

Toxic Soldiers, Flickering Knowledges, and Enlisted Care: Dispossession and Environmental Injustice

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Abstract

Based on fieldwork with US veterans, this essay examines the production of “toxic subjects” through three types of toxic chemical exposures in the history of US soldiering: exposure to Agent Orange during the Vietnam War, to a mix of contaminants that produced Gulf War illness in the first Gulf War, and to the burn pits used for waste disposal on bases throughout the US occupation of Iraq and Afghanistan. While all toxic subjects are at odds with established systems of medicine and law, toxic subjects in military formations are especially challenging. Deeply entrenched ideas about soldiers’ able-bodied masculinity and readiness for sacrifice complicate engagement with toxic soldiers. Programs of care offered by the US Department of Veterans Affairs (VA) are crucial but limited in their reach, as are the advocacy campaigns of veterans’ organizations. What we’ve described as the “flickering knowledges” of toxic subjects produce further complications. In concluding, we point to ways work with toxic soldiers extends how we think about environmental injustice, recognizing the importance of hermeneutic dispossession.¹

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Figure 1. Jasper Johns, *Flag (Moratorium)*, 1969 <http://www.jasper-johns.org/flag.jsp>

Look briefly at Jasper Johns' *Flag (Moratorium)* and one will see what appears to be the US flag, painted in army green and orange, with a small pin—or dare we say bullet?—hole at its center. Yet glance away after staring at the painting, and one “sees” the US flag projected in its familiar red, white, and blue, as if materializing out of nowhere. The intensity of the specter directly correlates with how long the viewer stares at the original painting.

Some people can never see it. Trying harder does not always work. Sometimes, one just has to believe that someone else, differently positioned, even if slightly, has been able to catch the difference, the double reality. What the painting *is* remains unclear: Is the primary image the orange and green version, or is it the traditional red, white, and blue? Which do we remember? Or is it the flicker itself that we recall and replay? Once the double has been seen, it is difficult to unsee. One sees both images at once, in contestation.

A variation of the famous duck–rabbit illusion, in which both a duck *and* a rabbit can be seen in the same illustration, the flag is multiple things at once. Wittgenstein's (1953) famous rumination on the duck–rabbit conundrum helps to further this point, explaining how viewers will first see either a duck *or* a rabbit, but cannot report seeing something that they have no frame of reference for. *Flag*

(Moratorium) requires similar expertise, as the viewer only sees the illusion once they know to look for it or accidentally stumble upon it, and then they trust in what they see. Viewers need—and are limited by—expert eyes.

Apprehending and experiencing toxic chemical exposure is similar, and this is one of our arguments here. Like Johns's flag, toxic exposure presents in fleeting, illusive ways—to those exposed and to those responsible for their care and compensation. Like the traditional red, white, and blue flag that flickers into view in Johns's *Flag (Moratorium)*, toxic exposure is hard to see, validate, and endure.

In this essay, we elaborate our understanding of how toxic chemical exposure produces "toxic subjects" at odds with established systems of medicine, law, and sense-making. Toxic subjects in military formations face particular challenges.² Deeply entrenched ideas about soldiers' able-bodied masculinity and readiness for sacrifice make toxic soldiers particularly difficult to account and care for. Programs of care offered by the US Department of Veterans Affairs (VA) are crucial but limited in their reach, as are the advocacy campaigns of veterans' organizations. Collective engagement with toxic soldiers, and toxic subjects more generally, is practically and categorically difficult. Often, people are exposed to many different hazards at once, in various concentrations, in varying amounts of time. Individual susceptibility is also very variable, as are health outcomes. This variability is hard to capture in collective terms, especially when there is concerted effort to deny it. It is also hard to account for in science, biomedicine, and law.³ While the science of toxics has developed dramatically in recent decades (with very sobering results), it still fights for regulatory standing. Toxic subjects are thus left largely on their own, out of sync with each other and the logics of the worlds they inhabit, producing characteristically late industrial forms of dispossession—failures of connection and care resulting from the operations of the very systems designed to provide such connection and care. The alienating effect is thus redoubled, coming both from overt denials of access to needed systems and from loss of trust in these systems; from the need to continue to work within systems known not to work and from everyday experiences of non-knowledge as knowledge. The truth constantly flickers in and out of view.

In what follows, we describe the tangle of systems and dynamics that produce toxic soldiers and their dispossessions. Drawing on the infrequently cited history of the subaltern as a military subject, we cast soldiers as toxic subjects and as subjects of environmental injustice.⁴ Working with an especially literal instantiation of "the subaltern" (before Gramsci or postcolonial scholars began leveraging the term, the term was used to describe lower ranked military

members) allows us to help toxic soldiers speak, so to speak, giving them “the possibility of metonymizing oneself” (Spivak, 2012, p. 438)—the capacity to understand and experience their conditions collectively, politically, and culturally.⁵

Toxic Subjects, Toxic Soldiers

Completed in 1969 at the height of the US war in Vietnam, *Flag (Moratorium)*, like the war, presents in different ways—and its effects are unsettling.⁶ It wavers ontologically and ontology itself. This instability, we will argue here, is key to the character of “toxic subjects”—subjects, human and otherwise, that have been produced by harms that are degrading, often operating insidiously rather than overtly. Working in ways akin to slow violence (Nixon, 2011), toxic subjects are often constituted by the unspectacular, the invisible, the unrepresented. They are present, and not.

