

Chemical Weapons: from humane to mass-destruction

The English-soldier-poet Wilfred Owen, probably the best of all war-poets,



wrote about the horrendous things he encompassed in the trenches of World War One because he wanted to speak for the soldiers who could not speak for themselves and because he wanted to warn mankind of the horrors of war. And there was a lot he could talk about. World War One is famous for its horrible circumstances, also hindering medical care,



It is famous for its shell-shock,





and for its horrendous wounds.

Otto Dix: Verwundeter (Herbst 1916, Bapaume)





But World War One also is famous because it was the first war in which poison-gas was used, and one of the poems Owen wrote was about a man who, through the green glasses of his gasmask, saw another man die of poison-gas.

As under a green sea, I saw him drowning.
 In all my dreams, before my helpless sight,
 He plunges at me, guttering, choking, drowning.
 [...]
 If you could hear, at every jolt, the blood
 Come gargling from his 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.

This lecture is dedicated mostly to chemical weapons, one of the weapons nowadays generally incorporated into the Weapons of Mass-Destruction. They are also part of the non-conventional weaponry, weapons that have an effect above that of the immediate blast or impact, or of the ABC-weapons (atomic, biological and chemical). There are of course also weapons that could be called in-betweens, such as landmines. They are filled with conventional explosives, but as a matter of fact do not take any notice of the boundaries of warfare. When a peace-treaty is signed, landmines are as hazardous as before. They are available in all sorts. Some of them have a blast that kills instantly, others 'only' take of a foot or leg. For the men amongst you: there is also a landmine that, when stepped on, jumps into the air for about one meter, exploding right in front of your manly parts. As a result of the doings of the International Campaign to Ban Landmines, there is a Mine Ban Treaty since 1999, signed up until now by almost 150 state-parties. The treaty comprehensively bans the use, production, and trade of antipersonnel mines, and requires destruction of stockpiled mines within four years and clearance of all mined areas within ten years. It also obligates states to assist landmine survivors. This is a huge success that sadly enough is tempered because a quarter of the state parties has not yet signed it, and amongst them are some very important ones, such as the three recent landmine users, Burma, Nepal and Russia, and also the United States, who might resume production of antipersonnel mines for the first time in about a decade. Also nine other landmine producers: China, Cuba, India, Iran, North Korea, South Korea, Pakistan, Singapore, and Vietnam are not amongst the ones who signed the treaty.

That landmines are called an in-between immediately shows that calling chemical weapons ABC-weapons, non-conventional-weapons or Weapons of Mass Destruction, is more than a play of words. Some even say that *landmines* should be called weapons of mass-destruction. Not because one landmine kills in abundance, but because there are so many of them, killing or invaliding at least one person each time they explode. Nowadays hardly anyone questions if chemical weapons should be called weapons of mass-destruction, but in fact this is a fairly new insight. And indeed it stands not to debate that the impact of chemical weapons stands in no comparison with that of nuclear weapons; not in numbers, and not in short or long term effect. It is my conviction that the term Weapons of Mass Destruction is deliberately advocated by countries in possession of nuclear weapons to minimise the threat coming from these weapons and focusing

attention on the weapons of poor countries and terrorist groups. Again and again the impact of chemical weapons proved to be psychologically at first, which – together with the low cost - directly explains why it is a favourite weapon of terrorists. Chemicals spread fear, even more than death. In certain circles for decades chemical weapons were even advocated as a humane weapon. That of course is somewhat overstated, to put it mildly, but indeed the distinction between the fear spread and the actual damage done, has from time to time even been so great that chemical weaponry can be called one of the evidences that fear is a highly irrational emotion. And because it is irrational it is as true as it is silly to say that the change of becoming a victim of a terrorist attack, with or without chemicals, is much smaller than becoming the victim of a car-crash and that therefore one should be more afraid of stepping into a car than of terrorism. But although this is completely true, the poem of Owen was not written for nothing. Even if they do or did not die, and even if they recover or recovered completely, those hit by chemical clouds or chemical liquids or chemical particles – in fact gas is an overall word for all kinds of chemical weaponry – are and were seldom to be envied. Depending on the kind of gas, one can choke, one can be blinded, ones skin can be burned etcetera etcetera.



