

**TOXIC SOLDIERS****CHEMICALS AND THE BODIES OF GULF WAR SYNDROME SUFFERERS**

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**SUFFERERS OF GULF** War syndrome worry about the risky and dangerous atmosphere to which they were exposed during the war and the lingering consequences of that exposure. The majority of veterans has a broad understanding of and anxiety about the role of chemicals in their illness, not only through chemical weapons, chemical warfare, and past hazards specific to their Gulf War experience but through enhanced sensitivity to ever-present (and ever-changing) toxins in their local environments. The exposures of the Gulf War in 1991 have left these soldiers vulnerable and thus they are left at risk of potentially hazardous chemicals they encounter in their daily lives. Their relationships with their bodies and their interactions with the environment around them are irrevocably altered by their experiences in the war. Veterans' anxiety about chemicals reflects a wider cultural anxiety in the United Kingdom and United States surrounding chemicals and toxins and implicates wider social, political, and economic dimensions in understandings about their illness. In this chapter I explore the way cultural imaginings feed back into beliefs and experiences of illness. My main research interest lies with the way some concerns become the focus of public attention and others are ignored. As a medical anthropologist I focus on

issues of health and illness and how concerns about the atmosphere are very much connected to widespread cultural health anxieties and anxieties about the impact of humans on the environment.

### THE PROJECT

On August 2, 1990, Iraq, led by Saddam Hussein, invaded and annexed the neighboring Persian Gulf state of Kuwait, thereby gaining control over some 20 percent of the world's oil reserves as well as access to ports on the Gulf. The United Nations Security Council unanimously denounced the invasion, demanded an immediate withdrawal of all forces, and imposed a worldwide ban on trade with Iraq. Within a week, some 230,000 US troops were deployed to Saudi Arabia under Operation Desert Shield to deter further expansion in the region, while Iraq deployed about 300,000 troops to Kuwait. The United States responded by sending an additional 200,000 troops, building a UN-authorized coalition of thirty-four nations, and sponsoring a UN resolution that established a deadline of January 15, 1991, for Iraq's complete withdrawal from the region. The United Kingdom deployed 53,462 personnel in an operation known as Operation Granby.

With the passing of the deadline, a massive allied aerial bombardment, code name Desert Storm, began on January 17. This was followed by a lightning-fast allied ground assault on February 23 that liberated Kuwait and devastated the Iraqi army one hundred hours after it had begun. The official cease-fire was accepted and signed on April 6. Aerial and ground combat were confined to Iraq, Kuwait, and areas on the border of Saudi Arabia. The war, characterized by its media presence and high-tech equipment, was often referred to as a "smart, clean, war," yet images of the conflict depicted scenes of burned-out, absolutely devastated Iraqi military columns and the dirty smoke from over 500 of Kuwait's burning oil wells clouding the horizon. There were a total of 147 US battle deaths during the Gulf War, 145 non-battle deaths, and 467 wounded in action.<sup>1</sup>

In 1992 reports began to surface in the United States about unexplained health problems occurring among returning Gulf War veterans. The illness later appeared in the United Kingdom with the first reported cases in 1993. Many veterans expressed their conviction that they suffered from a unique and new disorder. Their explanations included exposure to chemical warfare agents, vaccinations, nerve agent pretreatment sets (NAPS) tablets, toxic fumes from burning oil wells, depleted uranium, and organophosphate insecticides, yet investigations have produced no compelling evidence of an organic syndrome. A great deal of investigation has been done into

Gulf War syndrome (GWS), but the illness remains perplexing. My research goes beyond the previous focus on medical and epidemiological research to understand GWS from an anthropological point of view.