Our account here follows soldiers exposed to toxics in three US wars: Agent Orange during the Vietnam War, the varied exposures of Gulf War soldiers, and the exposures produced by large-scale burn pits in the US occupation of Iraq and Afghanistan.⁷ There are other important cases of toxic soldiering and military environmental injustice—WWI mustard gas exposure and toxic water supplies on US military bases today, for example. We focus on soldiers in Vietnam, the Gulf War, and in Iraq and Afghanistan because veterans themselves pieced these war experiences together, weaving important histories of government disavowal, illegibility, and dispossession.⁸

In 1969 it became widely known that the 2,4,5-T component of Agent Orange included dioxin, which was found to cause adverse health effects and birth outcomes in lab studies. In April 1970 the US government restricted use of dioxin, and therefore Agent Orange, in Vietnam and the US. In Vietnam, Agent Orange was used as a defoliant, sprayed from the air in mass amounts. The last official spray run by the US Air Force took place on 7 January 1971, though South Vietnamese forces continued to spray the remaining stocks of Agent Blue and White throughout 1971 and 1972. Despite the known risks of dioxin, the link between veteran illness and Agent Orange exposure was slow to formally materialize (Institute of Medicine, 1994). Most often, soldiers were not officially informed about their exposures and risks but left to figure it out on their own.

As Rick, a Vietnam veteran, tells us in the following interview excerpt, toxics come to take on multiple, mutable meanings:

We were just doused in it [Agent Orange]. If we had any idea that we'd be fighting this war for generations after we got home, I'd like to think that we'd have thought twice before we swam in it. My diabetes and prostate cancer are Agent Orange and now I'm wondering about my daughter's issues...My buddy from the service was a victim of it [Agent Orange], but he didn't know that was where all of his issues were coming from. If you think they were hiding the truth from us about it during the war, just look at how they're hiding the truth from us Agent Orange guys now.

In addition to a now common moniker for President Donald Trump, Agent Orange is a chemical, a commercial product, a cross-national experience, an illness, a class of veterans, and a metonym for cover-up and deception. Even discursively, Agent Orange operates as toxin, unstable in substance and meaning, penetrating subjects in both anticipated and unexpected ways. Like Johns's *Flag (Moratorium)*, the image of Agent Orange flickers in and out of view, sometimes registering as an object of concern, other times, as a question. Rick continues:

I know I was exposed, I mean, we all were. But it's hard for me to tell what's from that and what's just from getting older. Is my diabetes from Agent Orange or is it because I'm overweight? It's just hard for me to understand how we can tell for sure, or if it really matters.

Questions—about toxicity, exposure, and injury—persist across our three cases. Consider Peck, a veteran of the Gulf War, in his early twenties, married, and wanting to start a family. It was 1995. Instead of artillery fire, Peck was hit with media fire—inundated with information suggesting that he and his family may suffer long-term health effects from exposures during his military service. Information inundation came via the newly accessible internet, the nightly news, coverage by *LIFE* and *People* magazines, from his own body. The data points were varied and contradictory. The military insisted there was no significant exposure to chemical or biological weapons during deployment in the Gulf, that all drugs used in anticipation of exposure were safe and any illness among veterans was not statistically significant. Posts on online message boards insisted otherwise. Peck as toxic subject flickered in and out of view (K. Fortun, 1999).⁹

Nearly everything used and produced in the US occupation of Iraq and Afghanistan—from food waste to chemical drums to automotive parts to medical waste to batteries to human excrement—was thrown into a pit, doused with jet fuel, and incinerated, sometimes just feet away from where soldiers worked and slept. The pits were operated by the private company Kellogg, Brown, and Root

(now KBR, Inc.), a former subsidiary of Halliburton, infamous in some circles as a war profiteer and for its role in the Deepwater Horizon oil disaster in the Gulf of Mexico (Krauss, 2014; Young, 2013). While burn pit exposure is often discussed as though it is a singular exposure, a singular toxin, the types of exposures varied from pit to pit and over time—pits were of different sizes, managed with different techniques, and burned different forms of refuse (Garshick et al., 2019). Such variability makes recognition of the exposure difficult, and collectivization for class action near impossible.

As troops returned home in the mid-2000s with complaints including respiratory illnesses, gastrointestinal disorders, neurological problems, and cancers, formal Department of Defense (DOD) and VA response was slow to materialize. Many veterans, too, were slow to see burn pit exposures as having enduring consequences. Scott, for example, was not concerned about his exposures during or immediately after his three tours of duty. Only after going to the hospital for an x-ray because of back pain following heavy lifting did doctors find a nodule on his lung. He remarked, “The doctors didn’t put it together. They asked me if I smoked, but that was about it.” Only after seeing a Facebook post from a member of his unit describing his own lung condition did Scott consider that the nodule might be from his exposure to the burn pit in Balad. Today, he and his doctors wait, monitoring the nodule, anticipating what might come next, still unclear whether the nodule and burn pit exposure are connected. Scott isn’t even sure the questions are worth asking:

I’m not sure if it really matters. They say that the treatment wouldn’t look different, depending on what, if anything, it turns into. I don’t think it would give me much peace of mind to know that’s what it’s from—except unless they could tell me it wasn’t from that, and it’s genetic. That might give me information I would need.

