Monkeyman.

Gas warfare 1915-1918. Medical and humanitarian challenges

Valencia 21-11-2018

If you could hear, at every jolt, the blood
Come gargling from the froth-corrupted lungs,
Obscene as cancer, bitter as the cud
Of vile, incurable sores on innocent tongues, -
My friend, you would not tell with such high zest
To children ardent for some desperate glory,
The old lie: Dulce et decorum est
Pro patria mori.

Maybe some of you recognise the last lines of Wilfred Owen's famous anti-war poem *Dulce et Decorum*, written in 1917, about two years after the first gas attack North of Ypres.

In it he described witnessing through the green goggles of his gasmask a man go to a slow and agonizing death because he had failed to put on his gasmask in time. To him this proved that it is anything but sweet and honourable to die for the Fatherland, as the saying goes. For Owen gas violated these rules because it was a silent, indiscriminate killer. Many, such as German author Erich Maria Remarque or British nurse Vera Brittain, agreed. By using gas one did not attack an enemy, but humanity as a whole. It shows that soldiers were not horrified by gas simply because it killed. Bullets and grenades did that too. Gas symbolized the dehumanizing nature of the war more than the deafening bombing and shelling they were used to. Silent as an assassin, it killed and wounded insidiously, randomly, never quickly and painlessly. Gas, in their eyes, was unsportsmanlike. This opinion is nowadays shared by almost all, but we shall see during and in the years after World War I many cared to differ; a split perhaps best shown by the British example. Most British soldiers condemned gas and so did their relatives on the Home Front. Nevertheless at the end of the war Britain was a leading nation in

the production of chemical weaponry. As the historian Julian Robinson explained: 'Gas had become a standard weapon, if not a universally popular one.'

To understand this paradox we first of all must have a look at the number of men fallen victim to poison gas. In the war as a whole, West, East and elsewhere, around 800,000 soldiers to 1,000,000 are said to have been affected by it, with a margin of error of an astonishing 200,000 either way, only counting the more or less seriously inflicted. If they reached a hospital they spent on average only about half as many days there as men hit by bullets or shellfire, so the resulting number of 'non-effective man-days' was significantly lower.

Estimated number of victims of chemical weaponry
First World War

country	wounded	dead	total
England	180.600	8.100	188.700
France	182.000	8.000	190.000
America	71.500	1.500	73.000
Italy	55.500	4.600	60.100
Russia	420.000	56.000	476.000
Germany	191.000	9.000	200.000
Austria	97.000	3.000	10.000
Others	9.000	1.000	10.000
Total	1.206.600	91.200	1.297.800

The death rate was only half that of wounds by rifle, machine-gun or artillery fire. After dramatic improvements to the quality of protective clothing, seventy per cent of gas casualties recovered fairly quickly; across all armies an average

of ninety-three per cent were able to return to the front in due course. The number of dead therefore was rather low. It has been estimated at 100,000, only about one per cent of the 10,000,000 total. In other words: 99 percent of the dead in World War I fell victim to what we now call conventional weaponry, 'normal' weaponry. One could therefore quite easily argue that gas, however indiscriminate, was anything but a weapon of mass destruction. One could even argue that those wounded by gas, compared to those hit by shrapnel or bullets, were the lucky ones.

Modern views, coming together in the title of a recent book on gas warfare in World War I *Innocence Slaughtered*, are therefore however understandable, also questionable. Understandable, because we all immediately relate to what it refers too. For the first time a non-discriminatory weapon, now called mass destructive, polluted the fields of battle. Warfare would never be the same again. The so-called 'fields of honour' were turned into fields of dishonour. All those, as Owen, who viewed upon war as a game, on which the rules of fair sports applied, in spite of being a bit bloodier and deadlier, were infuriated.
Of course this is utter nonsense. The history of war has not, is not and never will be written with words like innocence, and slaughter had occurred many times before 22 April 1915. Therefore, using these words anyhow makes one wonder 'why' and one of the answers certainly is perception. Besides as a war of shell shock, although no matter how many soldiers at some point or another failed to psychologically cope with the horrors of warfare, their amount was next to nothing to those who were wounded or killed as a result of bullets and grenades, we nowadays generally look upon the Great War as a war of poison gas.

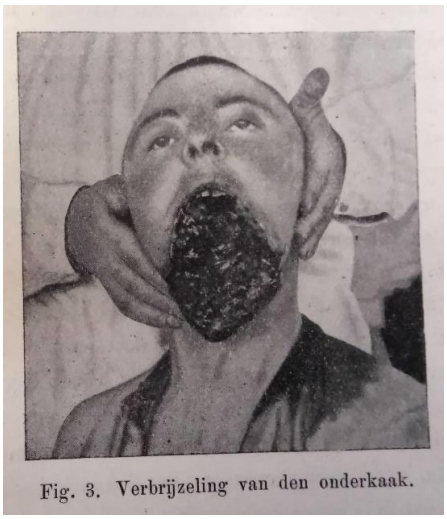


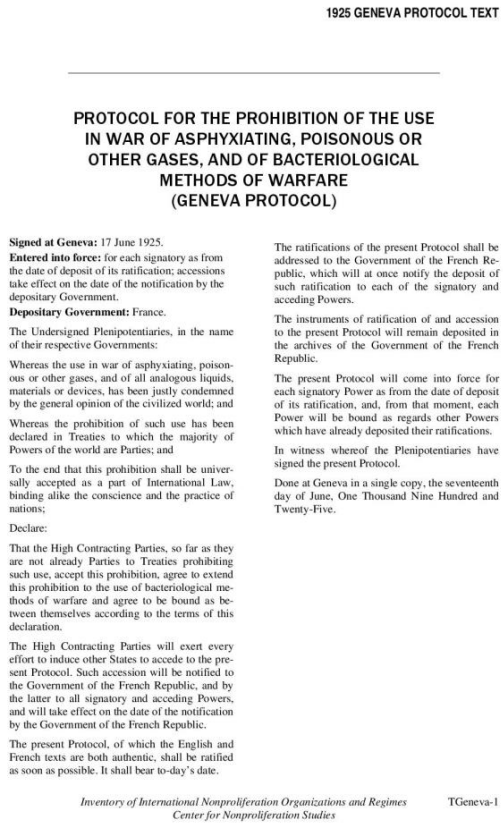
Fig. 3. Verbrijzeling van den onderkaak.