World War One nurse Vera Brittain commented:

I wish those people who write so glibly about this being a holy War, and the orators who talk so much about going on no matter how long the War lasts and what it may mean, could see a case – to say nothing of 10 cases – of mustard gas in its early stages – could see the poor things burnt and blistered all over with great mustard-coloured suppurating blisters, with blind eyes [...] all sticky and stuck together, and always fighting for breath, with voices a mere whisper, saying that their throats are closing and they know they will choke. [...] And yet people persist in saying God made the War, when there are such inventions of the Devil about...

As said: it is no surprise that as well Owen as Brittain respectively fought and nursed in the war of 1914-1918, a war dominated by shell but personalized or better: depersonalized by gasmasks.



In the vicinity of the Belgian town of Ypres at the end of April 1915 for the first time in history a chemical weapon – to be more precise: chlorine - was used. That it was this war who had the doubtful honour of being the first, has first of all to do with the chemical revolution of about 1900, but secondly also with the trench warfare nature of it. The Second World War for instance knew no gas-clouds at the fronts, because it was a war of movement. It was a *Blitzkrieg* in stead of a *Sitzkrieg*. The effect of the April 1915-attack was so great it even surprised Germany, the side using it. It started a chemical weapons race in two ways. First of all of course a race between both sides in who could make even

more horrendous or military effective weapons – which is often but not always the same thing – and secondly a race in gas-protection. Very quickly the urinated handkerchief was replaced by masks and even suits, not only for men but for horses as well.



Both races influenced each other. The protection the masks gave had to be overcome so this again led to new chemical weaponry for which masks offered no protection. Etcetera etcetera. It led to the use in the midst of 1917 of the most horrendous of battle-gasses: mustard gas. This gas – or better: this liquid - was more meant to make certain areas uninhabitable than to kill or injure. In practice it did both. When it touches the skin or the eyes or when it is inhaled, it stains. The skin turns red and when exposed to enough of it, blisters form. On the lungs and eyes the effect is devastating. In the trenches of 1914-1918 mustard was feared because it could penetrate the protecting clothes of those days. But to show that even this horrific gas is only horrific when used as a weapon, modern forms of it are used as chemotherapy, especially against leukemia. This means directly that a gas is only a battle-gas when used in battle. So not the production of chemicals which *could* be used as weapons is prohibited, but the aim of or

the use of those chemicals for destructive means. Battle-gasses are chemicals in whatever form used in times of war or other times of death and destruction, to bring damage to the so-called enemy or hinder his campaign so much that fighting becomes impossible. Categories are paralysing or killing nerve-gasses as sarin, lung-poisons as fosgene or chloride, and blistering poisons as mustard.

Because of this constantly changing nature of the chemicals employed, medical aid was in fact little more than making the patients as comfortably as possible hoping the dose was not high enough to kill or to do permanent damage. Keeping warm, giving water and oxygen, saying prayers, taking time and hoping it would be alright: in fact that was what it came down to and what was the first resemblance between the many different measurements taken in different countries on different fronts. The second was that also fighting gas-injuries had the character all measurements taken against illnesses and wounds had and mostly still have: military necessity goes before medical necessity. What is considered good for the fighting-strength of the entire army, stands before what is good for the health of the individual soldier. But it has to be said. In most cases they were alright after a while. One of the few good things of gas warfare is that circumstances have to be very favourable to gain the militarily spoken maximal effect. The wind not had to be too soft, but also not too strong, and of course it should point in the direction of the enemy. For instance: when the British in 1915 retaliated with gas of their own, at a place called Loos, wind fell silent or even turned, so the chemicals did more harm amongst the own troops than amongst the German ones. Military euphemism for this: friendly gas.