Like the way veterans experience Agent Orange and Gulf War illness, the health effects of burn pits flicker in and out of view; many veterans who know they were exposed wait for symptoms to emerge, while others we spoke with emphasize more immediate concerns: housing, reintegration, and post-traumatic stress symptoms, among others. Toxic soldiers inevitably have a lot going on, complicating recognition of toxic exposure as a source of harm.

Flickering Knowledges

Scott’s concern that his nodule is from a genetic condition, instead of the burn

pits, points to the intergenerational flicker of toxic harm, which also cuts across our cases. Bruce, a sixty-eight-year-old draftee who served with the Brown Water Navy from 1969 to 1970 tells us how his daughter's concerns over the link between his Agent Orange exposure and her hip dysplasia changed his sense of what information is important, and how it should be shared:

I never really made much of it [Agent Orange]. I did my best to put all of that stuff behind me once I got home and move forward. I didn't talk about the war—I don't think many of us did. So my kids never heard about where I was or anything until my daughter came to me and demanded to know. So I never thought about the exposure because I tried not to think about any of it.

Peck told us about a news story recounting how a baby was born without an ear and with a heart in the wrong place. He told us about his headaches, which he once would have ignored, and about a report from the US General Accounting Office about the use of a new kind of ammunition in the Gulf: shells jacketed with depleted uranium. The skin rash, flickering in and out of view, lurking beneath the surface. The glossy November 1995 *LIFE Magazine* cover, asking if our country has abandoned them; the cover photo is of US Army Sgt. Paul Hanson and his two-year-old son Jayce, who has no arms. Peck tracked these on his own, out of touch with fellow soldiers, not wanting to worry his wife. For Scott, and other burn pit veterans inundated with similar media streams, these are nosebleeds, and Facebook posts, and reports of skyrocketing cancer rates. They are DOD memos and scientific studies—some produced by the VA, some not—employing a dizzying array of study designs and nomenclature. For Rick, these are images of grandchildren with spina bifida, reports of still ongoing Agent Orange cleanup in Vietnam, and the diabetes that will always remain a question.

Toxic soldiers strain to hear, reach for sense, and pay attention to a flurry of input. To a website with eyewitness reports of herds of dead animals, which even flies would not touch. To academic studies of skyrocketing asthma rates and failed physical fitness tests among troops. To reports of nerve and mustard gas detections by Czech forces, which were never confirmed. To news coverage of the effects of Agent Orange on Vietnamese children. To claims, consistently denied by military officials, of mass burials of thousands of Iraqi bodies allegedly contaminated by chemical or biological weapons—what some called Operation Desert Sword. To missing medical records, including accounts of adverse reactions to anthrax vaccinations.

In isolation, any one of these “grains of salt,” as Peck referred to them, would not have seemed significant. It was the cumulative effect that got to him, and our other veteran interlocutors. Every new piece of information sends them online, where they find another and another. Environmental health threats come through new media.

Toxic soldiers are caught between different ways of seeing and left largely on their own to figure things out. There is communicative dissonance without a metanarrative to resolve the noise. Systematic chemical exposures coupled with systematic distrust. The exposures and its effects were structurally produced, but lived out individually, making it difficult to organize as a class.

Military Subjects

We first met Greg, an Army sniper who lost his leg in an improvised explosive device blast, at a ski camp for amputees. Funded by the VA, Greg made his way to New Hampshire from Alabama to see if he might enjoy skiing and possibly—and more importantly—be *good* at skiing. The VA will provide monthly stipends and cover equipment and training costs for disabled veterans competing at the national level in adaptive sports (Shpigel, 2018), making this an attractive opportunity for eligible veterans. Camps like this are high energy displays of bodily capability, a place for the injured to reassert strength and prove themselves “recovered.” Veterans are competing against one another not only for a place on the team but for the financial and social recognition that comes with it. The camps are sites of intense competition and masculine bravado. Greg fit right in, or seemed to.

Throughout his recovery—surgeries, being fit for a prosthesis, physical therapy, and at the ski camp—Greg had a cough that he could not seem to shake. He explained, “They [clinicians and physical therapists] would tell me, ‘your body is settling out. It’s adjusting. You’ve been through a lot.’ They made the cough almost normal.” Greg’s amputation eclipsed any concern for what seemed like a rather banal cough.

When he was diagnosed with constrictive bronchiolitis—a degenerative lung condition—Greg’s diagnosis ushered him into the ranks of the thousands of US veterans of the post-9/11 wars in Iraq and Afghanistan thought to be suffering from the effects of burn pits, though the diagnosis was slow to cohere. Greg’s VA physicians were hesitant to draw any connection between the pits and his diagnosis. He describes how many of the physicians he encountered had not even

heard of the burn pits; only after showing them videos of the massive pits on his phone did they seem to recognize the enormity of the exposures. "I think when I told them 'burn pits' they were thinking those small barrels people burn household trash in," he says. "But once they could see that the guys used bulldozers to move the waste around, that the pit was that enormous, I think it became harder to rule out." Greg's physicians eventually grasped that there could be a connection between burn pit exposure and his illness. Broader VA and DOD recognition has been more of a fight.

