



TERROR FROM THE AIR

Peter Sloterdijk

Translated by Amy Patton and Steve Corcoran

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*Breathless from the strained vigilance, breathless from the
oppressiveness of the stuffy night-air...*

— Hermann Broch, *The Death of Virgil*

“Hat an’ head,” trans. Duttons, New York, 1973, p. 109.

Gas Warfare—or: The Atmoterrorist Model

If asked to say in a single sentence and as few words as possible what, apart from its incommensurable achievements in the arts, the 20th century introduced into the history of civilization by way of singular and incomparable features, the response would emerge with three criteria. Anybody wanting to grasp the originality of the era has to consider the practice of terrorism, the concept of product design, and environmental thinking. With the first, enemy interaction was established on a post-militaristic basis; with the second, functionalism was enabled to re-connect to the world of perception; and with the third, phenomena of life and knowledge became more profoundly linked than ever before. Taken together, all three mark an acceleration in "explication." In other words: the revealing inclusion of the background givens underlying manifest operations.

If also asked to determine objectively when this century began, the response could be given to the very day. Using the above as reference points, it can be shown that from the outset all three of this era's key features were linked together in a common primal scene. The 20th century dawned in a

spectacular revelation on April 22, 1915, when a specially formed German “gas regiment” launched the first, large-scale operation against French-Canadian troops in the northern Ypres Salient using chlorine gas as their means of combat. In the weeks leading up to the attack, German soldiers, unnoticed by the enemy, went about secretly installing thousands of gas cylinders along this section of the front to form a battery along the German trench line. At exactly 6 p.m., pioneers of the new regiment, under the command of Colonel Max Peterson, opened 7,600 large (40 kg) and 4,130 small (30 kg) chlorine-filled cylinders to a prevailing north-northeast wind. “Discharging” the liquefied substance released approximately 150 tons of chlorine into the air, billowing into a gas cloud nearly 5 kilometers wide and 600 to 900 meters deep. An aerial photograph captured the first poison war cloud unfurling over the Ypres front. A favorable wind blew the cloud toward the French positions at a rate of two to three meters per second with a reported toxic concentration of about 0.5 percent—a concentration high enough to ensure severe damage to the lungs and respiratory tracts after long periods of exposure.

1. These descriptions follow the account of Dieter Mannitz, *Der Gas-Krieg 1914-1918. Entwicklung, Einsatz und Herstellung chemischer Kampfstoffe. Das Zusammenwirken von militärischer Führung, Wissenschaft und Industrie*, Bonn: Bernard & Graebner, 1998. Minor variations with regard to the names of places, as well as specific times and quantities, can be found in Olivier Lapicque (trans.), *La grande guerre chimique 1914-1918*, Paris: Theses Un. verticales de France, 1998.

The French general Jean-Jules Henry Mordacq (1868–1943) was situated five kilometres behind the frontline at the time. Shortly after 6:20 p.m., he received a field call from an officer in the entrenched 1st Tirailleur Regiment: a report that monstrous, yellowish smoke clouds had risen from the German trenches and were drifting toward the French divisions.² On the basis of this alarm, which he initially disbelieved until it was confirmed by several other reports, Mordacq and his adjutants set out on horseback to examine the situation for themselves—before long he and his companions began to suffer from respiratory problems, a violent tingling in their throats and heavy ringing in their ears. When the horses refused to ride on, Mordacq and his team were forced to make their way to the gassed areas on foot. They soon met with heaps of soldiers running in the opposite direction, their tunics undone and weapons discarded, spitting blood and pleading for water. Others were already rolling around on the ground helplessly gasping for air. By 7 p.m., a six-kilometre-wide breach was opened by the French-Canadian front, leaving the German troops to march through and occupy Langemarck.³ The attacking units had nothing for their own protection but gauze pads soaked in a soda and chlorine-binding solution, held over the nose and mouth.

2. Jean-Jules Henry Mordacq, *Le siège de Ypres*, Paris: Éditions de Cerquès, 1955, quoted in Rudolf Hanslian (ed.), *Der erste Weltkrieg*, 3rd Edition Berlin: Müller, 1935, pp. 123–124.