In the mean time the advocates of poison-gas kept saying that the fear for gas was out of proportion with the damage done. In their eyes gas made a man unconscious and after that he could be made prisoner. Effects on the long term were small, and direct effects were often more psychological than physical. As said: they were not completely wrong. Not only the amount of dead was low, also the percentage of wounded as a result of gas was much lower than with other weapons. One could even say that those bumping into gas were the lucky ones, compared to those bumping into shrapnel or machinegun fire. During WWI around 800.000 soldiers fell victim to gas, compared to about 40.000.000 wounded in total, and they remained, compared to those fallen victim to conventional weaponry, half of the days in hospital, and not because they died. The so-called non-effective casualties as a result of gas, were therefore much lower than as a result of

artillery or gunfire wounds. And also the death-percentage was much lower. From the 180.000 British gas-wounded about 6000 died and 10.000 were invalided. So more than 160.000 came off with no physical damage done. Certainly after protecting clothing was qualitatively good, more than 90 percent could return to the battlefield. If that pleased them of course is open for questioning. From the 80.000 German gas-victims around 3000 died. In both cases it was two to three percent of the amount of gas-wounded, which at the German side was only 1.66 percent of the total amount of wounded.

So yes, perhaps the fear gas caused was out of proportion to the damage done, but still the reasoning is wrong. First of all: the amount of dead and wounded is the registered figure. Those directly dying of gas, or being wounded of gas at the battlefield and after that killed by gun or shell, are not included. Secondly the percentage depends strongly on when someone is diagnosed 'wounded by gas'. In mild doses gas was seldom deadly and by far the most doses were mild. Of the heavy cases however no less than twelve percent died. Furthermore 'healthy' meant nothing else than fit enough to return to battle. If someone could wave his arms and stretch his legs he was declared healthy. Especially the question if they were mentally fit enough to oppose the horrors of war again, was seldom asked. On top of that the character of gas-warfare was – probably consciously – characterized wrongly. Gas was not used because it was considered more humane than other weaponry. A soldier fallen victim to gas was and is not taken prisoner. His future was and is determined by shell and bullet. A British artilleryman 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.' So gas is not frightening because it kills. Other weapons do that too. But more than bombs and bullets, gas symbolises the dehumanisation of war. It kills and wounds silently, treacherously, randomly and seldom quickly or painlessly. On 20 March 1917 French soldiers could read an article saying:

With the cloud, death enveloped us, impregnating our clothes and bedding, killing everything living around us, everything that breathed. Little birds fell into the trenches, cats and dogs, our companions in misfortune, lay down at our feet and did not awaken. Then we saw our battle companions going to the first-aid post and we waited long and anxiously for the enemy or for death. My friends, we spent there the most painful long hours of our lives as soldiers. We had seen everything: mines, shells, tear-gas, woodland demolished, the black tearing mines falling in fours, the most

terrible wounds and the most murderous avalanches of metal – but nothing can compare with this fog which for hours that felt like centuries hid from our eyes the sunlight, the daylight, the clear whiteness of the snow.

And it was not only the gas that dehumanised; the clothes meaning to protect the soldiers did the same or even more so. It turned all those who wore it into pigs. The psychological damage done by gas is great, but the psychological damage done by gasmasks and suits is no less great.

So although there were men like the French author Henri Barbusse, who found it strange to protest against gas when there were also so many other horrible weapons involved in war, the common feeling was and is that gas should not be a part of warfare. According to some it went ‘against God-inspired conscience’, something that amongst other things can be concluded out of the fact that the word gas itself was seldom used. The British in WWI for instance spoke of ‘the accessory’.

So stories of the low mortality of gas have to be nuanced to say the least, fear was and is justified. The effects are too great to say that fear of the weapon is irrational. On the short term, even with mild doses, they are very painful and with doses a bit higher the effects can hold on for years or even life. Affection of the lungs seldom goes away completely. And this lung-affection could lead to heart-disease. Damage to the eyes is by far not over in a couple of days. That blindness was not always permanent is by the way proven by the most well-known gas-victim of WWI. Adolf Hitler also was blinded by gas, but in his case, one almost says, ‘sadly enough’, it was temporary.

The chlorine used in April 1915 was mild in comparison with gasses used later in the war and certainly milder than gasses used later in history. Nevertheless a doses of three particles on 100.000 particles of normal air could lead to an almost unstoppable cough. Effects of course got worse when the doses got higher and a doses of 1 particle of gas to 100 particles of air would lead to certain death because of damage done to the lungs. Symptoms were that of acute bronchitis with all the side-effects thinkable. It was impossible to get some air because of the fluid piled up in the lungs. It was drowning on land. Death-struggle as a consequence of chlorine could take days and unconsciousness only set in a couple of minutes before. Erich Maria Remarque wrote in his famous novel *All Quiet on the Western Front* that he hoped the masks would be air tight because he knew all too well the horrible pictures from hospital: gas-patients throwing up for days parts of their lungs piece by piece.’ And even the German right-wing author-warrior Ernst Jünger

wrote: ‘We saw in front of a hospital a lot of gas-wounded, pressing there hands in their sides, moaning and vomiting, while water ran out of there eyes. It was all but harmless, because some of them died after a couple of days, in heavy agony.’