As Greg's story shows, contemporary military medicine is best known for advances in orthopedic and rehabilitative medicine, dealing with the "signature injuries" of war (Terry, 2017). Amputations are indexical; traumatic brain injuries are also common. The bodies of injured soldiers are advertised as displays of heroism and patriotism, capturing public fascination with the latest in prosthetic innovation. In these cases, the VA is oriented by a "sports model" that "emphasizes achieving a high level of physical functioning" (Messinger, 2009, p. 2131) in war recovery.

With a goal of returning soldiers to duty—or at the very least, molding them into adaptive athletes, what Susan Wendell (2001) might term the "healthy disabled" (p. 19)—military medicine reinscribes masculine notions of ability and service. Beth Linker's (2011) history of military rehabilitation in WWI provides perspective, describing how contemporary rehabilitation sciences developed, shifting from focus on the bodies of disabled children to returning the injured bodies of veterans to full function, in what she calls a "rehabilitation ethic" (p. 1). Like other highly visible biomedical campaigns, this was an effort to reestablish productivity and social order:

Rehabilitation was thus a way to restore order after the chaos of the war by (re)making men into producers of capital. Since wage earning often defined manhood, rehabilitation was, in essence a process of making a man manly...As now, rehabilitation holds out the promise that the wounds of war can be healed (and thus forgotten) on the national as well as individual level. (Linker, 2011, p. 7)

Like Linker, Zoë Wool (2015) argues that the injured veteran body represents a threat to the state, a visible reminder of the failures and presence of war, which must be remade. The injured veteran has to be fixed. Caring for toxic soldiers is less straightforward.

Military bodies are almost universally young, male, and able-bodied, reflective of the ideals of the state to which they belong, or what Meira Weiss (2004) refers to as the “chosen body” in the Israeli Army, exemplars of health, physical fitness, masculinity, national purity, and strength. Toxic exposure complicates these fixed notions of gender and strength, often registering—quite literally—as weakness and incapacity, unsettling soldiers’ occupational capacity and roles as providers for the family (Waldman, 2011).¹⁰ In the flickering, recognition of toxicity works against dominant constructs of both masculinity and injury, an acknowledgement that the soldiering body is penetrable and vulnerable (Chen, 2012; Roberts, 2017).

Military medical and compensation systems privilege *certain* injuries—certain here, meaning “known for sure” and “specific.” Toxic exposures typically do not register as certain in either sense. Military medical systems are geared to apprehend and attend to visible, traumatic injuries that demonstrate clear and immediate cause-and-effect—without the diagnostic messiness or symptom latency so common with toxic exposures. The body of the toxic soldier—and toxic subject, more broadly—does not have the privilege of such apparent physical injury, or linearity from exposure to symptom. Unlike those injuries that can be “healed” through a high dose of advanced prosthetic technology and sport, toxic injury is instead more of an *illness*. Illness, unlike injury, is frequently contested as it often cannot be apprehended through the modes of visualization and localization central to clinical medical practice. Historically coded as feminine, illnesses challenge military constructs of strength, duty, and masculinity. Toxic illnesses, in particular, are met with skepticism for the ways they defy conventional biomedical logics (Alaimo, 2010; Murphy, 2006) and are further feminized through associations with “hysteria” and “psychosomaticism” (M. Fortun & Bernstein, 1998; Murphy, 2006).¹¹ While the overtly injured soldier may be seen as worthy of state-sponsored benefits, the toxic soldier is frequently seen as undeserving in his supposed malingering, and further feminized through his dependence on the state (Bulmer & Eichler, 2017).

Like forms of invisible disability, illnesses related to military toxic exposure challenge entrenched modes of clinical and social apprehension. Without hegemonic markers of disability—accepted diagnoses, use of highly visible assistive devices, and so on—invisible disability does not register socially or biomedically. Those with these conditions are engaged in a constant dance of deciding when and how to “come out” to others about their illness status (Myers, 2004; Samuels, 2003; Siebers, 2004).

Cal Montgomery (2001) points out that nominalizing some disabilities as “invisible” may simply be a convenient way to dismiss the unfamiliar, re-entrenching clinical norms that link visibility with legitimacy. While respecting this argument, we maintain that the epistemic instability produced by toxics is key and important to call out. It is not a matter of seeing or not, of being visible or not, but a constant shifting between these states. In this sense, unlike injuries, toxic exposures are “apparitional” (Price, 2010, p. 304), flickering in and out of view and requiring modes of apprehension beyond the “making visible” that is key to clinical medicine.

Enlisted Care

Veterans suffering from unexplained symptoms frequently face skepticism from practitioners, who often suggest that their suffering is “only psychosomatic.” Only upon discovering—through connections to fellow veterans in formal organizations or on social media—that others have similar symptoms or experiences, do veterans begin to understand and experience their symptoms through a toxics lens. The DOD and VA have not met them halfway. In order to obtain care—deeply coupled with compensation—veterans must be injured in very specific ways that align etiologically and temporally with DOD and VA standards.