Actually it was a war of artillery, machine gun and often horrifying physical wounds, as the 9,900,000 victims of grenades and bullets prove. They too rarely died a clean, swift death, but a slow and obscene one.

No wonder there were other voices than Owen's. For instance, after first having given air to the outrage on the use of gas by one of his novel characters, calling it unfair, Henri Barbusse, the French communist author of the 1916 novel *The Fire*, had one of his main characters voice the opinion that he did not know why it would be more horrible to choke or drown to death as a consequence of poison gas, than to slowly bleed to death because a bomb splinter had torn your belly open. In his eyes gas only proved that despite all the rules of combat agreed at Geneva and The Hague, words like 'fair' and 'humane' are meaningless in war. What counts is victory, irrespective of the means by which it is achieved.

Although Barbusse in fact said that so-called conventional weapons were as bad and also should be banished from the face of the earth, many military men, including military doctors and even national Red Cross societies, not for a small part existing of military doctors, agreed. They even took the discussion a step further. Pointing at the difference in death-toll they said that all in all gas was a humane weapon, or at least far more humane than grenades and bullets had been and ever could be**.**

Nevertheless, in 1925 an agreement was set up to ban the use of gas from the battlefields, in a hopeless attempt to turn them back into the fields of honour they allegedly had been before April 1915.



1925 GENEVA PROTOCOL TEXT

PROTOCOL FOR THE PROHIBITION OF THE USE IN WAR OF ASPHYXIATING, POISONOUS OR OTHER GASES, AND OF BACTERIOLOGICAL METHODS OF WARFARE (GENEVA PROTOCOL)

Signed at Geneva: 17 June 1925.
Entered into force: for each signatory as from the date of deposit of its ratification; accessions take effect on the date of the notification by the depositary Government.
Depositary Government: France.

The Undersigned Plenipotentiaries, in the name of their respective Governments:

Whereas the use in war of asphyxiating, poisonous or other gases, and of all analogous liquids, materials or devices, has been justly condemned by the general opinion of the civilized world; and

Whereas the prohibition of such use has been declared in Treaties to which the majority of Powers of the world are Parties; and

To the end that this prohibition shall be universally accepted as a part of International Law, binding alike the conscience and the practice of nations;

Declare:

That the High Contracting Parties, so far as they are not already Parties to Treaties prohibiting such use, accept this prohibition, agree to extend this prohibition to the use of bacteriological methods of warfare and agree to be bound as between themselves according to the terms of this declaration.

The High Contracting Parties will exert every effort to induce other States to accede to the present Protocol. Such accession will be notified to the Government of the French Republic, and by the latter to all signatory and acceding Powers, and will take effect on the date of the notification by the Government of the French Republic.

The present Protocol, of which the English and French texts are both authentic, shall be ratified as soon as possible. It shall bear to-day's date.

The ratifications of the present Protocol shall be addressed to the Government of the French Republic, which will at once notify the deposit of such ratification to each of the signatory and acceding Powers.

The instruments of ratification of and accession to the present Protocol will remain deposited in the archives of the Government of the French Republic.

The present Protocol will come into force for each signatory Power as from the date of deposit of its ratification, and, from that moment, each Power will be bound as regards other Powers which have already deposited their ratifications.

In witness whereof the Plenipotentiaries have signed the present Protocol.

Done at Geneva in a single copy, the seventeenth day of June, One Thousand Nine Hundred and Twenty-Five.

Inventory of International Nonproliferation Organizations and Regimes
Center for Nonproliferation Studies
TGeneva-1

But the gas protocol did anything but finish the argument. Militarists began to argue in favour of gas warfare, trying as hard as they could to diminish the effects of the 1925-treaty and interpreting its rules in a way that gas could still be produced and preparation on future gas warfare could continue – of course only because of protection against an untrustworthy 'other'. A war solely waged with gas, would not be devastating, would not be horrendous. It would in fact be the most humane kind of war imaginable.

Cambridge biochemist J.B.S. Haldane, was one of those defending the weapon by pointing out that it caused much less harm than guns and shells. According to him, opponents to chemical weaponry were either radical pacifists or ignorant politicians led by fear of the unknown.