This brings us to a next reason why fear of gas is more understandable than sheer figures seem to indicate. The loathing of gas soldiers and citizens felt and feel, was and is translated to the ones using it. Soldiers using gas were terrified that their positions became known, because then for certain the enemy would point the full load of its artillery just on that spot. Killed by shell directly, but by gas indirectly. Gas was considered inhuman and makes therefore war as a whole being fought more inhuman, also when the fighting is done with conventional weaponry. And this goes for gas-masks also. They also made and make war more inhuman and therefore fiercer. When soldiers are not recognized anymore as human beings, the change of mercy decreases.

Not even mentioning the great hazard of accidents, this means that a judgement on the mortality of chemical weapons also depends on how many soldiers and citizens fell victim to it not directly, but indirectly as well.

And as said, there was not much the doctors and nurses could do. In her book on nurses from the First World War, Lyn Macdonald describes the bewilderment of the doctors and nurses when seeing their first gas-patients.

Nothing in their experience [...] had equipped them to deal with wards full of men gasping for breath; with the terrible rasping sound of their struggle; with the blue faces of livid skins; and worst of all, with the terror as the fluid rose higher and higher in the lungs until eventually they drowned in it. The terror was made worse by the fact that most of the men were blinded and trapped in darkness in their suffocating bodies.

Soldier William Pressey described his physical condition after being gassed.

[I] was being carried on a stretcher past our officers. [...] I heard someone ask ‘Who’s that?’ ‘Bombardier Pressey, sir.’ ‘Bloody Hell.’

I was put into an ambulance and taken to the base, where we were placed on the stretchers side by side on the floor of a marquee, with about twelve inches in between, I suppose I resembled a kind of fish with my mouth open gasping for air. It seemed as if my lungs were gradually shutting up and my heart pounded away in my ears like

the beat of a drum. On looking at the chap next to me I felt sick, for green stuff was oozing from the side of his mouth.

A report of a British doctor printed in the *Official Medical History of the War* shows in all its so-called objective distance, the horror of what probably was an attack with mustard-gas.

Case four. Aged 39 years. Gassed 29 July 1917. Admitted to casualty clearing station the same day. Died ten days later. 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.

Could most doctors keep some distance in their descriptions, of the nurses, who had to do with the patients the most and the longest, this was too much to ask. Nurse C. Macfie 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.

Nurse S. Millard despised gas.

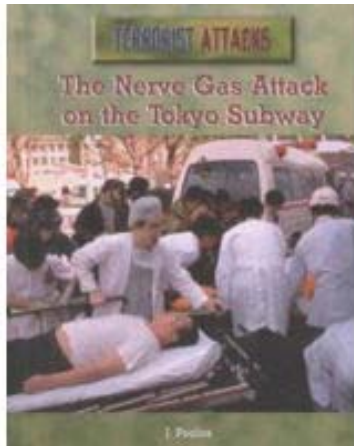
[Gas cases] cannot breathe lying down or sitting up. They struggle for breath, but nothing can be done. Their lungs are gone – literally burnt out. Some have their eyes and faces entirely eaten away by gas and their bodies covered with first-degree burns. We must try to relieve them by pouring oil on them. They cannot be bandaged or touched. [...] Gas burns must be agonizing because usually the other cases do not complain even with the worst wounds but gas cases are invariably beyond endurance

and they cannot help crying out. One boy today, screaming to die, the entire top layer of his skin burnt from face and body. I gave him an injection of morphine. He was wheeled out just before I came on duty. Where will it end?

But as said: nevertheless there were people saying that gas was a rather humane weapon, as far of course as there is such a thing as a humane weapon, and they got their arguments from numbers, which by the way again proves that truth can't be put into numbers, or at least not in numbers alone. Although World War One nowadays always is remembered first of all the war of shell-shock, but secondly as a war of poison-gas, as said just a bit over one percent of all the dead was due to gas. About ninety percent was killed by artillery and the rest by guns, but nevertheless it was gas that was feared most of all by the soldiers, only to be topped by that other chemical horror: the flame-thrower.