In 1921 Congress first established the first “presumptive illness” list that linked presumptions of service connection to particular conditions, beginning with tuberculosis and psychosis. While presumptive illness lists can appear to ease the burdens on veterans who are seeking to “prove” service connection, getting a condition on the list is a long and politically and scientifically contentious process. In 1991 the Agent Orange Act (P.L. 102-4) established a presumption of service connection for diseases associated with Agent Orange. Under this act, the VA was required to contract with the Institute of Medicine (IOM) (now the National Academy of Medicine) to conduct a scientific review of the evidence linking certain medical conditions to Agent Orange exposure. This process, of course, depends first on the existence of peer-reviewed scientific publications, which are then reviewed according to notions of what defines “good evidence” before recommendations are sent to the VA Secretary. In this complicated nesting of bureaucratic bodies, evidence is often fraught with politics. The National Academy of Medicine plays a prominent role in the collection, curation, and dissemination of research data, facing pressure from both above and below in the process.¹²

Notably, being diagnosed with a listed condition is not enough for many veterans:

in preparing and submitting their claims, they are further challenged by the poor recordkeeping practices in many military base clinics, and many remain unable to find and access their service records at all (Yarborough, 2013). Establishing a condition as service-connected also hinges upon a veteran proving that they served in a particular location at a particular time. For many veterans (particularly pre-9/11), locating documentation to support their service location proves difficult. Further, some locations fall almost completely out of view. “Blue Water Veterans” (sailors serving off the coast of Vietnam), for example, have only recently succeeded in gaining recognition for Agent Orange exposure - because there were no official records of Agent Orange being used off the coast, despite hefty anecdotal evidence (Raghavendran, 2019).

Veterans with health conditions that do not align with narrow understandings of wartime injury face enormous challenges in accessing care and compensation. They are, literally and figuratively, subaltern, lacking access to the dominant discourse that would render their illness recognizable.

While “Atomic Veterans” called for recognition after exposure during WWII, Vietnam-era veterans exposed to Agent Orange were the first large-scale veteran group to seek government recognition for environmental exposure and associated illness.¹³ Those exposed to Agent Orange have suffered a wide array of health impacts, ranging from chloracne to type 2 diabetes.

Currently, only fourteen conditions are on the presumptive illness list for exposure to Agent Orange, but advocates push for dozens more to be included. In many cases, the science remains incomplete or undone despite advocacy work by veterans and veterans’ organizations. In other cases, such as hypertension, the VA refused to include conditions despite the National Academy’s finding of a strong causal link with exposure. Former Secretary of Veterans Affairs Eric Shinseki claimed that the economic impacts of including hypertension on the presumptive list did not enter his decision making, for example, claiming instead a lack of robust evidence (Daniel, 2010). Veterans describe this as “delay, deny, hope we die,” and see the VA as refusing to include conditions because of not wanting to pay for care and back disability claims.

For conditions that do not appear on the list, the burden of proof falls on the veteran—or oftentimes the veteran’s widow, given the slow speed at which these claims are processed. Veterans detail how they develop and share lists of physicians known to advocate for veterans with toxic exposures and learn to find

and decipher scientific literature, which they include as evidence in claims filed to the VA. This advocacy helps to settle the flicker, even if only momentarily. American Legion and VFW Ladies Auxiliary groups were integral to the early dissemination of Agent Orange health information and where many veterans we spoke with first recognized that their symptoms might be related to their service. Veterans' organizations continue to be important spaces where people learn to navigate the VA claims process.

Once claims arrive at the VA, they face uncertain futures, with enormous backlogs that are each assessed individually by different reviewers. No data is kept regarding claims, and the wait for an appeal hearing after a claim is rejected could take decades. While establishing service-connected injury alone is difficult in these cases, veterans must also prove where and when they served, especially difficult for Vietnam-era veterans who were affected by the 1973 National Personnel Records Center fire, which destroyed or damaged 16 to 18 million service records for service from 1912 to 1965 (Stender & Walker, 1974).

The process has repeated with burn pit veterans. It was a big deal when Senators Amy Klobuchar and Thom Tillis crossed partisan lines in 2016 to declare, "Today we have a new Agent Orange: Burn pits." Though the comparison between Agent Orange and burn pit exposure had been made in veteran web groups and in small town newspapers for years, Klobuchar and Tillis's (2016) Fox News op-ed gained enormous traction among military and civilian communities, rekindling sentiments of uncertainty, cover-up, and suffering even while celebrated. While the bureaucratic barriers Agent Orange and burn pits veterans face are quite similar, their initial exposures actually have very little in common. When we asked the leader of a prominent burn pits advocacy group why the comparison to Agent Orange and burn pits was so frequently drawn, rather than Gulf War illness perhaps, they replied, "Everyone knows that Agent Orange was a giant cover-up. The government decided to spray even when they had evidence it was harmful. Burn pits are the same thing." The comparison to Agent Orange is a strategic one. While its effects are varied and far-reaching, Agent Orange remains relatively well bounded—a singular agent with a known chemical formula, it can be studied in the laboratory and pinned down. Connecting burn pit exposures to Agent Orange is a way to suggest that burn pit exposures are as straightforward as Agent Orange, with a well-recognized and singular source. Reference to Gulf War illness remains contested, unstable, flickering: exposures were too numerous, inconsistent, and poorly documented, and the effects too varied and poorly understood.

In 2009 the VA commissioned the National Academy of Medicine to conduct a study of the burn pits—using an approach similar to one used to assess the health effects of Agent Orange. Two years later, the commission reported that there was not adequate data to conclude “whether exposures to emissions from the burn pit at Joint Base Balad have caused long-term health effects” (Institute of Medicine, 2011, p. 114). Like similar failed IOM studies of Agent Orange and Gulf War illness, the study was not based on air samples from the site of exposure, but on data from comparative populations—in this case, a “risk assessment analysis” of firefighters and incinerator workers.