Between September 2001 and November 2002, I conducted ethnographic fieldwork in the UK GWS community, interviewing veterans and their advocates as well as clinicians and researchers. The main focus was on the sufferers themselves and what they had to say about their illness. I conducted a total of 93 interviews, 67 of which were with UK Gulf War veterans, the majority of whom believed themselves to be ill with the condition. In addition to formal interviews, I maintained contact with informants, allowing for more informal discussions and observations. I also collected data from media files and other relevant documentation, including transcribed interviews with sufferers, family members, advocates, practitioners, scientists, and researchers. I also noted observations of interactions among those involved in the arena of GWS, including clinical encounters, formal meetings, and using informal discussions with researchers and scientists to explore further the biomedical and mainstream discourse surrounding GWS and the ways in which this was negotiated by sufferers. Unlike other research into this illness, my work focuses on sufferers' own accounts to understand better the way GWS is perceived by those it affects. I have presented some of this material elsewhere, but in this chapter I focus on fear of the environment and more specifically, a fear of chemicals in the atmosphere.<sup>2</sup>

#### CHEMICAL WEAPONS, CHEMICAL AIR

Gulf War veterans make sense of their experiences in particular ways. They understand their suffering to be caused by various exposures: depleted uranium, chemical weapons, organophosphates (chemical weapons, pesticides and insect repellents), and oil fires, in addition to vaccinations and other preventative measures. Various theories encompassing different exposures sit side by side, sometimes overlap, and sometimes contradict each other.<sup>3</sup> At times a particular theory will come to the fore and at other times it will be forgotten. But what remains is the focus on chemicals, toxins, and the notion that there was something unnatural about the exposures encountered. Sufferers saw the environment as risky, unnatural, and dangerous—and this goes beyond the immediate war environment to include the atmosphere in a more general sense. Veterans often would describe the Gulf environment as strange and dangerous. They would describe an environment thick with smoke and the sky turning black from the oil well fires. “Day turned to night,” they would say. Dust was ever-present, and smells

were odd and unusual. Of course, there were also fears about chemicals lingering in the air.

War is always risky and there are never shortages of possible hazards to health in the environment of war. Furthermore, as Ana Carden-Coyne and others have shown, chemicals have been a concern of soldiers and their leaders throughout history.<sup>4</sup> The Gulf War, however, introduced novel and unexpected hazards including the smoke from the oil fires that blackened the sky and polluted the air. There were also “other hazards that were more recent additions to the ways in which mankind has harnessed technology to deadly ends.”<sup>5</sup> In 1991 Saddam Hussein possessed large stocks of chemical and biological weapons, and the threat of their use was very real, for he had used them against Kurdish civilians.

In my interviews, soldiers expressed concerns about chemical weapons through reporting of the frequency of the alarms used to detect chemical weapons sounding. It was the terror or the threat rather than the reality of them that veterans remember. Participants recall frequently hearing the alarms, which they regularly ignored, something that many veterans use to support their theory of chemical poisoning. The *Riegle Report* of 1994 on the health of Gulf War veterans (authored by US Senator Donald W. Riegle Jr.) reported that chemical alarms went off 18,000 times during the Gulf War, suggesting that Coalition forces were continually exposed to low levels of chemical agents throughout the war. However, it was later suggested that the alarms were too sensitive and reacted to things like jet fuel.

Still, it is impossible to ignore the capacity of chemical weapons to terrorize. Recent studies of US veterans exposed to the threat of chemical weapons have shown that both symptoms and the memory of alerts in war zones are important in establishing and maintaining beliefs about being poisoned. In 2006, Brewer and colleagues reported that 64 percent of a sample of 335 US veterans of the Gulf War believed that they had been subjected to chemical weapons compared with 6 percent of 269 service controls who had not deployed to the conflict.<sup>6</sup> Veterans would often go into great details about having to suit up: if an alarm were sounded they would have to don their cumbersome and heavy nuclear, biological, chemical (NBC) suits quickly. Many expressed anxiety about this process and explained how difficult it was to do so and how the heat made it an uncomfortable exercise.

Some argued that Iraqi forces used sarin, with certain advocates claiming that the results of studies suggest that this happened on day four of the ground war.<sup>7</sup> However, most attention has been given to the possibility that a cause of ill health was the accidental discharge of sarin nerve agents that

followed the postwar demolition of chemically armed rockets at the Khamisayah arms dump. The US military initially denied that the soldiers had been exposed to chemical weapons, but later stated that agents were released as the result of the destruction of the Khamisayah site. At a federal investigator's meeting in 2001, a prominent advocate of this theory suggested that the Khamisayah episode was a CIA smokescreen to cover up the real facts about deliberate use of sarin by the Iraqis.<sup>8</sup> When it was first reported, 400 veterans were said to be at risk. This number then rose steadily to 21,000. The fact that it took so long for the American government to disclose the event added to the accusation of a cover-up.