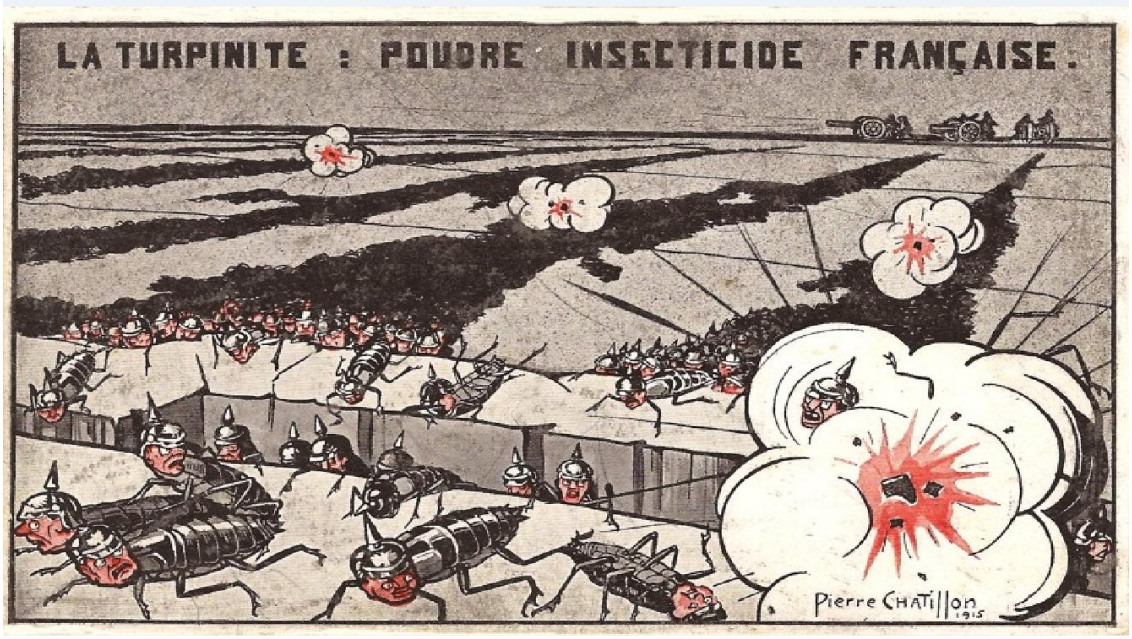
But an unknown weapon is not by definition more inhumane than an old one. Forbidding gas was, I quote, 'a piece of sentimentalism as cruel as it [is] ridiculous'. Another was German Otto Muntsch, in 1932 author of *Guide into Pathology and Therapy of Poison Gas Illnesses*. He was one of those justifying poison gas-use by saying that gas only stunned soldiers into inactivity, making it possible to capture and imprison them. After the war they could safely return home. Long-term side effects of gas were negligible. The immediate effects were more psychological than physical and rarely deadly. War always was nasty but chemical warfare, he said, came closest to offering a civilized way of waging it. This remark was regularly ridiculed, but nevertheless understandable. But is it also correct? To give an answer we first of all have to look at gas warfare itself.

When talking about gas warfare most stories begin on 22 April 1915 when north of Ypres Germany opened the valves of thousands of cylinders unleashing 168 tons of yellow-green chlorine gas.

It slowly drifted towards French and British trenches, in clouds that gradually turned into a bluish-white haze, six kilometres wide and 900 metres deep. The French soldiers, many of them from the colony of Algeria, were without any

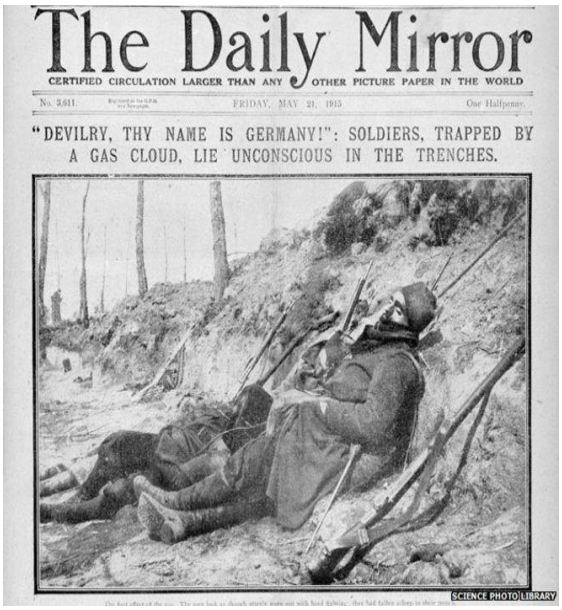
protective equipment, panicked and left a gap in the front almost eight kilometres wide. Men directly hit were unable to move and died a slow and horrific death. 5,000 Algerians are said to have been killed and between 10,000 and 15,000 to have suffered poisoning of varying degrees of severity, although it is conceivable that these figures were exaggerated somewhat by Allied propaganda. The advancing Germans saw nothing but the dead or seriously wounded. There was no resistance. German soldier Rudolf Binding noted in his diary: 'The consequences of the successful gas attack are ghastly. Poisoning people – I don't know.' And then he added: 'Of course, first the world will be furious and then it will do likewise.'

This was, however, not the first time chemists achieved an effect in the field. Tear-gas, for example, was already familiar, regularly used by the Germans, first at the end of October 1914. The French army had gone to war with around 30,000 shells containing a bromide-based concoction, called turpinite, resulting in a fair amount of German soldiers, in French propaganda pictured as insects to be exterminated, being admitted to hospital with symptoms of poisoning.



And last but not least: Both sides had already conducted experiments to study the military application of gas and had built up large stockpiles. As early as September 1914 both the British and the French had bought up supplies of chlorine gas. The French especially had considerable stocks of gas munitions by the time of the German gas attack eight months later.

This suggests that the British and French governments should not have been particularly indignant, indeed probably were not, when the Germans deployed their chlorine gas. It also explains why they were able to supply their troops with gas masks so quickly. It was not a question of who was the most barbarous, but more of who would be the first to start using 'the real stuff', which of course does not alter the simple fact that this were the Germans, a fact of course often used in allied propaganda.


The Daily Mirror

CERTIFIED CIRCULATION LARGER THAN ANY OTHER PICTURE PAPER IN THE WORLD

No. 3,611. FRIDAY, MAY 21, 1915. One Halfpenny.

"DEVILRY, THY NAME IS GERMANY!": SOLDIERS, TRAPPED BY A GAS CLOUD, LIE UNCONSCIOUS IN THE TRENCHES.

