

The First Poison Gas Attack

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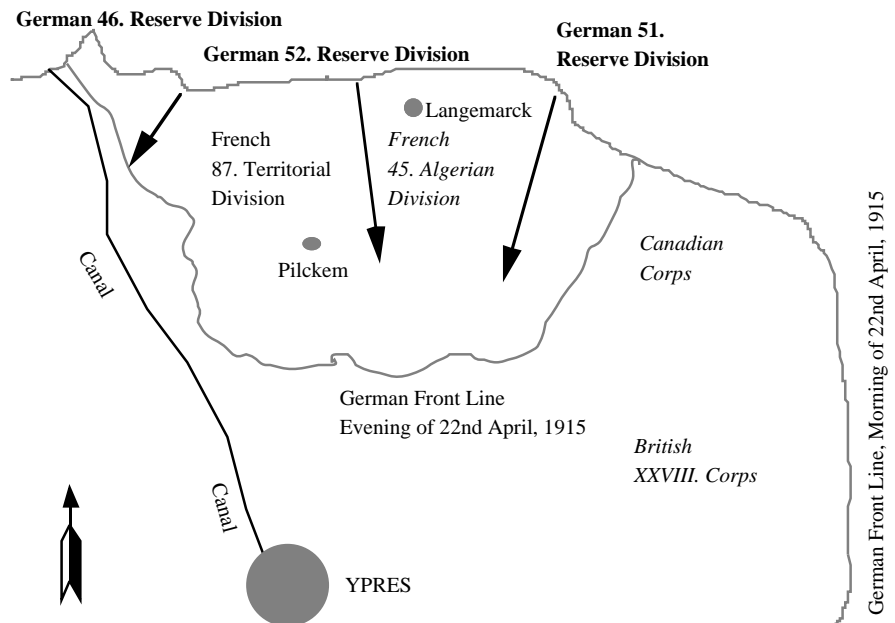
"What followed is practically
indescribable."¹

Poison gases share with nuclear weapons the odd distinction of being the only weapons of mass destruction used in one major conflict that were not used in the next. Chemical and nuclear weapons also have a number of other common characteristics. For example, they not only occupy a significant place in defensive and offensive planning among military staffs but for more than fifty years they continue to cloud mankind's future as apocalyptic threats. Once unleashed, they are uncontrollable - they destroy friend and foe alike, indiscriminately killing both soldier and civilian. They also have their own insidious ways of encouraging escalating violence. Nuclear weapons led to thermonuclear weapons in just the same way that chlorine gas led to mustard gas. And the effects of having been "gassed" stay with many of the survivors for the rest of their lives, as the effects of radiation remain with its victims to the end of their days, too.

Contrary to general belief, the use of asphyxiating, or at least irritating gases, in combat did not begin with the First World War. Leonardo da Vinci, for example, described the use of sulphur and arsenic dust as a filling for shells fired at naval targets.² Going back quite a bit earlier in history, the Athenians and the Spartans used sulphur fumes, in the fifth century B.C. as a means of attacking fortified cities.³ The Germans, moreover, as early as 1762 used bombs that emitted asphyxiating fumes during the siege of the Austrian held Silesian fortress of Schweidnitz.⁴

More closely in time, however, Germany, along with the Britain, France and Russia entered the Hague Convention of 1899 which specifically prohib-

THE GERMAN "ATTACK WITH LIMITED OBJECTIVES" FOLLOWING THE GAS CLOUD ATTACK AT YPRES 22 APRIL, 1915.



ited "...the use of projectiles the sole object of which is the diffusion of asphyxiating or deleterious gases."⁵ Between the time Britain entered this Convention in 1907 and the outbreak of the First World War in August of 1914, the British Government decided that although a dual purpose projectile containing an explosive charge and a tear gas would not violate the literal terms of the Convention, it nevertheless was contrary to the Convention's spirit and thus would not be used by the British Army or Navy.⁶ The British held to that position until events forced a change.

In contrast to the "fair play" attitude of the British Government, the Germans and, to a lesser extent, the French began to douse each other with tear gases almost as soon as the misery of trench warfare settled in on the Western Front late in 1914. When the war began, the French had a small supply of tear gas cartridges and, possibly, some tear gas hand grenades. The tear gas cartridge stockpile was depleted by the fall of 1914 and, in November of that year, a resupply order was placed. This resupply order is a rather surprising development, in view of the fact that the use of

these tear gas cartridges was completely unnoticed by the Germans!⁷

The Germans, in turn, first used an irritant on October 27, 1914 in the capture of the town of Neuve Chapelle. That day, the Germans fired 3000 rounds of 105 mm howitzer projectiles filled with sneezing powder against some Indian troops and French cavalry. These shells held shrapnel embedded in the sneezing powder. It was thought that the explosion would grind and disperse the irritant. In practice, the barrage was so ineffective that the French and British never realized chemical munitions were used in the battle until the fact was uncovered in a post-war investigation.⁸