One prominent advocate and scientist had great influence with the veterans: he spoke often about various exposures and chemicals: "Oops, we weren't exposed to sarin gas, says the MoD [Ministry of Defence]. The Americans have now admitted that they were. We are still playing silly buggers at this, sorry about the language, but I just get so cross . . . 'Oh, there's no evidence that we were exposed to sarin gas.' What about all the alarms that went off? 'Oh they didn't work.' Why did you buy them, then? Why did you claim there was no exposure if the alarms went off anyway?"<sup>9</sup> Here he is referring to sarin being released when the Khamisayah rockets were destroyed. When I was interviewing veterans there was discussion about the plume created by the destruction of the Khamisayah arms dump. They would show me maps, which detailed the plume and where they were in relation to it. Soldiers who were downwind of or in the close proximity of the plume thought they had been affected. However, experts often revised the diagram, and participants would become agitated if changes to the plume location meant they had fallen out of its boundaries. One of my key informants with whom I met on several occasions often focused on the Khamisayah plume and his exposure to chemical weapons, but later he dismissed the role of chemical weapons in favor of depleted uranium (DU). He said this was, in part, due to the increased attention DU was getting in the media and its links to the complaints of veterans who fought in Bosnia and Kosovo, but also because he had come to accept that if chemical weapons had been used people would have died instantly. Indeed, I witnessed this de-emphasizing of the role of chemical weapons throughout my fieldwork.

Extensive investigation and review by several expert panels have determined that no evidence exists that chemical warfare nerve agents were used during the Gulf War and it is unlikely that exposure to chemical warfare agents caused GWS.<sup>10</sup> The suggestion of exposure linked to the Khamisayah incident continues to be unconvincing, not least because of the absence of

any contemporary evidence of adverse effects of exposure.<sup>11</sup> Furthermore, such an explanation simply does not incorporate the entirety of the GWS case. Yet the psychological impact of a perceived chemical warfare attack can still have immediate and long-term health consequences. The deployment- or war-related health impact from experiences of the Gulf War, including the perceived exposure to chemical warfare agents, should be considered as an important cause of morbidity among Gulf War veterans.<sup>12</sup> The effect of such exposures is unknown and nebulous, which provides the sufferer space to develop theories that incorporate and attempt to make sense of their experience of ill health. The threat of chemical weapons provided an anchor and a focus for beliefs about being poisoned. The theories then stem outwards and include other toxins. Interestingly, chemical weapons then take a back seat, although they retain a vague presence in illness narratives. But what remains is an overwhelming belief about being poisoned and being surrounded by harmful toxins. One veteran asked, “Are we carrying around these chemicals in our body and you know, are they still there?”

What remains is a much wider concern about the air and the environment and the notion of toxicity. Josh, a “well” veteran who was concerned about GWS but did not feel he had the condition, spoke about his feelings of toxicity: “I definitely have the feeling that I’ve been contaminated. Toxic war. Ties into the contamination thing. I don’t feel I’m contaminating you by sitting here, but contaminating relationships . . . that their futures may not be as bright because of what I’ve been party to, what I’ve done, inhaled, injected with. . . . to do with reproduction, etc. It clouds my future and progeny’s future. We’ve been exposed to so many chemicals. The chances of birth defects are vastly increased. It may not be noticeable in great scheme of thing[s], but for my family it’s bloody important.” He continued:

The government is losing hold on our bodies. Inhabit our bodies, but didn’t have a say. We are meant to be in charge of our own bodies. We weren’t in control of our own bodies. . . . Every chemical has an impact on our cells either the way they reproduce or the nucleus . . . will change in your body. . . . The chemical we had: we are going to have defects. Whether or not they are passed down the line but probably are. Everything we taste, smell, and touch might have effect on progeny because they are chemicals that we have put into our bodies. Impact of chemicals will only come out in hundreds of years.