3. Cf. Marjens, *On the Edge 1917–1918*, p. 23.

Mordacq survived the attack and published his war memoirs the same year that Hitler seized power.

The military success of the operation was never in dispute—only a few days after the events at Ypres, Kaiser Wilhelm II received in private the Scientific Director of the German combat-gas program, the chemistry professor Fritz Haber, who was then director of the Dalheim Kaiser Wilhelm Institute for Physical Chemistry and Electrochemistry, to promote him to the rank of captain.⁴ The few criticisms to be heard were to the effect that the German troops, stunned as they were by the new method's efficiency, had failed to capitalize energetically enough on their April 22 triumph. On the other hand, reports about the number of casualties varied dramatically, then as now. Unofficial French sources reported only 625 gas-injured casualties, no more than three of which had succumbed to poisoning, while early German estimates

⁴ During the war, Prof. Fritz Haber (1868–1934) also covered a department for "poison-gas studies" at the War Ministry. At a loss, he was forced to leave Germany in 1933 after purporting to suggest the reinvocation of a gas weapon to the *Reichsleitung* (German leadership) the very summer. After a sojourn in England, he died in Basel on January 29, 1934 while en route to Fribourg. Several of his children were killed at Auschwitz. The so-called Haber's cycle (producing CO as main product) is a highly efficient (in result of multiplying basic concentration by an increase in CO pressure) CO production reaction to say the least up to all industrial scales (initially developed by 1920s) and is widely known "post-warward." His receiving of the Nobel Prize for Chemistry in 1918 for having discovered a method to synthesize ammonia produced an outcry in England and France, when his name was closely associated with the organization of chemical warfare.

totalled 15,000 poisoned and 5000 deaths, figures which, after further investigations, were in fact continuously revised downwards. These discrepancies clearly point to interpretive struggles, shedding light on military-technical and moral significance of the operation in different ways. A Canadian autopsy report on a gassing victim from one of the hardest hit areas stated: "A considerable amount of a foaming, light yellow substance streamed out of the lungs during removal, clearly very protein-rich... the veins on the brain surface were profoundly clogged, all of the smaller blood vessels bulged noticeably."

While the disastrous 20th century prepares to go down in history books as the "age of extremes" —languishing with the growing ineffectiveness of its concepts and battle-lines—its scenarios of world history are no less yellowed than those of medieval rheologists in their calls to liberate the Holy Sepulchra. Notwithstanding, there is one technical model that has emerged from the preceding century with increasing clarity, it might be termed the introduction of the environment into the battle between adversaries.

Ever since artilleries first came into existence, the métier of marksmen and warlords consisted in attacking the enemy and his defenses with direct shots. Whoever is to eliminate an adversary in accordance with the rules of the soldierly art of long-distance killing has to create an *ouverture directe* on his body by means of a firearm and immobilize the targeted

5. *Die Luftwaffe. Der Luftkrieg 1917-1918*, p. 24.

object with a sufficient number of accurate hits. From the late Middle Ages until the beginning of World War I, the soldier was defined by his ability to summon and “nurture” his intentionality. At the same time, masculinity was also coded with the ability and willingness to kill one’s enemy, in a causally direct fashion, with one’s own weapon or hand. Taking aim at an opponent was, as it were, a continuation of the duel by hellenic means. Even under the conditions of distance fighting and the anonymous war of attrition, the act of killing man-to-man remained so closely tied to pre-bourgeois concepts of personal courage and possible heroism that its effects lingered on despite its act having become anachronistic. If, in the 20th century, members of the army could claim that their profession was still a “manly” and—under wartime conditions—“hottest” one, it is thanks to this reference to the danger of a direct, deadly encounter. The weapons-technological manifestation of this is the bayonet-fitted rifle: should the (bourgeois) elimination of an enemy with long-range shots fail for some reason, this weapon suggests the possibility of a (noble and archaic) return to transfixing them in a close quarters.