While soldiers and civilian physicians registered concerns over the health impacts of the pits, official military concern over the pits outside of the IOM study was silenced. In a 2006 memorandum, Air Force bioenvironmental engineer Lt. Col. Darrin Curtis wrote, “In my professional opinion, there is an acute health hazard for individuals. There is also the possibility for chronic health hazards associated with the smoke” (Curtis & Elliott, 2006, p. 1). Physician and Chief of Aerospace Medicine Lt. Col. James Elliott concurred and added, “In my professional opinion, the known carcinogens and respiratory sensitizers released into the atmosphere by the burn pit present both an acute and a chronic health hazard to our troops and the local population” (Curtis & Elliott, 2006, p. 2). Lt. Col. Curtis’s memorandum was not made public until a 2011 Congressional inquiry into the burn pits, which laid ground for legislation to establish a burn pit registry. Public Law 112 was signed into law on 10 January 2013 with bipartisan and veteran support, requiring the VA to establish a burn pit registry. Veterans walked us through trying to sign up for the registry. One repeatedly received an error message when he attempted to log in. Another found that he could not even reach the landing page—across various browsers; on- and off-base, the registry page refused to load.

Technical issues aside, the registry still faces harsh criticism for the way it makes the burn pit data unactionable. The categories for inclusion left out soldiers who built their own pits to burn waste, leaving them unable to register in every sense. Many veterans we spoke with described how the registry asked questions about smoking and non-military sources of toxic exposure. “I can’t not put that I smoked, because then it wouldn’t be accurate,” said one veteran exposed to the burn pits. “But if I do say that I smoked, won’t they not be able to see beyond that? That would be an easy cause to pin any sort of respiratory issue on, I would imagine.”

In the National Academies of Sciences, Engineering, and Medicine's most recent 2017 report, they conclude that the burn pit registry "has limited value for improving individual patient care" (p. 7) because it consists entirely of voluntary and self-reported data. To really establish the connection, according to the report, robust epidemiological studies are needed, but have not yet been done. Such studies are slow to design, fund, and analyze. Some veterans wait hopefully on the VA's judgments, just waiting for the science and data to align with what they already know to be true. Others have more questions, less confidence, hoping the VA will confirm their suspicions and help to settle the flicker effect: knowing, but not for sure and consistently, what is going on. Others dismiss the VA altogether, unable to shake the feeling that the country they fought for has now turned its back. These differences complicate collective organizing.

Toxic Organizing as Double Bind

Susie Kilshaw (2006, 2009) describes how the category of Gulf War syndrome gave UK troops a way to think, talk about, and organize in response to their health problems.¹⁴ Gulf War syndrome gave them an identity. Veterans' organizations played a prominent role, helping build and consolidate a coherent illness narrative, supported by a consistent disease model (Kilshaw, 2006, 2009). Such organizations, now mobilized through Facebook and other social media platforms, continue to play critical roles.¹⁵ Across our three cases, veterans' organizations are key, but also paradoxical. Success in pinning down, naming, and officially listing toxic exposure can also have a discounting effect: since toxic exposures cannot, in fact, be pinned down, naming them as such productively leaves out part of the experience and pain of toxic exposure. Nominalization is thus called for and limiting.¹⁶ Toxic subjects need ways to tack between these.

Veteran organizing has also been important in burn pit recognition. Unlike Vietnam-era veterans who predominantly relied on in-person meetings, veterans with more recent exposures have connected online. They formed large networks on social media and launched YouTube channels to document their medical struggles. As they began to die, the media began to feature their stories, frequently asking why the government was not doing anything to help them.

Like the Gulf War veterans at the center of Kilshaw's (2009) study, burn pit veterans commonly measure and compare their injuries against a standard of fitness, or rather, the deterioration of fitness. Dr. Anthony Szema, one of the few physicians (a pulmonologist) who has publicly advocated for burn pits veterans,

describes how burn pits first registered as a problem with him when he noticed that his waiting room—once filled with WWII and Vietnam-era veterans—was filled with veterans in their twenties struggling to pass their fitness tests upon returning from deployment in Afghanistan and Iraq.

In one line of analysis and discussion, burn pit veterans focus on a multitude of symptoms and conditions in order to convey the magnitude of exposures. In another line of analysis, they work to force their conditions into officially recognized categories. Diagnosis of constrictive bronchiolitis, a degenerative lung condition that can only be explained by toxic exposure, illustrates how the process works. Unlike the leukemias, meningiomas, asthmas, and neurological conditions believed to be caused by burn pit exposure, constrictive bronchiolitis cannot be explained by age, behavior, or simple chance. Constrictive bronchiolitis is also a dream condition for advocacy groups as it is diagnosed through “objective” means—lung biopsies provide definitive proof of the condition—unlike the self-reported symptoms that factor into the diagnosis of many other conditions ascribed to burn pits exposure. While these groups seek to advance this diagnosis in part as proof of the other, more varied, conditions, the effort can be counterproductive in that it re-establishes injury as that which can be seen through a neat alignment between diagnostic category and objective biomarker. While a serious condition without a cure, constrictive bronchiolitis itself is not fatal, unlike many of the murkier conditions thought to be the effects of burn pits.