Indeed, Josh is representative of many of the well veterans I met who, despite not having the condition, were concerned that Gulf War exposures

had still affected them in some way. There was the anxiety that either the toxins had affected them in some hidden or unknown way, and that the impact would only be felt in the future. They felt as though no one was safe. Those who are not ill may merely be not ill yet. Concerns seemed primarily to center on issues having to do with reproduction: infertility and/or birth defects.<sup>13</sup>

Although my work focused on anxieties about Gulf War chemicals and the environment as they manifested in the United Kingdom, concerns about Gulf War chemicals had an impact much closer to their source—something about which I am now becoming aware due to my present research in the Middle East. Over the past three years I have been conducting fieldwork in Qatar, a small country that comprises a peninsula surrounded on most sides by the Arabian Gulf.<sup>14</sup> Despite embarking on what I thought was an entirely new project and subject matter, I have found that my interviews have brought me back to where I began: the Gulf War. One project investigates genetic knowledge among Qataris, particularly in relation to cousin marriage and disability—a subject distant from the concerns of UK Gulf War veterans. However, during these interviews I was struck by how many Qataris talk about the Gulf War of 1991 and their suspicions about the chemicals released during that time. Some have suggested that they suspect that there are increased rates of cancers and birth defects as a result of the toxins of the war.

#### **CHEMICAL IMAGININGS: THE LEGACY OF PREVIOUS WARS**

As an anthropologist I am interested in the impact of culture on beliefs and behaviors. Cultural imaginings influence reactions to chemical war and chemicals more generally, which are linked to the legacy of previous wars. Research on the experiences of World War I veterans has shown that the terror inspired by chemical weapons served to maintain memories of being gassed.<sup>15</sup> Unlike a bullet or piece of shrapnel, which could lodge in the body and be removed surgically, gas was systemic and had no definite physical limits. During WWI, gas was one of the most feared weapons. It inspired negative emotions out of all proportion to its ability to kill or wound.<sup>16</sup> Nearly a century later, chemical weapons have retained their capacity to frighten. Understanding the long-lasting effects of chemical weapons on the bodies and minds of WWI soldiers might assist in understanding the otherwise baffling persistence of ill health known as GWS.<sup>17</sup> The conviction of having been gassed had long-term negative effects on a person's beliefs about illness and perceptions of health and well-being. WWI veterans linked their ac-

counts of work difficulties and chronic symptoms to enduring beliefs about being gassed.<sup>18</sup> Similarly, among Gulf veterans, experiences of illness are significantly associated with the belief that the Iraqis used chemical weapons. The British veterans I met sometimes pointed to the checkered history of organophosphates and their use in WWI.

Not only were chemical weapons a source of terror in WWI but the anti-gas measures used against such an attack were themselves disconcerting or a source of discomfort. Similarly, in the Gulf War measures to protect against the threat of chemical and biological weapons often generated anxiety and affected long-term health. Soldiers' bodies were not tough enough; they had to be fortified and extended and doing so emphasized the vulnerability and inadequacies of the human body. Soldiers were given a series of vaccinations and were ordered to take pyridostigmine bromide tablets to protect against organophosphate exposures. Through these prophylactic measures, soldiers' bodies were altered and strengthened to protect them against the threat of chemical weapons: internal body boundaries were bolstered.<sup>19</sup> External body boundaries were fortified by the use of NBC suits and masks. With such a great deal of focus on fortifying the body, one must ask whether the body is experienced as more vulnerable once they are stripped of this armor, once they return home. Furthermore, the vaccinations and medications given to them to protect them were, in the end, seen as harmful. Rather than thinking of these prophylactic measures as bolstering and protecting, they were seen to weaken the body and the immune system. Furthermore, sufferers suggested that internal body boundaries became permeable and weak. The preventative measures take center stage in theories of causation for the illness.

The veterans' relationship with the environment is altered: their body boundaries are porous and their immune systems damaged, leaving the body open and vulnerable to the environment. The immune system has become the means by which we understand notions of illness and health and is key to notions of vulnerability. The idea of the body as potentially open and vulnerable is not new: we see this idea in various cultural and temporal spaces.<sup>20</sup> When a particular society feels most vulnerable it is often the case that the permeability of individual bodies is experienced more acutely. Boddy's (1989) work reveals how body orifices (predominantly women's) are seen as vulnerable to outside forces when a community is under threat.<sup>21</sup> Perhaps the most influential scholar in this area is Mary Douglas, who has argued that bodily margins are analogous to social margins, and orifices



are the “specially vulnerable points.” Orifices, of course, are liminal in that they let what is in out and, more importantly for the purposes of this chapter, they allow what is out in. They are the points where substances in the environment can enter the body. In my book I discuss the shifting boundaries in military culture (that is, increased entrance of women and civilians, changing roles from warrior to peacekeeper), and suggest that the soldiers’ notions of permeable barriers and vulnerable body boundaries are a reflection of their specific experiences.<sup>22</sup>