Meanwhile, on the Eastern Front, the Germans used tear gas in a much bigger way. A stock of 18,000 "T-Stoff" tear gas shells was collected for use against the Czar's army at Bolymov as both an experiment in gas ammunition and to support an attack to improve the German position in that sector.⁹ The result was reminiscent of the tear gas bullet fiasco at Neuve Chapelle. The attack began on January 31, 1915 in extremely cold weather. Because of the cold weather, the "T-Stoff" fill for the shells

German Front Line, Morning of 22nd April, 1915

failed to volatilize and disperse. Consequently, the anticipated great results did not materialize, the attack producing only a local improvement in the German tactical position.¹⁰ The Germans, like the French, continued with their tear gas fires in spite of unsatisfactory results. There is evidence, for instance, that in March of 1915 tear gas was used to bombard the French at Verdun and at Nieuport. Again, the effects were so trivial that the gas went unnoticed.

At this point one of the great chemists of the twentieth century, Fritz Haber, a German reserve NCO of cavalry and artillery - and soon to be given an unheard of direct promotion to captain - enters the narrative.¹² Fritz Haber is one of the men who shaped the twentieth century both for better and for worse. His greatest scientific contribution, for which he won a Nobel Prize in Chemistry, was the invention of a process for nitrogen fixation.¹³

With respect to chemical munitions, Haber as Director of the Kaiser Wilhelm Institute for Physical Chemistry was aware of the "T-Stoff" projectile work that was being carried out among members of his staff. He saw a test for these projectiles in December of 1914 and was convinced that the weapon was quite useless.¹⁴ With typical creative insight, he suggested to the Supreme Command that a barrage of gas rounds fired from trench mortars might be more effective. The Army staff, however, told him that production capacity for this proposed new ammunition was not available.¹⁵

It then occurred to Haber that gas, particularly chlorine, discharged from cylinders would form a cloud. Haber recognized from the outset that the gas cylinder-gas cloud combination had serious weaknesses and was less than the best choice for a delivery system. These inadequacies of the gas cloud as a delivery technique for poison gas are well summarized in the words of the

Chief of Staff to the German Eighth Army on the Russian front, Major General Max Hoffmann, who wrote:

The idea of the emission of gases cannot be considered as a happy one; there were but few places on the front that were suitable for it; the digging in of the apparatus was very complicated, and at any moment there was the danger of the enemy noticing the work of digging in and by strong artillery fire destroying the apparatus and the gas would stream out in our own trenches. Besides this the weather conditions of our theatre of war were very unfavorable for such gas emission; in the East we required a West wind - in the West an East wind, but as on our front the wind was mostly contrary, the employment of this invention was rendered still more difficult. The hope on the German side that our opponents would not be able to initiate this process was also not realized.¹⁶

In spite of these clearly unsatisfactory characteristics, the Army's Supreme Command decided to proceed with the new weapon. The passage from tear gas to chlorine was not made without some soul-searching by the Supreme Command. Tear gas - and sneezing powder - could be viewed as non-asphyxiating and not deleterious (at least with respect to a long-term physical effect on its victims), and therefore not in violation of Germany's obligation under the Hague Convention. Although chlorine unquestionably is an asphyxiant, the relevant provision in the Convention was specifically limited to projectiles for diffusing the gas. As a result, Haber's gas cloud proposal did not violate the express wording of the Convention - it was not a projectile delivery system.¹⁷ With General Hoffmann's remarks in mind, compliance with the Convention seems to be the chlorine gas cloud's only positive attribute.

In any event, chlorine and commercial compressed gas tanks were at hand in

Germany and the combination could be made available quickly and in large quantities without significantly interfering with other war production activity.

The important salient around Ypres, in Flanders, was chosen for this first essay with a weapon of mass destruction. There were other potentially better sites but the Army commanders responsible for those locations all rejected this new weapon; only Duke Albrecht of Württemberg, commanding the Fourth Army before Ypres, agreed to its use.¹⁸ Their choice of Ypres, almost through default, also was not "a happy one." The terrain, although generally flat, is replete with shallow undulations and valleys of not more than ten meters in depth.¹⁹ These terrain features can disrupt the progress of the gas cloud and create local gas concentrations that would impede the progress of the German riflemen advancing behind the cloud, many of whom would not be equipped with gas masks for that first attack.

Perhaps the worst feature of Ypres as the place for a German gas cloud attack was its unsatisfactory wind structure. Generally, the wind in Flanders blew from the Allied side of the line to the German side. A favorable wind speed, also an important consideration, was capriciously unpredictable across the salient's front. These further considerations notwithstanding, work went forward.