Various veterans groups have also responded to the failure of the VA’s burn pit registry by establishing their own. Alternative registries remedy some of the issues encountered in the VA registry, like technical issues with logging on and veterans stopping the survey after it asked about smoking and other non-service-related toxic exposure. But the alternative registries have other issues that undercut their usability in different ways. Hosted on unsecure sites like Survey Monkey and Google Forms, without the research ethics approvals expected in academic studies, the data in alternative registries will rarely ever be accepted by the VA or other administrative bodies. But they still have value for veterans, providing important points of reference for comparative discussion among veterans, helping them see themselves in collective terms.

Dispossessions and Environmental Injustice

Soldiers exposed to Agent Orange and the burn pits of Iraq and Afghanistan. Soldiers sent to the Marshall Islands in the 1970s to clean up after the atomic bomb testing—who have not been treated as “atomic veterans” (Philipps, 2017).

Service women who have “shocking” rates of infertility, according to a survey conducted by the Service Women’s Action Network, though the military itself has never reported infertility rates (Jowers, 2018). All of these are toxic subjects in the multidimensional sense we have presented here: exposed to both toxic chemicals and the discounting and disavowals of biomedicine; exposed to the communicative dissonance and cultural insensitivities that scramble efforts to make environmental sense. They are also toxic *soldiers*, and are thus doubly exposed to the deeply cultural, as well as biophysical and political, difficulties of environmental stress, combined with the reifications of able-bodied masculinity that power and enroll people in military service.

Toxic subjects—and toxic soldiers, in particular—are sentinels of late industrialism, embodying problems that are produced by modern, capitalist, industrial orders, but are not recognized and governed by them (K. Fortun, 2012, 2014). Finding ways to think with and care for toxic subjects poses considerable conceptual, cultural, and political challenges—and shows how such challenges intersect. Formulaic schemes that give toxic subjects standing in biomedicine, law, and institutions like the VA are critical. But they are also alienating, working *because* they delimit what has occurred. Exclusion—and the daily work of resisting it—produces profound disaffection and dispossession. Ironically, this alienation easily becomes viral, inciting veteran subjects who are “against the system,” even though they desperately need a systemic VA response.

“It was like salt in the wound,” the wife of an Army veteran suffering from a burn pits-related cancer tells us. “First to go to war and have your country poison you, and then for them to tell you that it’s all in your head and not provide care and compensation.” The sense that the *real* harm from exposure comes through the VA and DOD’s disavowal of the harm is a common sentiment among the veterans and families we work with—and another way toxic soldiering has a flicker effect, with a wavering, constantly unstable understanding of what is going on and who can be trusted. Some veterans locate responsibility with the DOD, others with KBR, and others with individual commanders. Many veterans tell us that they knew going into combat that they could get hurt—and often even expected it. What they did not anticipate was that the harm would be at the hands of their “own government.” “This was the worst kind of friendly fire,” one veteran said. “First, they knew what they were exposing us to, then they covered it up. But to then tell us that it’s not real is the biggest slight.”

Toxic soldiers encounter and embody many problems and many forms of

injustice, including forms of what Miranda Fricker (2007) has called “hermeneutic injustice” (pp. 147-149): injustice produced through inadequate access to sense-making resources.¹⁷ Hermeneutic injustices are failures of interpretive capacity. Toxics recurrently and systematically produce such failures, operating culturally as well as biochemically, economically, and politically. Toxic subjects are subaltern, and toxic soldiers doubly so.

Working and thinking with toxic soldiers points to dynamics of environmental injustice that are especially hard to pin down. Environmental injustice is intersectional, produced through the interlacing of many kinds of injustice—many, like toxics, operating quietly and insidiously. Economic, spatial, and procedural injustice combine to produce racial injustice, for example, in turn producing health injustice: racialized bodies, without access to medical care or legal redress. Environmental injustice is a cumulative effect. Hermeneutic injustice is often part of environmental injustice, synergizing with other exclusions and exposures. Attending to toxic soldiers—and to toxic subjects more generally—thus points work toward environmental justice in new directions, calling for fundamentally new ways of thinking about categories, classes, and ways of putting people and politics together.¹⁸ Environmental injustice is drawn out as a cultural and interpretive problem. Johns’s *Flag (Moratorium)* can be thought of as a banner, pointing (in maddening ways, “mad” used in all senses of the term) to the limits of established ways of seeing many contemporary problems—to ways modern realities are at odds with modern knowledge formations. Toxic subjects, and especially toxic soldiers, call this out.

Notes

¹ Supplementary material is available here: <https://disaster-sts-network.org/content/toxic-soldiers-catalyst-supplementary-material>

² Alli Morgan did fieldwork and interviews with US veterans and veteran organizations from 2017 to 2019, focusing on struggles for recognition of exposure to Agent Orange during the Vietnam War and to the burn pits used in the US occupation of Afghanistan and Iraq. Morgan also has extensive experience working alongside physically injured veterans recovering through participation in adaptive sport. Kim Fortun has studied “toxic subjects” since the early 1990s, first focused on the 1984 chemical plant disaster in Bhopal, India and victims’ struggles for legal recognition before courts in India and the United States. She first began theorizing “toxic subjects” per se through her writing about Gulf War veterans, explicating how their chemical and new media exposures combined in forceful

ways. We combine our research material and analyses here, writing in terms of “we” creatively conceived.