#### **CHEMICALS: EVER-PRESENT, ONGOING RISK**

The atmosphere is intimate and personal, but what happens when it is seen as entirely dangerous and risky? The Gulf War was seen as uniquely toxic—the environment itself was seen as harmful. The people I interviewed commonly referred to it as a “toxic soup.” Not only were there individual toxins but there was the notion that these could be interacting in new and dangerous ways and, perhaps, creating even more terrifying substances. A particular experience can influence the way a person and/or group reacts to and engages with their environment in an ongoing way. Veterans feel themselves to be more sensitive to the atmosphere as a result of their Gulf War exposures. Sensitivity is linked with a distinction between natural substances and anthropogenic toxic substances—veterans suggest that their bodies react to anything unnatural. William, an ill veteran, was concerned about chemicals and exposures both in the war and in his daily life:

I have now heard that as well as the inoculations, some of these things had additives put in. Now, I don’t know what they were, but I do know that any chemicals in this day and age can damage the body. I believe that many chemicals in everyday use can damage the body. . . . I’m now using solvents at work[;] I always try to put a mask on and wear gloves so I don’t come in contact with chemicals. I try to avoid foods that I know have a lot of additives. I always wash vegetables and fruits before eating them because I believe they spray them with chemicals, which I don’t want to take. . . . I do believe chemicals do build up. I always have windows open. I feel there are a lot of chemicals and modern substances giving off vapors the whole time that are very bad and I think they will be proved in the future to be harmful to people’s health.

One sufferer spoke about his sensitivity to chemicals: “I’m more sensitive now to cleaning stuff like bleach. Petrol fumes, as well, bring me back to

the Basra Road. Especially burnt [smells remind me of] petrol bombs. Like when kids get a car and burn it out. It never affected me before, but it affects me now . . . more sensitive to it now.”

This veteran’s comments are typical and demonstrate a belief that the Gulf War made them susceptible and vulnerable to everyday chemicals. Such discussion moves easily from this form of sensitivity to a different way one can be affected by the environment: in the form of smell. Smells are often spoken about as powerful reminders of the war. Indeed, discourse around post-traumatic stress disorder commonly refers to the way smells can be a trigger for flashbacks. Similar to a larger cultural trend of living life through a prism of fear, the fear of chemicals and the environment is one of the “quiet fears” of everyday life discussed by Furedi.<sup>23</sup>

Some veterans complain of multiple chemical sensitivity (MCS), and I have argued elsewhere that there is an overlap with MCS and other members of this family of emergent and contested conditions.<sup>24</sup> GWS is reflective of wider cultural health anxieties found at the time of its emergence. Recent times have been marked by a “resonance for an apparently endless series of health scares.”<sup>25</sup> These anxieties have included radiation from mobile phones, MCS, and genetically modified organisms. The genealogy of these concerns themselves can be traced to cultural movements: anxieties about pesticides, for example, can be seen as linked to the ecology movement, heralded by Rachel Carson’s seminal book *Silent Spring* (1962).

My anthropological project of seeking to understand GWS through contextualizing and tracing its roots resonates with the historical project of the scholars represented in this volume. Jim Fleming’s body of work on historical readings of anxiety about climate change is of particular interest. Since the mid-1980s, the dominant concern about the environment has been global warming from rising concentrations of CO<sub>2</sub> and other greenhouse gases. As Fleming states, “In 1988 scientists James Hansen of the National Aeronautics and Space Administration announced to Congress and the world, ‘Global warning has begun.’ . . . [C]ombined with a continual stream of negative news about the stratospheric ozone layer since 1985, [this] has resulted in a major shift in humanity’s relationship with the Earth’s atmosphere. The clear blue sky now seems menacing.”<sup>26</sup> As Jerome Namias pointed out in 1989, “the greenhouse effect is now firmly part of our collective angst.”<sup>27</sup> Importantly, Hansen’s comment was three years before the Gulf War, and such anxieties about the atmosphere and the environment more generally provide a backdrop to and inform their more specific concerns.