The 20th century will be remembered as the age whose essential thought consisted in targeting no longer the body, but the enemy’s environment. This is the basic idea of *verrotzen* in the more explicit sense. Shakespeare prophetically articulated its principle through Shylock’s line: “You take my life/When you do take the means whereby I live.” Of

6. *The Merchant of Venice*, Act IV, Scene 1

such means, economic conditions excepted, critical attention today is focused on the essential environmental conditions for human survival. By working on the enemy's environment, these new processes, which consist in suppressing the basic prerequisites for life, yield the contours of a specifically modern, post-Hegelian concept of terror.⁷ Indeed, twentieth-century terror was considerably more than the "I-have-the-right-because-I-want-to" attitude whereby Jacobin self-consciousness would trample over the corpses of those who stood in the way of its freedom; it also bore a fundamental difference to the anarchist and nihilist attacks of the latter third of the 19th century, which were aimed more at a pre-revolutionary destabilization of the hierarchic and bourgeois social order.⁸ In the end, neither can it be confused, in terms of method or objective, with the gynchocratic techniques of onetime or future dictatorships, which consist essentially in the use of a calculated mixture of "ceremony

7. Cf. G.W.F. Hegel, *Philosophy of Spirit*, New York 1970, p. 358. According to Hegel, terror is an *actus* "by which the absolute itself, by itself and self-willed, can make a social self-consciousness. The only work and deed of this spirit is to make a world, a deed for which its meaning signifies nothing, for what is kept and what is destroyed is the result of the self-consciousness and not of all that is with no more sign than the pouring of a head of cabbage in *essence* or a mouth full of water" (*ibid.*, p.360).

8. For a description emphasizing the difference between individual terror and state terrorism, see Albert Camus, *L'homme révolté*, Paris 1951, in *The Rebel: An Essay on Man in Revolt*, New York Vintage, 1952, pp. 149-232.

and terror" to bring their own populations to submit.⁹ The terror of our times consists in the emergence of a knowledge of modernized elimination that passes through a theory of the environment, the strength of which is that it enables the terrorist to understand his victims better than they understand themselves. If an enemy's body can no longer be liquidated with direct hits, then the attacker is forced to make his continued existence impossible by his direct immersion in an unlivable milieu for a sufficiently long period of time.

This conclusion paves the way for modern "chemical war" *qua* an attack on the enemy's primary, ecologically-dependent vital functions: respiration, central nervous regulations, and sustainable temperature and moisture conditions. What is in fact involved here is the transition from classical warfare to terrorism, to the extent that the postulate of the latter entails dismissing the old "crossing of swords" between equally matched opponents. Terror operates on a level beyond the naïve exchange of armed blows between regular troops; it involves replacing these classical forms of battle with assaults on the environmental conditions of the enemy's life. What dictates this shift is the emergence of encounters between opponents vastly unequal in strength—as we see in the current conjuncture of non-state wars and hostilities between armed state forces and

9. Cf. Jacques Tati, *États, État, Organisation, World* (Paris, 1969), p. 204. Published in *English as a Second Language*, Richard and Clara Wittig, Chicago, New York, San Diego, Toronto, London: Harcourt, 1974.

non-state combatants. In retrospect, the curious thing about the military history of gas warfare between 1915 and 1918 is the fact that through it—and on both sides of the front—state-sponsored forms of environmental terrorism became integrated into so-called regular warfare between lawfully recruited armies. This was, it must be said, in explicit violation of Article 23 of the 1907 Hague Convention, which expressly forbade the use of any kind of poison or suffering-enhancing weapons in operations against the enemy, and *a fortiori* against the non-combatant population.¹⁰ By 1918, the Germans had over nine gas battalions of close to 7000 men, and the Allies thirteen “chemical-troop” battalions of more than 12,000 men. There was a reason why experts could speak of a “war within the war.”¹¹ The expression announces the moment when exterminism was lifted from the traditional violence of war. Numerous statements by World War I soldiers, most notably career officers, bear witness to the fact that gas warfare was seen as a degeneration of war, and as degrading for all involved. Yet there are almost no recorded cases of any servicemen openly opposing this new “law of war.”¹²

10. Because both sides were aware that they were breaking the laws of war, neither sought reparations from the opposing governments for the use of poison gas. Indeed, until very recently traces of Det. Hase’s spurious argument that chlorine is not a poison but an irritant (and therefore not subject of the Hague Convention) were still to be found in German nationalist apologies.

