to envy or to fear others. We are for that reason, if for no other, the most peacefully disposed of all nations. Moreover no other nation is so favorably situated as regards the use of gas in war. We have all the ingredients for all types of gases, within our confines, and we have them in great abundance. Again, we have the machinery for their production in bulk. We have the chemists and the inventive genius. Finally, no other weapon lends itself so readily to original and ingenious tactical use, and ingenuity and originality are characteristics of our people.

There are those who paint lurid pictures of gas attacks from aircraft on open cities. The best answer to this is that an overwhelming preponderance of air-strength would be necessary to carry out such an attack, for not only would it be a tremendous undertaking to obtain a sufficient concentration of gas to produce an appreciable effect, but the effect would not be worth the effort, particularly as the bombing planes would have to be escorted by combat planes in sufficient numbers to beat off all possible aerial counter-attacks.

Gas as a weapon of war has not been abolished. The Washington Conference, contrary to a widespread impression did not abolish it. It did not have the power to abolish it. But an agreement was made not to use it among the nations represented at the Conference. Other nations, such as Germany, may use it. Even the signatories of the agreement, if a non-signatory nation were to enter a war upon the side of one of them, would not be bound by the restriction. And even were the war confined to two of the signatory powers, gas would be used. An excuse for beginning could always be found. Accordingly the agreement has little practical effect, even assuming that it were desirable.