The amount of people killed by that weapon however cannot even be put into a percentage. It shows as said that fear is an irrational thing. The fear of gas, the psychological effect of gas, was and is often far greater than its actual physiological damage. Take for instance the attack at the Tokyo subway with the nerve-gas Sarin, in march 1995, by a terrorist group called Aum Shinrikyo.



Sarin, developed in 1939 in Nazi-Germany, is tasteless, colourless and scentless. So people in contact with it only notice when symptoms begin to develop. 5000 were wounded, 12 died. Notice that in general the amount of dead compared to the amount of wounded is one to four. Hospitals were not prepared for such an attack with such a gas, what of course contributed not only to the amount of wounded, but to the psychological impact as well. As a result the number of people claiming they were wounded was even a lot higher.

So there were 'only' 12 dead although sarin is one of the deadliest gasses known. The deadly portion probably is less than a milligram. Again a proof that the effectiveness of chemical weaponry, in the meaning of causing death, depends much on circumstances.

Superficially seen the use of chemical weapons was prohibited with the The Hague conventions of 1899 and 1907, but this did not in any way hinder there use in the war of 1914-1918. So the combating parties were accused of breaking the laws of warfare, but they denied. In these conventions there was talk of the prohibition of unnecessary harm and of the use of projectiles. Well: projectiles – at first - were not used, and the word necessary is very much open for interpretation. And this interpretation matter repeated itself in 1925 when biological and chemical weapons again were prohibited but again only superficially seen. Military necessity kept on sweeping all humanitarian rules aside and in the eyes of the military and political decision-makers gas and the preparation on gas-warfare was a military necessity. In the interwar years it was viewed as a militarily effective weapon; it 'unavoidably' would be the main weapon of future warfare; it was the

cheapest and easiest way to prepare for war; it was not seen as more horrible than other ways of warfare, and as said according to some chemical weaponry was even more humane. Besides it was the most scientific form of warfare giving the developed countries their justified lead, what explains that gas became horrific in the eyes of these countries only after the invention of the atomic weapon.

Chemical weaponry kept characterizing war since 1915, although as said it was not used in 1939-1945, at least not on the battlefields. The Italians used it in Ethiopia in 1936, the Brits in Malaya in 1948, the Egyptians in Yemen in the sixties as well as the Americans in Vietnam. It was used in the war between Iraq and Iran in the eighties and of course Saddam Husseins troops used it against the Kurds with the town of Halabya as most famous example. In that attack, with circumstances very favourable for gas-attack, at least 5000 people died, making gas indeed a weapon of mass destruction.





Halabya happened although in 1972 there again had been an agreement on the prohibition on toxic and biological weaponry. In 1990 the US and the Soviet Union agreed to destroy 80 percent of their stockpile of chemical weapons, which can only be a proof of the enormous amount of chemical weapons they had in store. The US earlier already had destroyed large amounts of biological weapons, by the way seldom used in practice, because of the danger of backfire. Biological weaponry is even harder to control than chemical weaponry is. Nowadays certainly Iran, Libya, North-Korea, Russia and Syria are in the possession of chemical and biological weapons. Notice that this list coincides to a great portion with the US axes of evil-countries. Some fifteen other countries however are very much under the suspicion of having biological and chemical weapons. Amongst them these same US, who in 2001 voted against a facultative protocol guaranteeing independent control on the production of biological weapons.

The low figure of dead especially amongst troops in times of war, beginning with 1914-1918 was for a great part due to the gasmasks, and to some they indeed gave a sense of safety. But in general they were all but loved. The masks never were completely safe, and the soldiers never thought they were completely safe. Gas remained a horrible weapon in the eyes of the soldiers and there was no mask that could do anything about that.