³Toxicologist Linda Birnbaum, director of the US National Institute of Environmental Health Sciences for over a decade, has emphasized the challenge of variability in environmental health. She’s also emphasized that the trouble will only get worse, and not only because of politics. Dealing with per- and polyfluoroalkyl substances (PFAS), a group of chemicals of growing concern today, will—according to Birnbaum—“make dioxins look easy” (Hiar, 2019).

⁴Ludden (2002) describes how the term *subaltern* was first applied to peasants and later lower ranked military members, only later used by Gramsci to describe class struggle. Spivak (1990) describes the military connection this way:

I like the word “subaltern” for one reason. It is truly situational. ‘Subaltern’ began as a description of a certain rank in the military. The word was used under censorship by Gramsci: he called Marxism “monism,” and was obliged to call the proletarian “subaltern.” That word, used under duress, has been transformed into the description of everything that doesn’t fall under class analysis. I like that, because it has no theoretical rigor. (p. 141)

⁵ Also see Spivak’s (2004) lecture on this point, where she elaborates on how “to create the conditions of possibility for metonymizing oneself, for making oneself, even better, a synecdoche, a part of a whole.”

⁶ Watson (2018) explains how ““Flag” at its simplest promotes the history you were taught to revere, the stars and stripes celebrating “liberty and justice for all.” But beneath is the darker, deeper history of injustice and inequality...” (para. 11)

⁷ Anthropologists Kenneth MacLeish and Zoë Wool (2018) have also done ethnographic research with US soldiers with burn pit exposures, extending earlier work focused on the everyday lives of US military members making (K. T. MacLeish, 2013) and recovering from (Wool, 2015) war.

⁸ A retired Air Force environmental engineer explained to us why these three cases are often invoked by veterans and researchers as a set:

Each war has a corresponding toxic exposure. While you’re right that the exposures [Agent Orange and burn pits] aren’t comparable on a toxicological level, we need to keep reminding physicians and the VA

and Congress that every generation will face a war with an environmental health catastrophe. Once they begin to learn to anticipate that, then we won't be waiting for decades for studies and healthcare.

Importantly, this quote helps us to understand that while the quality of burn pits exposures may be more akin to those faced by World Trade Center first responders (Falvo, Osinubi, Sotolongo, & Helmer, 2015) than those of Vietnam or Gulf War veterans, drawing a comparison to these other cohorts of toxic soldiers is necessary in obtaining political and social recognition.

⁹ Passages of this article about the experience of "Peck" as a Gulf War veteran are drawn from Kim Fortun's 1999 article.

¹⁰ Susie Kilshaw (2009) describes how her veteran interlocutors refer to endocrine and rheumatic conditions as "female diseases" (p. 178). She also describes how masculine reproduction is challenged by the impotency and sometimes "overly potent" semen experienced by veterans with toxic illness (Kilshaw, 2007).

¹¹ Anna Mollow's (2011) account of environmental illness (EI)—another name for multiple chemical sensitivity—is illustrative of the double bind of claiming toxic illness.

¹² A veteran and nurse-researcher explains her experience navigating burn pits data streams:

The VA is really savvy. Like with Agent Orange, they will constantly repeat that "we need more studies" and "there isn't yet definitive evidence." But once there is evidence, once studies have been done, they find many reasons to throw it out. The sample sizes weren't big enough or the smallest inconsistencies mean that the whole study isn't admissible. So then they call for more studies, and eventually at some point there will be a study that says that there's no correlation, and that's what they focus on. They're also really good at using how complicated the exposures are as a means of throwing everything out. They'll say that the ambient air quality was terrible—which it certainly was, no one is arguing about that—so that means that the pits can't be the cause.

¹³ WWI veterans were the first to formally fight for payment for wartime service, arguing that they made less abroad than their counterparts who had been stationed on the home front during the war (Dickson & Allen, 2004).

¹⁴ Notably, Kilshaw (2014) also documents ways conflicting accounts from British and American defense agencies (on possible exposure to sarin gas as the source of their injuries, for example), contributed to soldiers' anxieties—contributing to what we highlight here as the flicker-effect of toxic exposure (like Johns's *Flag*).

¹⁵ Collective veteran action works well when organized around specific weapons deployed in war. Terry (2017), for example, describes how the "signature" injuries of wars in Iraq and Afghanistan result from the preponderance of improvised explosive devices and rocket-propelled grenades in these conflicts, while Shah (2017) examines what counts as a weapon in war. Weapons clearly produce injury, in turn creating fairly clear paths to recognition, care, and compensation.

¹⁶ Collective and coherent illness narratives about toxic subjects can be thought of as a form of "strategic essentialism" (Spivak, 1988, p. 13).

¹⁷ Fricker (2007) explains that unequal power relations "can skew shared hermeneutical resources so that the powerful tend to have appropriate understandings of their experiences ready to draw on...whereas the powerless are more likely to find themselves having some social experiences through a glass darkly," with "at best ill-fitting meanings to draw on in the effort to render [their experiences] intelligible" (p. 148). See also Lorraine Code's (2008) review of Fricker's book.

¹⁸ This essay focuses on difficulties faced by US toxic soldiers. It is important to note that civilian populations are also affected by war-related exposures and are almost always left out of scientific, media, and popular discourses about these (Bonds, 2016). Compensation schemes designed to address civilian exposures—the US Energy Employees Occupational Illness Compensation Program Act and the US Radiation Exposure Act, for example—should also be analyzed in cultural and political terms.

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