As Fleming has illustrated, the study of the “history of global change re-

minds us that there have been many global changes in our relationship to nature and that history, climate, and culture are closely interwoven. Climate apprehensions did not begin in 1988 or in 1957, or even in 1896.<sup>28</sup> What seems key here is that apprehensions about the environment have been found throughout history and in different cultural contexts and yet we seem to find ourselves in an acutely anxious time, which centers on the impact of humans on the environment. Fleming suggests that apprehensions “have been multiplying rapidly that we are approaching a crisis in our relationship with nature.”<sup>29</sup> These dangers loop back, affecting our own health: feeding into illness beliefs and experiences.

More and more social problems are being examined through the prism of risk. Or, as Bill Durodié would say, we are less a risk society than a risk-perception society.<sup>30</sup> The concept of risk has become fundamental to the way both lay actors and technical specialists organize the world. In the contemporary Euro-American context, risk is impossible to ignore and is central to understanding health beliefs and behaviors. Three social scientists have written extensively on risk: the sociologists Ulrich Beck and Anthony Giddens and the anthropologist Mary Douglas. Beck and Giddens focus on the trend toward individualization in late modernity. Divorced from social solidarities, people feel vulnerable and see events as out of their control or inevitable.<sup>31</sup> For Beck and Giddens, risk has become reflexive or, in other words, humanity now has to deal with the new ‘manufactured risks’ of its own creation. Douglas’s work focuses more on the social nature of decision-making in respect to risk. I would agree that the process by which people assess dangers is a social process, negotiated between individuals and institutions. Douglas’s work on risk is a continuation of her work on purity, risk, and danger. She argues that distinguishing something as a risk is a way of making sense of the world as well as a method of keeping things in their proper place. Risk in our culture plays an equivalent role to sin or taboo, but it acts in the opposite way: it protects the individual against the community. Of course, it is not that chemical weapons are not a valid risk, but why are some risks singled out for particular dread?

It has been well established that popular perceptions of risks from environmental hazards are very different from scientific calculations of the same risk.<sup>32</sup> Why? Because beliefs and understandings about risk are cultural. The Lele people of former Zaire, for example, are exposed to a number of diseases and dangerous natural phenomena, but they emphasize lightning strikes, infertility, and bronchitis in their thinking about risk.<sup>33</sup> The expat community in which I lived in Qatar seems to emphasize anxiety about

air conditioning and dust and yet quickly comes to terms with the perils of road accidents, although the latter are much more likely to cause immediate harm and death. This is particularly surprising given the statistics (which one can feel acutely on the streets of Doha), that 50 percent of young male Qatari deaths are due to road traffic accidents and that 18 percent of all deaths in Qatar in 2008 were caused by road accidents (compared to 2 percent in the United States).<sup>34</sup>

Interestingly, we again see air, in this case air conditioners, as the source of health anxieties. For British expatriate families the constant use and dependence upon air conditioners is a novel experience, which may in part account for the concern around their use. Similarly, the ever-presence of dust in the desert environment is unusual to those used to living in the United Kingdom and becomes threatening. However, once again we see that the nebulous and uncontrollable aspect of the air around us generates concern. Other groups and peoples emphasize other dangers. Not only are people's conceptions of risk often systematically distorted but at times they are also directly inconsistent, as when one and the same technology, namely radiation technology, is seen as being low-risk in medical use and high-risk in industrial use.<sup>35</sup> The concept of pollution is especially useful in political debates, because it bears the idea of moral defect.<sup>36</sup>

GWS appeared in a moment of heightened personal insecurities and risk aversion.<sup>37</sup> Veterans view the world as full of risk. They are likely to project pathological explanations for their symptoms. The popular belief is that the physical world is a potentially hostile place, full of chemicals, toxins, and viruses that erode health and well-being. In this way they are of their time, for "ours is a risk culture."<sup>38</sup> Importantly, it is the nature of the risk and the moral component that is key. For GWS the hazards at the center of their theories of causation are those that came from their own community.