SCIENCE PHOTO LIBRARY

The attack in April 1915 only had a short term positive effect from a German point of view. The Germans were surprised it had been such a success, and

therefore failed to arrange for sufficient reserves to follow up. As a result, allied reinforcements were soon able to close the gap.

Only two days later a second gas attack was staged, this time on Canadian positions at St Julien. But the Canadians, using handkerchiefs and hand-towels drenched in water or urine as emergency gas masks, prevented another collapse in the front.

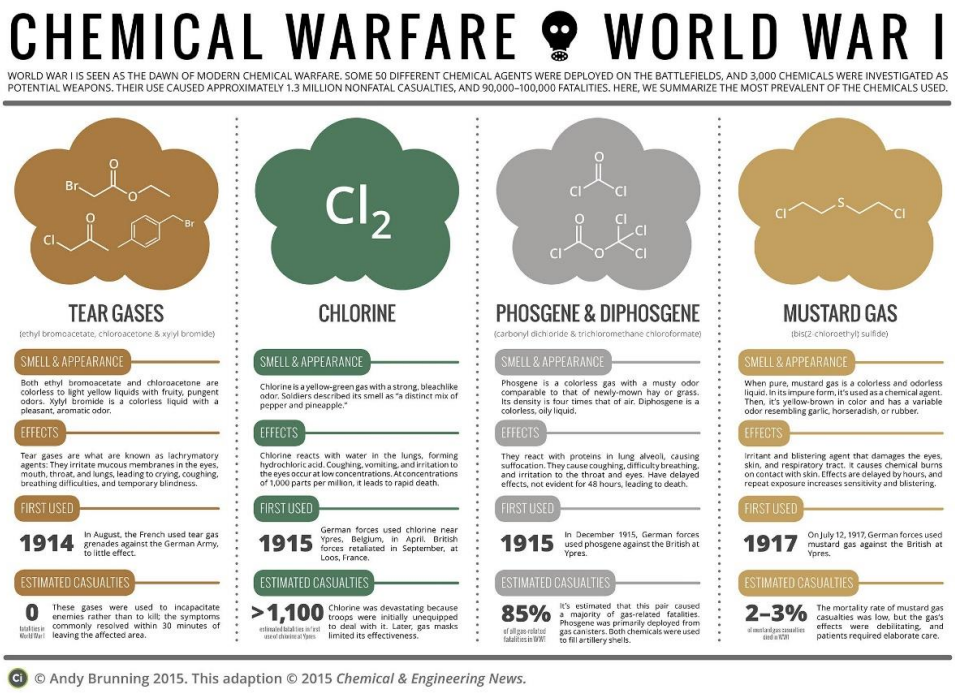
The costs were bitter. Of the 18,000 Canadians holding the sector, 2,000 were killed by the poisonous fumes. The next day, during an Allied attack, the Germans released a cloud of gas that hit mainly French colonial troops from Senegal. Out of sheer terror they killed their own officers, who had been told to shoot them should they turn and run. A British cavalry brigade 'restored order', so to say.

Sixty per cent of the Canadians affected in those days had to be sent home. When the war ended, many were still unable to work and would remain so for the rest of their lives, which were expected to be short. This scenario repeated itself. Gas use only had local success and it soon proved itself not to be the military wonder weapon the Germans had hoped for. They had to wait, I'm sorry to say, for the Spaniards under Franco to proof that in certain circumstances, being the Moroccan war in the nineteen twenties, it certainly could be.

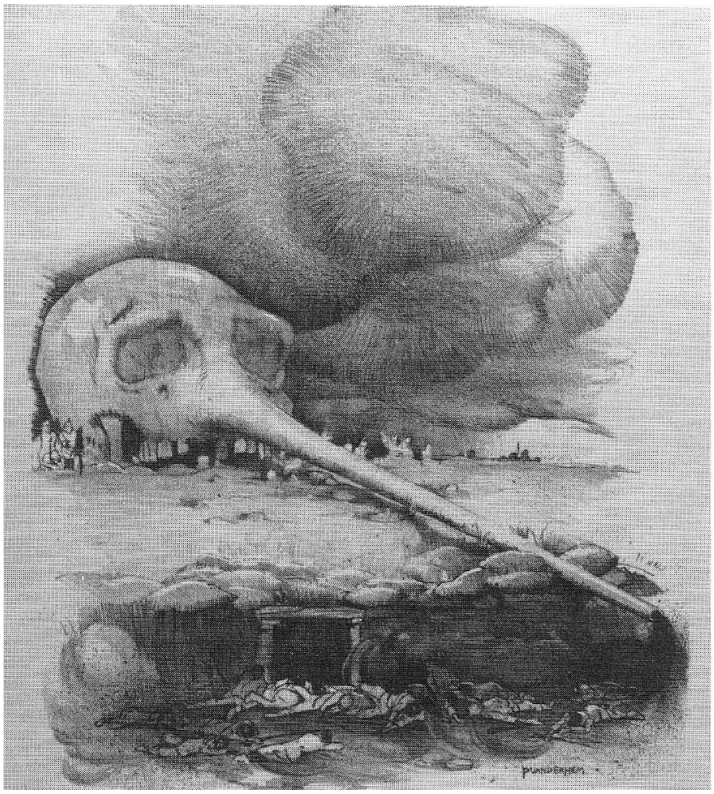
In spite of the limited successes, it did not take long before the allied troops also used poison gas. In the autumn of 1915 as well the French as the British used gas, again without much military advantage. At the battle of Loos, 25 September 1915, the British, used it for the first time. Because it was to be deployed in support of a French attack, they were unable to wait until the most suitable moment, as the Germans had done at Ypres.