11. Cf. Jörg Friedrich, *Der Giftgas-Krieg: die deutsche Gaskriegs-Erfahrung 1914–1918* (Düsseldorf: Drover, 1965); *Der Giftgas-Krieg gegen die Zivilbevölkerung des Westens* (Munich: Piper, 1953).

The discovery of the "environment" took place in the trenches of World War I. Soldiers on both sides had rendered themselves so inaccessible to the bullets and explosives intended for them that the problem of atmospheric war could not but become pressing. The technical solution developed to resolve this problem came to be known as gas warfare: its principle consisted in enveloping the enemy for a long enough period—in practice at least a few minutes—within a noxious cloud of sufficient "combat concentration" until he fell victim to his natural breathing reflex. These poison clouds hardly ever consisted of gas in the strict physical sense, but of an extremely fine particle dust, released into the air through slight explosions. What emerged from this was the phenomenon of a "second artillery": instead of aiming at the soldiers and their emplacements, it targeted the air surrounding the enemy body, fuzzing the notion of a "hit." Thereby anything that got close enough to the object could be considered as sufficiently accurate and so as operatively mastered.¹³ In a later development, the new gas artillery fog-generating munitions were combined with the explosive projectiles of classical artillery. Feverish research then began to determine how to counteract the poison cloud's rapid dissolution, as well as how to stabilize it over the combat area, effects usually achieved with chemical additives to modify the behavior of

13. This effect was anticipated by the massive employment of explosive ammunition. Cf. Naill Ferguson, *The Fog of War: Explaining World War I*, New York: Basic Books, 2000, p. 313. "Weight of shell was now supposed to make up for any lack of accuracy."

the highly volatile war dust particles in the desired sense. Almost overnight, after the events at Ypres, a kind of military climatology sprang virtually out of nothing, and it would not be an understatement to recognize it as the *fait-phenomenon* of terrorism. This study of toxic clouds was the first science to provide the 20th century with its identity papers. Such an assertion would have been parapsychical prior to April 22, 1915, but ever since then it would have to be included as a core part of any "ontology of actuality." The fact that in climatology itself the status of the study of toxic clouds, or theory of unbreathable spaces, is still obscure shows that climate theory has not yet freed itself from the tutelage of the natural sciences. In truth, this theory was, as I will attempt to show, the first of the new human sciences to emerge from World War I knowledge.¹³

The lightning-fast development of military breathing apparatuses (in the vernacular: liner gas masks) shows that troops were having to adapt to a situation in which human respiration was assuming a direct role in the events of war. Before long the gas mask would find in Fritz Haber its celebrated father. We are informed in works on military history

13. For more on the development of objective climatology at the beginning of the 20th century, see Richard Feilcke's manuscript *The Invention of Climate: How an American Meteorologist Forged the Language of the West* (New York: Princeton, 2007). It is clear in particular case how produced by the human sciences on the basis of the plans made of war propaganda and their evolution in reality and mass communication can be found in Hermann Predde's theory of objective weather. See below p. 97.

that from February to June 1916 nearly five and a half million such gas masks, along with 4300 oxygen breathing apparatuses (first used in the mining industry), and two million liters of oxygen were distributed by the field depot to German troops at Verdun alone.¹⁴ These numbers show just how much this new “ecologized” war, this battle conducted in the atmospheric environment, was about conquering the respiratory “potentials” of hostile parties. The opponent’s biological weaknesses had been factored into the fight. The rapid popularization of the gas mask concept manifests the efforts of those subject to attack to try to shake their dependency on their immediate milieu, the breathable air, by concealing themselves behind an air filter. This involved a first step towards the principle of air conditioning, whose basic idea consists in disconnecting a defined volume of space from the surrounding air. On the offensive side, such developments were countered by escalating aggression with the use of toxins able to penetrate urethral respirators. In the summer of 1917, German chemists and officers first employed a chemical warfare agent called diphenylchloroarsine, known as “Blaukreuz” (Blue Cross) or Clark I, a suspended particle matter of the finest dust capable of infiltrating the adversary’s breathing apparatus, for which its victims dubbed it the “mask breaker.” At the same time, German gas artillery units on the Western Front introduced a revolutionary new gas agent called “Gelbkreuz” (Yellow Cross) or