### FRIENDLY FIRE

The discourse surrounding the role of chemicals in the environment is political: who was responsible for the exposures in the war and who were those affected? In the case of GWS in the United Kingdom, the politics of responsibility is manifested in the elaboration of the friendly fire metaphor in which one's own body and one's own side are responsible for one's suffering. The issue of friendly fire was particularly acute in the Gulf War. While the death toll among Coalition forces engaging Iraqi combatants was very low, a substantial number of deaths were caused by accidental attacks from other allied units. Of the 148 American troops who died in battle, 24 percent

were killed by friendly fire, a total of thirty-five service personnel. A further eleven died in detonations of allied munitions. Nine British service personnel were killed and eleven injured in a friendly fire incident when US Air Force Thunderbolt II A-10s mistakenly attacked two Warrior armored vehicles. The friendly-fire incidents held a prominent place in the imaginations of my informants and many spoke about them. The Gulf conflict, or more accurately, its aftermath, has extended the concept of friendly fire further. Some of the alleged “toxic” hazards that have been blamed for ill health are extensions of the friendly fire concept, since they also originated from “our side.”<sup>39</sup>

Only one exposure—the oil fires—was explicitly the result of enemy action, and it is interesting to note that this is the one that has attracted the least coverage and controversy. The veterans I spoke to rarely mentioned this exposure as a concern. The controversy about the possible role of sarin seems the exception to the focus on allied responsibility in that the Iraqis had it, the allies did not; but any exposure from the Khamisayah incident is blamed on Coalition forces, and if we look further we see attempts to sue US contractors who are alleged to have supplied the Iraqi regime with the precursors needed to create sarin and cyclosarin.<sup>40</sup>

Of course, the concept of friendly fire, felt so acutely in the case of GWS, resonates with the fears discussed in the other chapters in this volume. Pollution, ozone depletion, airborne disease, and toxic pneumonia: it is the atmosphere itself, ever-present and all encompassing, that becomes pathological. We need air to live and yet this life-saving substance can also be a risk to our health. I am reminded of Mary Douglas, who asks, “What are Americans afraid of?” The air they breathe. It is the invisibility of the risks that created anxiety among veterans. The negative effects of chemicals in the air and their effects on health are one way of making the invisible visible. But how does one fight that which one cannot see? We cannot. So instead, at least in the GWS case, an entity or a substance is focused upon as the enemy: the establishment or the chemicals. The veterans’ fight for recognition of their disease became focused on the military, the government, and science. These three establishments are seen as responsible for making them ill and exposing them to the chemicals and toxins of the Gulf War. This concept of “friendly risk,” where the agent is a product of their own side, resonates with ideas contained in other chapters in this volume, that the agent of pollution or climate change is perceived as a good thing, such as modernization, while faith in the values that unleashed these agents is undermined and a sense of betrayal created.

I am interested in the reasons why health scares often involve such impassioned debates: they represent a battleground upon which people could defend their views of the world and of their bodies. As the sociologist Émile Durkheim noted: who and what we fear, and how we express and act upon such fear, is constitutive of who we are. Anxiety about the effects of certain substances on health can be seen as part of taboo—a modern expression of these more basic ways of structuring our relation with the environment, and consequently this relation contributes to define our own identity. The discourse around causation of GWS certainly has the moral dimension of risk that Douglas emphasizes. Whereas chemical weapons play a role in theories of causation, they wane and instead exposures blamed on one's own side take center stage; when sufferers refer to their illness as "life friendly fire" they are emphasizing who is to blame. This is particularly interesting given the capacity of chemical weapons to terrorize and that the experiences of illness are significantly associated with a belief that chemical weapons were used. But when veterans talk about their illness chemical weapons diminish in importance. Instead, the preventative measures used to protect bodies from a chemical weapons threat are implicated foremost. The friendly fire metaphor is extended: one's body turns on itself in the illness just as one's own government has turned on one. Chemicals in everyday environments and bodies are the source of ongoing concern. Importantly, chemical weapons exposure would also only have affected a small number of soldiers and would not have accounted for the vast numbers of those ill with GWS (including those who were not deployed to the theater of war).