They were forced to release the gas on a specified day at a pre-arranged time. Resulting from a changing wind, the British probably suffered even more gas casualties than the Germans.

Loos left no one in any doubt that a gas arms race had started.



Both sides quickly began training special troops, an overall total of some 17,000 men. Competition increased as new gases were concocted to penetrate the latest gas masks. In a fairly disorganized, sometimes chaotic quest, with doctors and pharmacologists playing an increasingly prominent role, and not only in constructing protection, thousands of new and diverse agents were discovered and tested in laboratories on both sides. An average of once a fortnight a new gas was released somewhere along the front. Thirty-eight of them were used on a significant scale: twelve kinds of tear-gas, fifteen kinds of suffocating gas, three blood-poisoning gases, four gases that burned the skin and four that affected the stomach.



During the war a total of 136,200 tons of chemicals were released into the atmosphere. Although several kinds of gas proved effective, experiments continued, since it was believed that the use of a wide diversity of gases, often in combination, would make it harder for the enemy to take defensive measures, even though some products were virtually useless as weapons. It is illustrative of the fact that the Great War altered the relationship between military men and scientists. Before 1914 they had occupied separate worlds, but now the distinction was eroding steadily. Fundamental research, once it became focused on the military situation, quickly transformed into applied research. More and more scientists began to see the laboratory as their battlefield, just as front-line doctors and psychologists increasingly regarded the battlefield as their laboratory.
This competition lasted throughout the entire war. 1918 even showed a considerable escalation in the gas war.

At least one in every five German shells, who had by then replaced the cylinders, was filled with gas. As a result the British army had more gas casualties to deal with that year – over 110,000 – than in the previous three years put together. The proportion of German casualties attributable to gas, only 0.85 per cent in mid-1915, reached 4.6 per cent by 1918, firstly because gas discipline in the German army had begun to decline and secondly because in June 1918 the Allies started using mustard gas more and more, first used by the Germans Summer 1917. Whereas in May a little over 3,000 German gas casualties reached hospital, in June 6,000 were treated and in July no fewer than 12,800. 1918 became the year in which gas defeated all the previous ones from a humanitarian perspective too. Although the number of deaths from gas declined as a percentage of those affected, absolute numbers steadily increased. According to historian Denis Winter the last year of the war mustard gas was responsible for ninety per cent of gas casualties and fourteen per cent of casualties overall. Soldiers will not have been sorry that the first shipment of an even more effective American version of mustard gas called Lewisite did not reach the coast of Europe until after the armistice had been signed.

1918 Also was the year in which the International Committee of the Red Cross in Geneva finally complained, after years of silence resulting from its definition of neutrality: never instead of always openly attacking violations of the rules of war. In its eyes too, war had to be a contest of one army against another, if possible only armed with bows and swords, and may the best army win.

Chemicals violated this romantic view on warfare, however mythical. Sadly enough both warring sides accused the committee of breaking neutrality and supporting the other side, resulting in even greater Red Cross' reluctance to speak publicly on political matters, for decades to come. If Britain, Germany and others had not reacted upon the Red Cross-complaint with rage but with shame, maybe it would not have refused to hand over its findings on the use of Gas by Italy in Ethiopia and maybe the reports the Genevan Committee wrote on German camps in World War II would have been more courageous. And, possibly, it would not have accepted its national Red Cross-organisations to openly support

national chemical warfare-programs even after the protocol had come into existence.

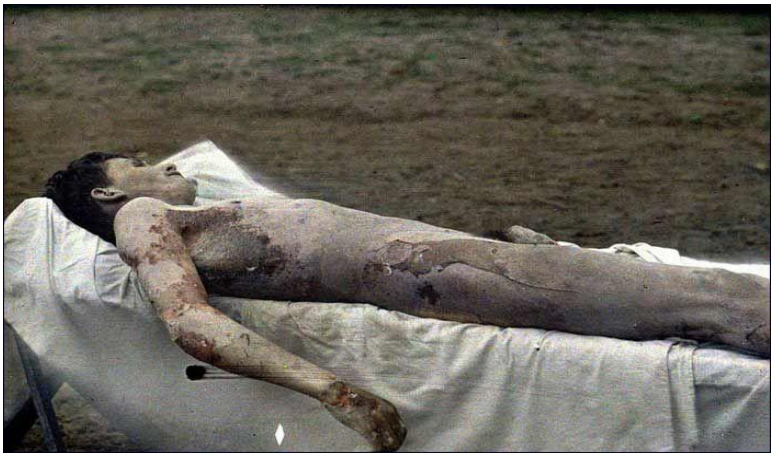
Of the many chemicals used – not all gasses in the strict sense of the word, but fluids and even solids – phosgene and mustard were the most effective and the most feared. Phosgene was one of the first gases to be deployed in shells rather than cylinders, who had the enormous disadvantage that the direction in which gas moved once it had been released could not be controlled.

In shells the gas was not released before it had reached enemy lines. Phosgene was first used by the Germans shortly before Christmas 1915, again near Ypres. It was ten to twenty times stronger than chlorine and a thousand British soldiers were poisoned, of whom 120 died. It affected not only men. Historian Martin Gilbert wrote that because of a German gas attack on 30 April 1916 at Verdun – in which nearly 600 British soldiers were poisoned, eighty-nine of them fatally – the grass shrivelled and eleven cows, twenty-three calves, one horse, one pig

and fifteen hens died. The Germans tried out an ‘improved’ version of phosgene for the first time and even the doctors and nurses who treated the casualties were overcome by the fumes. Even when they had their gasmasks on, from time to time one would clutch his throat and fall to the ground.