And that is one of the great difficulties even today. A government that says that with enough masks and gas-clothes and anti-dotes the population is safe, is probably kidding itself and it is certainly kidding that population. First of all. Gasmasks and gas-clothes are horrible. No one can wear them for a great amount of time. They are hot, they are sweaty. You stay alive in them, but no one can live in them. They have on top of that the paradoxical effect that they make the ones who wear them even more part of a greater whole, because everybody looks alike and is interchangeable, but at the same time they enlarge loneliness. Eating and drinking become quite a project, not to speak of what logically follows eating and drinking after a while. Movement becomes hard and sometimes almost impossible. Labour at least gets twice as heavy. Hearing diminishes. George Worsley wrote of the masks he had to wear in WWI for sometimes 24 hours in a row: 'You can't describe how uncomfortable they are, because they make you feel as if you're choking. There's a grip that holds your nose tightly and you have to breathe through the mouth, through a tube you hold between clenched teeth. Your mouth and throat get unbearably dry.'

This means protecting clothing must be put on at exactly the right moment so that it can be worn for the time necessary. Put it on too soon and the change is great that it also will be put off too soon; put it on too late, well, then it is too late. The same goes for anti-dotes. Besides that antidotes do not protect against all possible gasses, one has to know exactly when and how to administer them. Administer them too soon the effect will be gone when needed. Administer them too late, there will be no effect at all. And then I do not even mention the very probable change of administering antidotes without any necessity. The effect of that is not nice at all and also all but harmless. This happened on a great scale in Israel during the First Gulf War (1990-1991) where the government had distributed en masse gas-clothing and antidotes because it was convinced Iraqi rockets would have poison-gas in it. When the rockets came many Israelites in panic administered directly the antidotes to themselves, but the rocket-loads were completely conventional.

So protection against chemical weapons and even more so against biological weapons is a hard and, not to forget, very costly thing to do. But, although the claim that every war is a menace to public health can not be historically proven, it is evident that chemical weaponry contains a medical hazard doctors, nurses and other health workers should be concerned about. This alas has been all but the case. In the First World War in Britain more doctors than chemists were working in the gas-project, and certainly not only in

developing masks but also in developing the chemical weapons themselves. And after that and still nowadays doctors are involved in developing and testing weaponry, also nuclear, biological and chemical. One can easily make the argument that in doing so they break the medical oath. Because that oath calls up to respect life and not do any harm. Well: weapons are made for an organisation that, when it wants to do its job properly, simply cannot have respect for life, and weapons are especially designed to do harm.

So doctors still work on weapons-programs, including chemical weapons, although in 1918 the International Committee of the Red Cross (ICRC) had protested against their use and against all other horrors of modern industry. Although it also had protested against bad treatment of prisoners of war and the sinking of hospital ships, with this protest, three years after poison-gas-warfare had started, with this protest the Red Cross went against its usual way of acting. Normally it kept silent when violations of the laws of warfare or human rights were discovered. Leaving the golden way of silence was defended by pointing out that an entire population fell victim to the use of gas and not only the soldiers of the battling countries. Continued use of it would soon lead to a situation in which, I quote, 'warfare would be nothing else but a work of general destruction without any mercy'.

In the eyes of the ICRC, the 'horrible suffering these gasses caused - to look at it is even more cruel than the most dreadful wounds' - proved the criminal character of using poison-gas. Was it used anyhow, the ICRC foresaw a 'struggle, that would top everything in cruelty, history has seen up until this moment'. It is clear: according to the ICRC in 1918, poison-gas was everything but a humane weapon. This means that the only sane thing doctors, nurses and other health workers can do is to get in the 1918-footsteps of the Red Cross – footsteps it self sadly enough got out of again in the inter-war years – and strengthen the protest not only against nuclear, but also against the use and fabrication of gas. And that goes for biological weapons as well. This is the more so because the individual damage done by large scale display of violence such as war, and certainly when chemical and biological weapons are used, also or even more so because of the psychological effects, is often long-lasting, often trans-generational and often hard or even not to cure. Nevertheless: the fact remains that in all wars in the twentieth century many more men died of conventional weaponry than of non-conventional weaponry. And maybe the question therefore should not be if the fear gas spread was contrary to the damage done, but if the *lack* of fear conventional weapons give, is

contrary to the damage done. The picture I will show now certainly will give some proof of that. Conventional weaponry, small arms, only bullets, but the effects are no less horrendous.

Leo van Bergen

Department of Metamedica (Medical Humanitaies)

VU-Medical Centre Amsterdam

The Netherlands