14. Cf. Martin *Die Gas-Krieg 1914-1918*, p. 85.

sulfur mustard¹⁵ in their battles against British troops, a substance which even in tiny amounts produces devastating consequences to the organism upon skin or mucous membrane contact, causing blindness and catastrophic nervous dysfunction in particular. Among the famous mustard gas or Ypérite victims on the Western Front was a certain Corporal Adolf Hitler, who, on a hill south of Ypres near Wervick (La Montagne) on the night of October 13, 1918, was caught in one of the last British-launched gas attacks of the First World War. In his memoirs, Hitler states that by the morning of the 14th his eyes felt as if they had been turned into glowing coals. Following the German capitulation on November 9th (which he witnessed as a minor in the Pomeranian military hospital in Pasewalk) he suffered a relapse of mustard gas-blindness and in this state of crisis resolved "to become a politician." Later, in spring 1944, with defeat imminent, he confided to Speer that he was afraid of going blind again as he had back then. Right to the end nervous traces of the gassing trauma stayed with him. Among the determining elements of the Second World War one particular fact appears to have played a role from the point of view of military techniques: in

15. Fritz Haber (an ex-"Liaison" of the scientists in charge of the project), Dr. Ludwig (Hoyer-Overkurtz) and Prof. Swinowé (of the Kaiser Wilhelm Institute for Physical Chemistry and Electrochemistry in Berlin-Dahlem, known during the war as the "Prussian Military Institute"). This gas agent was also variously called "mustard gas" on account of its color, "Lewisite" ("Liaison agent") for its lethal properties, or *Ypérite* after the place it was first employed.

the wake of these incidents, Hitler brought with him an idiosyncratic understanding of gas into his personal concept of war, on the one hand, and into his idea of the practice of genocide, on the other.¹⁶

From its inception, gas warfare combined all three of the 20th century's operative criteria—terrorism, design consciousness, and environmental approach—into a densely interconnected whole. Indeed, as we have seen, the precise sense of the word terrorism presupposes an explicit concept of the environment, the reason being that terror involves the displacement of destructive action from the "system" (here: the enemy's body) onto his "environment"—in the case at hand: the air milieu in which enemy bodies move, subject to their own breathing reflex. This is why terrorist acts always have an assailing (*arsenräterisch*) character about them. Because not only does an attack (Latin: *arsentatum*, attempt: killing assay) by definition entail a surprising, malicious ambush, but also the malign exploitation of the victim's life-sustaining habits. The attack on humans in gas warfare is about integrating the most fundamental strata of the biological conditions for life into the attack: the breather, by continuing his elementary habitus, i.e. the necessity to breathe, becomes at once a victim

16. For more on the new employment of gas weapons during World War I, see Günther Guderian, *Der Krieg, der nicht stattfand. Möglichkeiten, Überlegungen und Durchführungen der deutschen Division Führung zur Veranschaulichung chemischer Kampfstoffe im Zweiten Weltkrieg*, Lohse: Bern u. G. Gertsch Verlag, 1906.

and an unwilling accomplice in his own annihilation. That is, of course, assuming that the gas terrorist succeeds in immersing the victim in the unbreathable environment long enough to deliver the inevitable, deadly inhalations. So not only is it the case that, as Jean-Paul Sartre remarked, desperation is man's attack against himself; more: the gas terrorist's assault on the air induces desperation in those attacked, who, unable to refrain from breathing, are forced to participate in the obliteration of their own life.