In contradiction to chlorine phosgene was practically odourless and invisible. Furthermore, when first inhaled it was only a slight irritant, so many men did not realize in time that they were breathing a lethal concentration of gas. This made it greatly feared, which only increased after shells were used. They turned out to have another advantage, from the users point of view, besides having the chemicals directly were they should be. Soldiers were amazed to see shells all failing to explode on landing. They thought that for some incomprehensible reason the Germans were firing a large number of duds. Soon they realized their mistake. They put on their masks, but the coughing and spluttering only got worse, not only because they had already inhaled a substantial dose but because better masks were needed to filter out this new gas.

Phosgene was the most feared but not the most deadly of gasses. That was the five times stronger mustard, one of those gasses not actually being a gas but a brownish liquid.



Shells containing it delivered it in the form of a mist of fine droplets that would spread far and wide. It was intended to make an area impassable but of course it also drenched those who were in the vicinity. It penetrated clothing and caused painful, suppurating blisters.

Mustard gas was first used near Ypres in mid-July 1917. More than 50,000 shells containing the liquid were fired. The number of casualties per shell was negligible, but the sheer quantity meant doctors had to work day and night. Several thousand Allied soldiers were poisoned and eighty-seven died. Over the next three weeks a million shells, 500 dead and thousands more wounded followed. Within a month and a half, almost 20,000 British soldiers had been affected; many were blinded, either temporarily or permanently, and around 650 died within ten days of an attack.

Five days after the Germans first deployed mustard the British already retaliated. A staggering one hundred thousand shells containing the British version of mustard gas were fired. Seventy-five Germans died.

Again these death rates do not sound that horrendous; at least compared to what was normal in 1914-1918, with its 6000 deaths on average daily. Nevertheless, we now enter the section explaining why tales of humane gas warfare cannot be trusted. As said, certainly in the time cylinders were used gas was uncontrollable, mastered only by the wind, and was indiscriminately breathed in by or dripped onto soldiers and non-combatants alike.

It killed silently by suffocation or burning your skin. This sense of horror is another reason why fear of gas was more rational than the mortality statistics might suggest. It terrified both sides. Men waiting for a favourable wind to allow them to release their gas were fearful their location would be discovered and the full force of enemy artillery targeted on them and their gas cylinders and shells. Some companies were more likely to arouse the hatred of the other side than others, and gas companies – next with flamethrowers - were probably among the first of them.

Accidents, leakages, enemy shellfire hitting stockpiles of gas and changes in the wind caused deaths and kept on causing deaths among those using or intending to use it. There was always a chance that a gas cylinder would be hit even if no one was deliberately aiming at it, and since the men would not be expecting a release, the consequences, for failing to put on the masks in time, might well be worse than during a planned attack.

There are some problems when looking at the health effects of poison gas. For instance. In an abundance of victims it will be enormously difficult to separate the effects of gas from all the other mischief war has brought upon them, all the more when taking psychological problems into account.
Secondly, doctors too have looked upon chemical weaponry as a normal, or even humane weapon, or at least as a weapon giving their country the upper hand in the war, making them keen to downgrade the effects and subscribe health problems either to other circumstances, or even to the patient himself, picturing him as a malingerer and coward trying to get out of the war. This means that not all medical accounts of poison gas-use are as truthful and trustworthy as they should be.
Nevertheless, it can be taken for certain that, even if death did not occur, health problems often were anything but minor. An autopsy report of a soldier who died ten days after being poisoned, reveals the horrific effects of what was probably mustard gas.

> Brownish pigmentation present over large surfaces of the body. A white ring of skin where the wrist watch was. Marked superficial burning of the face and scrotum. The larynx much congested. The whole of the trachea was covered by a yellow membrane. The bronchi contained abundant gas.

> The lungs fairly voluminous. The right lung showed extensive collapse at the base. Liver congested and fatty. Stomach showed numerous sub-mucous haemorrhages. The brain substance was unduly wet and very congested.

The soldiers who had to deal with gas in April and May 1915 had a hard time believing it was not very effective, and this was completely due to the medical effects. Sergeant Billy Hay wrote about his first experiences with gas in the spring of 1915:

> The chaps were all gasping and couldn't breathe, and it was ghastly. (…) And it caused a lot of mucus, phlegm, your eyes were stinging as well.

Sixty per cent of the Canadians affected in those days had to be sent home. When the war ended, many were still unable to work and would remain so for the rest of their lives, which were expected to be short.

Most casualties arrived at aid posts only after several hours and by then the effects had reached the next stage. The yellow foam that had streamed incessantly

from their mouths and noses had now turned to mucus, spotted red from the bleeding of their lungs and airways. Lack of oxygen had exhausted them and their chests were swollen by the accumulation of fluid. Certainly inhalation of phosgene could lead to serious lung damage. Slow death by drowning on land took about two days. If pneumonia followed, which was the case regularly especially after inhaling mustard, medical intervention was futile.

Mustard took about two to six hours to visualize effects: slight swelling and red blotches, but soon enough it showed itself to be extremely poisonous. After about twelve hours large blisters developed, the eyes became extremely painful and swollen. Vomiting began. Body temperature rose. Pneumonia developed. The bronchi and mucous membranes corroded away. Jaundice consumed the body from inside and out.

Sometimes great chunks of bronchial tubes were coughed up, seared genitals lost, or burns developed that went right through to the bone. The pain was unbearable and the worst affected patients had to be tied to their beds, where they usually spent four or five weeks, many leaving only for burial. Casualties hovered

on the verge of death much longer than victims of other gases, who were generally out of danger if they survived the first forty-eight hours. Death from mustard usually occurred between one and three weeks after poisoning, mainly as a result of secondary infections to the airways.