As Brenda Walter's essay in this volume conveys, there is continuity between medieval fears and health anxieties of today where air and the environment are seen to affect and act upon the body. In the Middle Ages as well as now the atmosphere of a given region could become toxic enough to cause bodily harm. Why are these fears of a toxic environment so compelling and worthy of such dread, even among soldiers during warfare? These apparently new risks are not seen as part of the traditional military contract.<sup>41</sup> They fall outside what is expected and, of course, this is far more problematic when the hazards appear to be self-inflicted, as outlined in the discussion of friendly fire above and its particularly emotive resonance for the Gulf War. Control is also one reason why these risks are seen as particularly problematic. Like civilians, "the military seem accepting of other risks over which they feel they have a choice—such as driving or sports injuries, a perennial cause of serious injury and staffing difficulties."<sup>42</sup> The risks dis-

cussed here have the sense that they are uncontrollable. Furthermore, the invisibility of the risks and the resulting invisibility of the illness are central to this analysis.

Discussion of the Gulf War by GWS sufferers focuses on the atmosphere as dangerous and filled with toxins. There is an anxiety about chemicals and the substances to which they were exposed. Furthermore, these exposures change them irrevocably, damaging their bodies and altering their immunity, making them more vulnerable to potential hazards in their home environment. Their relationship with their bodies and their interaction with the environment around them is irrevocably altered by their experiences in the war. Their environment is risky and threatening.

## NOTES

1. "The Persian Gulf War (Jan. 16, 1991–Apr. 6, 1991)," Infoplease.com, <http://www.infoplease.com/ipa/A0001293.html#ixzz1wgJ5oQDI>.
2. See Kilshaw, "Friendly Fire," and Kilshaw, *Impotent Warriors*.
3. Kilshaw, *Impotent Warriors*.
4. Carden-Coyne, *Reconstructing the Body*; Jones et al., "Enduring Beliefs."
5. Wessely and Freedman, "Reflections on Gulf War Illness," 722.
6. Brewer et al., "Why People Believe."
7. "Studies Track Gulf War Illness," accessed June 2, 2012, <http://www.gulfink.org/stories/disasternews/studies.htm>.
8. Wessely, "Risk, Psychiatry."
9. Kilshaw, *Impotent Warriors*, 31.
10. Riddle et al., "Chemical Warfare."
11. Gray et al., "Postwar Hospitalization"; McCauley et al., "Illness Experience." Committee on Gulf War & Health 2004.
12. Riddle et al., "Chemical Warfare."
13. Kilshaw, "Paternity Poisoned."
14. The project is funded by the Qatar National Research Fund (award number: NPRP 4-1204-5-177).
15. Jones et al., "Enduring Beliefs."
16. Ibid.
17. Ibid.
18. Ibid.
19. Kilshaw, *Impotent Warriors*.
20. See Walter, this volume.
21. Boddy, *Wombs and Alien Spirits*.

22. Kilshaw, *Impotent Warriors*.
23. F. Furedi, "The Only Thing We Have to Fear is the 'Culture of Fear' Itself," last modified 2007, accessed June 1, 2012, <http://www.spiked-online.com/index.php?site/article/3053/>.
24. Kilshaw, *Impotent Warriors*.
25. Fitzpatrick, *MMR and Autism*.
26. Fleming, *Historical Perspectives*, 235.
27. *Ibid.*, 238.
28. *Ibid.*, 236.
29. *Ibid.*, 3.
30. Durodié, "Concept of Risk."
31. *Ibid.*
32. Slovic et al., "Intuitive Toxicology."
33. Douglas and Wildavsky, *Risk and Culture*.
34. Qatar Statistics Authority, accessed June 2, 2012, <http://www.qsa.gov.qa/eng/index.htm>.
35. Slovic, "Perceptions of Risk."
36. Douglas and Wildavsky, *Risk and Culture*.
37. Furedi, "Only Thing We Have to Fear."
38. Giddens, *Modernity and Self Identity*, 3.
39. See Kilshaw, "Friendly Fire," and Kilshaw, *Impotent Warriors*.
40. Wessely and Freedman, "Reflections on Gulf War Illness."
41. Wessely, "Risk, Psychiatry."
42. *Ibid.*, 464.

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