With the phenomenon of gas warfare, the fact of the living organism's immersion in a breathable milieu arrives at the level of formal representation, bringing the climatic and atmospheric conditions pertaining to human life to a new level of explication. In this movement of explication the principle of design is implicated from the start, since to enable the operational manipulation of gas milieus in open terrain, requires making certain "atmo-technic" innovations. It is these latter that turned the development of chemical war clouds into a product-design-type task. Combatants deployed as regular soldiers on both the Eastern and Western gas fronts found themselves faced with the problem of how to establish new routines for the development of "atmo-terrorism" in accordance with precise rules of art—a sort of regional atmospheric design. The artificial installation or fabrication of toxic particle clouds demanded the efficient coordination of cloud-forming factors such as concentration, diffusion, sedimentation, coherence characteristics, mass, extension and movement—as it were, a whole black meteorology dealing

with “precipitation” of a special kind. One of the strongholds of this particular brand of knowledge was the Fritz Haber-led Kaiser Wilhelm Institute for Physical Chemistry and Electrochemistry in Berlin-Dahlem, one of the 20th century’s most ornithous, still undepleted theory-addresses, which was rivaled by analogous institutions on the French and British sides. Now, to achieve the necessary field on the concentration of a chemical agent usually required an admixture of various stabilizers. However, thanks to the revelatory discovery of targeted, poison-cloud production over a defined but necessarily vague (because outdoors) area, the question of whether these poisonous precipitations were delivered in a hail of gas grenades from the front lines or by means of wind-supported, gas cylinder “discharge” was a relatively minor technicality. During a German gas artillery attack using Green Cross-diphosgene near Fleury on the Meuse on the night of June 22, 1916, it was estimated that for lethal cloud consistency in open terrain at least fifty howitzer shots or one hundred mortar rounds per hectare a minute were required—but the levels were not quite reached, which is why the French had a “lucide” 1600 gas casualties and 90 deaths to report on the field the next morning.” **More decisive, however, is the fact that, by means of gas terrorism, modern techniques crossed over into the design of the non-objective—it came to include the explication of latent topics such as physical air quality, artificial atmosphere additives, and other**

17. Cf. Müller, *Der Gaskrieg 1914–1918*, p. 73.

factum of climate creation for places of human-dwelling. It is precisely this process of progressive explication that binds terrorism with humanism. The future Nobel Prize-winner, Fritz Haber, claimed to have been an ardent patriot and humanist all his life. In his quasi tragic farewell letter to his Institute on October 1, 1933, he declares the guide with which he worked for the Fatherland during times of war, and for humanity in times of peace.

Terrorism, from an environmental perspective, voids the distinction between violence against people and violence against things: it comprises a form of violence against the very human-ambient “things” without which people cannot remain people. By using violence against the very air that groups breathe, the human being’s immediate atmospheric envelope is transformed into something whose intactness or non-intactness is henceforth a question. In other words: air and atmosphere – the primary media for life, in both the physical and metaphorical sense – only became an object of explicit consideration and monitoring in domains such as agriculture, medicine, law, politics, aesthetics and cultural theory in response to their terrorist deprivation. In this sense air and climate theory ought not be seen as the mere sediments of war and post-war science, and *ex ipso* in their inception topics of a peacetime science that would only develop in the shadows of war stress¹⁸: it is rather the case that

18. For more on the concept of ‘area shadows’ see Heinz Mühlenpfeiffer, *The Politics of Culture. A Blueprint for a Theory of Culture Creation*, Vienna and New York: Springer, 1996.

they are the primary forms of a post-terrorist knowledge. This descriptive already goes toward explaining why to date this kind of knowledge has established itself only in unstable, incoherent and authority weak contexts; otherwise put, the notion that there can be genuine "terror" experts is in itself hybrid. While terrorism is always interpreted by its protagonists as a counterattack, its witnesses and victims always like to see it as being dealt and done with. Whence the reason that there is no chance either of engaging in a straightforward study of the "objects" in question or of having total immunity from unwarranted impositions of partisanship.

Misjudging the nature of terrorism is something that both professional terrorism fighters and analysts show a remarkable interest in doing at a high level—a phenomenon clearly evidenced by the helplessly elaborate flood of expert commentary after the September 11, 2001 attacks on the World Trade Center and the Pentagon. The general thrust of virtually every comment about these attacks on the pre-eminent institutions of the USA was that the incidents had surprised not only US citizens but people throughout the world, and yet that they confirmed the notion that there are some things against which you just can't protect yourself well enough. Not once in the American television broadcasters' monotonous "War on Terror" campaign (whose terminology complied to Pentagon-issued directives) did anyone mention the basic fact that terrorism is not an opponent but a *modus operandi*, a fighting method that

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