The Ypres salient formed a "V" in which the apex of the "V" pointed almost directly east, into the German lines. The city of Ypres was located about in the middle of the open gap between the two arms of the "V," the arm that formed the northern flank being held by Algerian and Belgian troops who then joined near the apex of the "V" with the Canadian and British troops that manned the southern flank of the "V."²⁰

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(Continued)

The first gas cylinder batteries were dug in for use against the British occupying the southern flank and the work of emplacing these batteries was completed on March 10 of 1915. The batteries, in general, were organized in banks of ten commercial gas cylinders, each cylinder being about five feet tall and weighing, when filled, approximately 190 pounds. Each bank of ten cylinders, under the control of one pioneer, was joined through a manifold to a single discharge pipe. Emplacing these batteries in the front line, without alerting the other side, was not a simple undertaking but was quite a strenuous task that involved a great deal of physical labor. Interestingly, the first gas casualties on the Western Front occurred among the Germans who lost three soldiers to gas discharged from cylinders ruptured during an Allied barrage.²¹

After the batteries were in place on the southern flank of the salient, it was decided that wind conditions and the ragged configuration of the front line in that sector made it unsuitable for a gas discharge because the gas might blow back on the unprotected Germans. New batteries of gas cylinders then were dug in along the northern flank of the salient, the batteries being concentrated at Bixschoote near the junction between the northern flank of the salient and the front north of Ypres, and at Poelkapelle near the apex of the salient. On April 11, the batteries were in place on the north flank, ready to deliver about 150 tons of chlorine gas on order. An attack was planned to follow behind the gas cloud, along a southern axis to sweep across the base of the salient with the Bixschoote-Poelkapelle front as the line of departure for the German assault force.

After several postponements, always awaiting suitable wind conditions, the attack finally was ordered at 5:30 PM on April 22, 1915. What followed staggers the imagination.

As seen by the Canadians, who stood to the right of the Algerians, two greenish-yellow clouds formed on the ground and spread laterally to form a terrifying single cloud of bluish-white mist, much like the mist that forms over a meadow on a frosty night. The cloud moved before a light wind down on the Algerian trenches. The Canadians noticed a peculiar odor, smarting eyes, a tingling sensation in the nose and throat, and heard a dull, confused murmuring underlying everything.

Soon, Algerian stragglers began to drift toward the rear, then followed by horses and men pouring down the road and finally by mobs of Algerian infantry streaming across the fields, throwing away their rifles and even their tunics. One Algerian, frothing at the mouth, fell writhing at the feet of the British officer who tried to question him.²²

Sir John French, Commander of the British Expeditionary Force, tried to summarize the attack in the following words:

What happened is practically indescribable. The effect of the gas was so overwhelming that the whole of the positions occupied by the French Divisions was rendered incapable of any resistance. It was impossible at first to realize what had actually happened. Fumes and smoke obscured everything. Hundreds of men were thrown into a stupor, and after an hour the whole position had to be abandoned with fifty guns.²³

As seen by the Germans, the effects of the attack were horrible, the dead lying on their backs with clenched fists, the whole field bleached to a yellow color.²⁴ The Germans advanced until dusk, when the assigned objectives for

that day were reached. When the attack was renewed on April 23, the Germans found the Canadians filling the gap in the line that had been left by the gassed Algerians during the preceding afternoon. Resistance was stiff and, in classic Western Front style, the attack bogged down with no further significant gains. Poison gas was used five more times in this Second Battle of Ypres, but the Allied soldiers adapted well to the new weapon. Some, when the gas cloud was low-lying, would stand on a parapet to be able to breathe in the air above the lethal fog. Others soaked cloth in water and even in urine, and breathed through the cloth to prevent asphyxiation. By April 26, "Gas Masks, Type I," a rather useless patch of blue flannel mouth covering, was being distributed to the British troops in the line.²⁵ Thus, almost within hours of the first use, the new weapon was well on its way to being checkmated, a result that should have been apparent to the German Supreme Command from the outset, if only because of the high level of reliability established among commercial respirator manufacturers well before 1915.

There are two profound and still unanswered questions about the events of April 22, 1915.

First, the Germans finally had their break-through on the Western Front. By 7:30 in the evening, nothing stood between the Germans and victory but themselves. Why did the Germans not prevail? Second, apart from the clear understanding of the potential for asphyxiating gas as expressed in the Hague Convention, why were the Allies taken in such a deplorably unprepared condition? The Allies captured two German soldiers in Flanders, one on March 28 and the other on April 15. Both prisoners gave detailed information about the forthcoming gas attack, the prisoner taken on April 15 even having been captured with his respirator.²⁶ There were quite a few other indications that a chemical attack was

forthcoming, the most striking being the discovery, during a British attack on April 17 from the salient's southern flank, of some German gas cylinders actually in position.²⁷ Nothing was done; the cylinders were not even reported.