This makes abundantly clear that, even if death did not occur and even if the affected soldier could be proclaimed 'cured', be it militarily or even medically, after effects could last for years, even for the rest of a man's life. The corrosion of the lungs rarely healed completely and lung damage often caused a thickening of the blood, which has led to serious heart problems. Loss of vision often manifested itself as a major injury only later.

In 1918, the Dutch surgeon J.W.P. Fransen published his *First Surgical Treatment of War Wounded* based on his wartime experiences. One chapter of the volume dealt with the treatment of gas poisoning.

The only conclusion one can draw is that there were few medical solutions, a position that was in line with the opinions of his surgical and non-surgical

medical colleagues elsewhere. Physicians ‘failed to master gas weapon injuries’, as the historian Marion Girard put it. The treatment of gas illnesses and wounds was the treatment of symptoms. The only way to get the chemicals out of the body once they had entered was to give them time and hope that the dose was small and the poisonous fumes or drops not too strong. All doctors could do was to advise victims to keep warm, drink plenty of water, say one’s prayers, and with time and patience hope things turned out for the better. In this inability to combat gas poisoning, Fransen acknowledged his underlying helplessness as a doctor.

Furthermore, doctors and nurses often were too flabbergasted to react swiftly and rational. ‘Nothing in their experience’, Lyn MacDonald wrote in her *Roses of No Man’s Land* on the World War I-nurses, ‘had equipped them to deal with wards full of men gasping for breath; with the terrible rasping sound of their struggle; with their blue faces and livid skins; and, worst of all, with their terror as the fluid rose higher and higher in the lungs until eventually they drowned in it.’

This terror was made worse when the men were blinded and trapped in darkness.

This not necessarily meant their eyes themselves were ruined. American medical officer Bernard Gallagher saw men with, I quote, 'the face and eyes so badly burned and swollen that their eyes were completely shut and one would hardly recognise the face as that of a man.' Belgian doctor George Duhamel saw a soldier whose eyes 'had quite disappeared under his swollen lids. His clothing was so impregnated with the poison that we all began to cough and weep.' What also did not do any good for regaining high spirits was that, contradictory to eyelids, testicles shrivelled after being exposed to mustard. Those who were able to walk again after a few days, could only do with legs wide apart. Corporal H. Bale, blinded by mustard, described what happened after he had reached a clearing station.

> They told us, 'Open your mouths'. We waited and suddenly someone shot something like 200 per cent ammonia into your mouth. It nearly knocked the top of your head off. Even worse was when they opened your eyes to put droplets in them – it was just like boiling water dropping in!

Maybe Nurse C. Macfie was the one giving the shot and the droplets. She wrote:

> The mustard gas cases started to come in. It was terrible to see them. … The poor boys were helpless and the nurses had to take off these uniforms, all soaked with gas, and do the best they could for the boys. Next day all the nurses had chest trouble and streaming eyes from the gassing. They were all yellow and dazed. Even their hair turned yellow and they were nearly as bad as the men, just from the fumes from their clothing.

During the final offensive, in September 1918, nurse Jane De Launoy described the following scene.

> The gassed men lie fully dressed on their beds, unable to breathe, blue, wild and unkempt, with clenched fists. Some find it impossible to lie still, others are flat on their backs with cuts to their arms where we have to extract 400 grams of blood. Mustard gas, phosgene... Many will never recover their sight.

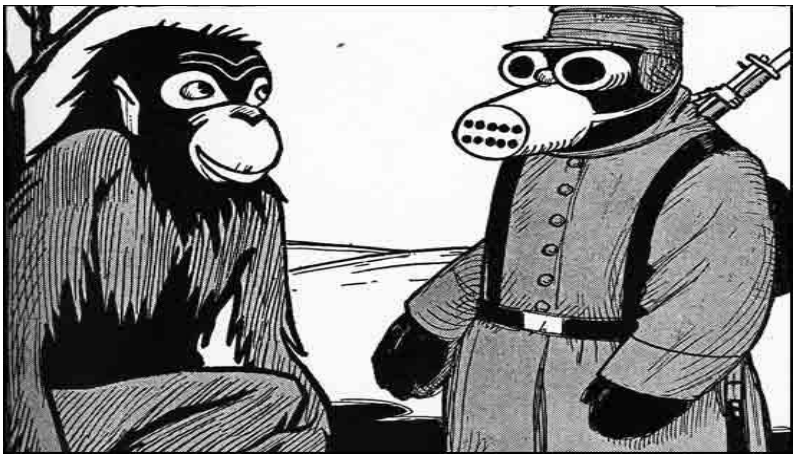
A humane weapon indeed.

Because medical care could seldom cure them, prevention was the most logical answer. The gas race was accompanied by a gasmask race and the masks too became more and more efficient.

But as the gas the gasmask not only had direct effects - saving lives – but also indirect: making life even more unbearable and harshening the battle. Both were the consequence of the fact that the masks stripped soldiers of the only thing that they could call their own: their faces. Gas, soldiers said, was an inhuman *way* to fight wars; gasmasks turned the war literally *into* an inhuman one. Masks and other protective clothing had the ironic effect that everyone looked like everyone else, turning each soldier even more into a part of the whole yet at the same time making them more isolated. As a result they not only protected soldiers from the physical effects of gas, but were a source of psychological damage at the same time, only strengthening the depressing, mad making effect gas itself already had.

Not considering the handkerchiefs soldiers had urinated on – which by the way was not as silly as it sounds - the early masks were only effective for about half an hour.