Any number of answers to these puzzling questions have been proposed through more than seven decades since the event. The best answer to both questions may have been given by Major General C.H. Foulkes, R.E., who commanded the Special Brigade, the British counterpart to the United States Army's Chemical Warfare Service, when he wrote:

Perhaps, too, the pre-war training in the war schools...had been too rigid, and in consequence staff officers failed to react to the suggestion that battle elements were about to be introduced with which they had hitherto been unfamiliar.²⁸

Footnotes

¹ Sir John French's dispatch of June 15, 1915 reporting the tactical effect of the April 22, 1915 gas attack on the Ypres salient. Quoted in "Gas!" The Story of the Special Brigade, Major General C.H. Foulkes G.B., C.M.G., D.S.O., William Blackwood & Sons Ltd., Edinburgh, 1934, p. 19. Hereafter cited as Foulkes.

² The Poisonous Cloud, Chemical Warfare in the First World War, L.F. Haber, Clarendon Press, Oxford, 1986, p. 15. Hereafter cited as Haber.

³ The Story of Fritz Haber, Morris Goran, University of Oklahoma Press, Norman, 1967, p. 67. Hereafter cited as Goran.

⁴ Goran, p. 67.

⁵ Quoted in Foulkes, pp. 22 and 23.

⁶ Foulkes, p. 23.

⁷ Haber, p. 23.

⁸ Foulkes, p. 31. Haber identifies the irritant as dianisidine chlorosulphate and describes the construction of the projectile at page 25.

⁹ The War of Lost Opportunities, General von Hoffmann, Kegan Paul, Trench, Trubner & Co., Ltd., London, 1924 (A.E. Chamot, translator), p. 84. Hereafter cited as Hoffmann. Hoffmann personally observed the assault and clearly states that gas projectiles were used in the attack. These shells (150 mm howitzer projectiles) were filled with "T-Stoff," a lachrimator comprising xylyl- and benzyl bromide.

¹⁰ Hoffmann, pp. 84 and 85. Ludendorff's Own Story, August 1914 - November 1918, Erich von Ludendorff, Quartermaster General of the German Army, Vol. I, Harper & Brothers Publishers, New York, p. 144.

¹¹ Foulkes, p. 31, refers to some support for the Verdun bombardment and Haber, p. 27, confirms use of tear gas projectiles at Nieuport.

¹² Goran, p. 75.

¹³ Goran, pp. 73 and 74.

¹⁴ Haber, p. 27.

¹⁵ Hoffmann, p. 103.

¹⁶ Hoffmann, p. 102.

¹⁷ Haber, p. 28.

¹⁸ Haber, p. 28.

¹⁹ Author's personal inspection, July 20, 1991.

²⁰ Foulkes, pp. 18 and 19.

²¹ Haber, p. 31.

²² Vain Glory, Guy Chapman, editor, Cassell and Company, Limited, London, 1937, pp. 136 to 139. Hereafter cited as Vain Glory.

²³ Quoted in Foulkes, p. 19.

²⁴ A Fatalist at War, Rudolf G. Binding, George Allen & Unwin Ltd., London (Ian F.D. Morrow, translator), p. 64.

²⁵ Vain Glory, pp. 142 and 143.

²⁶ Foulkes, pp. 31 to 33. The second prisoner's name was disclosed after the war. In 1930 he was tried for treason before a German court and sentenced to ten years in prison!

²⁷ Foulkes, p. 34.

²⁸ Foulkes, p. 29.

Editor's Note:

A partial answer for the questions with which Colonel Sinnot ends his essay

can be found in the following selection from Chapter 2 of Bruce Gudmundsson's Storm Troop Tactics: Innovation in the German Army, 1914-1918, (New York: Praeger, 1989)

The German High Command had conceived of the attack on Pilckem Ridge as an attack "with limited objectives", the twin goals of which were the capture of the high ground itself and the testing of the new weapon. Because of these deliberately modest goals, the troops of the 51st and 52nd Reserve Divisions that had followed the gas cloud into the French positions stopped as soon as they reached their objective even though there were no enemy combat troops between them and the city of Ypres. As a result of this lack of ambition on the part of the Germans, the Canadians holding positions south of Pilckem Ridge were able to scatter small detachments across the gap left by the routed French. By the next morning, the gap had been completely sealed and the subsequent attacks of the 51st and 52nd Reserve Divisions failed to make any headway against the Canadians.

By the standards of an "attack with limited objectives", the gas cloud attack at Ypres was a resounding success. The villages of Pilckem and Langemarck, whose capture had eluded the War Volunteers in November of 1914, were in German hands. Two thousand Frenchmen and fifty-one guns were captured. And the losses of the two Reserve Divisions which had suffered such casualties the preceding fall were insignificant; in the 239th Reserve Regiment (52nd Division), a few men were killed at the very end of the day by stray French shells, but no one was hurt by direct fire from the French positions.