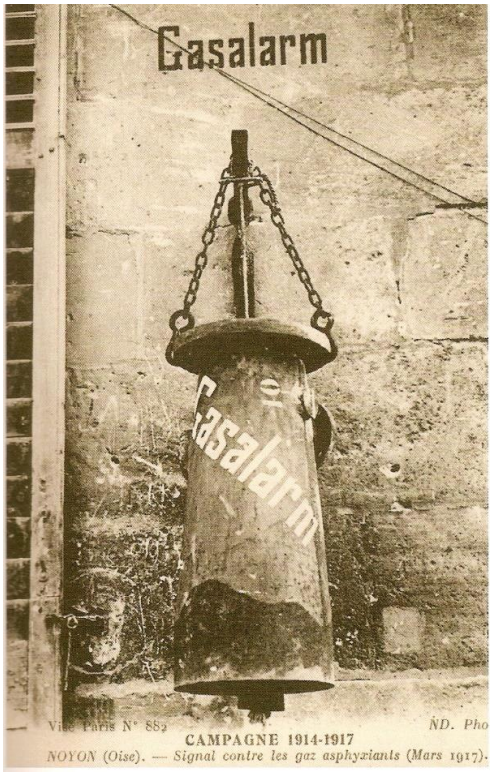
Eating and drinking were quite a performance. It was hard to move around. Hearing was compromised and the glass eye-pieces fogged up quickly. Ironically the fabric the early gas helmets were made of was impregnated with chemicals, which mingled with sweat, dribbled out and irritated the skin. In fact, they were so uncomfortable that the desire to be able to see properly and the urge to end the feeling of suffocation they gave, sometimes led to masks being taken off too quickly resulting into real suffocation. No wonder it was the mask, even more than gas itself, that inspired Dutch cartoonist Albert Hahn to question mankind's evolution. Criticizing the effects of industrial warfare he linked a soldier wearing a gas mask with a monkey.



In his eyes the need to use gasmasks proved that the war was inhumane, regressive and bestial. The gasmask, and therefor gas, turned soldiers into animals, more 'monkey' than 'man'. It was a comparison heard more often. Belgian soldier-poet Daan Boens expressed similar sentiments in his poem 'Gas': 'The masks around the cheeks cut the look of bestial snouts'. British soldier Alan Hanbury-Sparrow not only talked about gas as 'the Devil's breath' but also said that when wearing gasmasks they looked like 'goggle-eyed, imbecile frogs'. And Frenchman Ronald Dorgelès said the masks transformed men's faces into identical 'pig-

snouts that represented the war's true face,' as shown for instance in a drawing by the German artist-soldier Otto Dix.

All this shows that - even if we would agree that some weapons can be more humane than others – chemicals were not one of them. But the most important reason for this was not that protagonists of gas warfare trivialized the deadly, physical and psychological effects or overestimated the protection of masks, the assistance medics could give or thought that the gas alarm bel always rung in time instead of regularly too late, but because their reasoning was false.



Victims of poison gas were not taken prisoner after having become unconscious – a rather euphemistic word. This implies that gas was used instead of other weapons. In fact it was used in combination with. After having been intoxicated soldiers were bombarded, shot or worked upon with a bayonet. Gas did not do away with other horrors of war, it added one more.

Soldiers were aware of this. Even if directly speaking gas was largely a non-lethal weapon, they nevertheless were convinced – and rightly so - that it was a weapon that often proved fatal; be it indirectly. A British gunner wrote in 1915: 'They bayonet everyone who has been too overcome by the fumes to move and then turn their high explosives onto the wretched crowd of people who remain struggling for breath.'

On top, we must have a closer look at the numbers used. Gas was said to have a fatality rate of only two percent, which is low compared to the total fatality rate of 10. First of all, this is a percentage that only relates to casualties registered as such. Those who died immediately or almost immediately and therefore did not reach first-aid posts are not included in the statistics, certainly not if they were also hit by shellfire be it before or after death.

Maybe being capable of getting to an aid-post already showed you had a fair chance of survival. And how severe did a man's condition have to be before being diagnosed as poison gas-sufferer? Gas in small doses was rarely if ever fatal, and most cases of poisoning were minor. Among serious cases the death rate was as high as twelve per cent. Secondly, 'recovered' meant 'returned to the front'. If a poisoned man could walk and swing his arms he was declared healthy; no one asked whether he was really physically and mentally fit to face the horrors of the front once more, let alone looking at later effects of poisoning.
All this makes clear that any assessment of the effects of gas must take into account the indirect casualties, and that, despite the apparently low mortality rate, it is understandable that many personal accounts of the war emphasize the horror of seeing gas casualties, denying it every bit of humane character.

To end. Does this mean that Owen was right and Barbusse mistaken? No. They were both right. We have to ask ourselves why pictures of chemical weapons used have such an enormous effect on us; an effect so much greater than,

objectively speaking, other no less horrible pictures of war and destruction such as cities bombarded to oblivion.

Generally, as the soldiers and poets of 1914-1918, people are outraged if gas is used, as if still the notion exists that war should be good sport, abiding to the rules. This outrage is justified, but nevertheless the contradiction between this distaste for gas and the way we talk about 'conventional' weapons is striking. This goes even more for nuclear weapons, unless in the hands of a state considered hostile, a state framed as 'the other'. To illustrate: during the Great War gas was used for three and a half years. In the Second World War nukes were used twice.

But they produced almost the same percentage of dead and in exact terms about 2,5 times as much. Is it that, after the war-ridden twentieth century, we are used

to pictures of destruction resulting from bombs dropped by planes or fired by guns placed miles away, but are not used to pictures resulting from gas-use; pictures not of destroyed houses showing bodies covered in dust but of children gasping for breath, covered in blisters? This unsettling effect is certainly a good thing, but the numbness, the disinterest concerning other types of warfare - not to mention the refugee streams following from it - certainly is not.

Thank you for your attention.

Leo van Bergen

Medical historian