

Drone geographies

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Last year Apple rejected Josh Begley's Drones+ app three times. The app promised to send push notifications to users each time a US drone strike was reported, but Apple decided that many people would find it 'objectionable' (they said nothing about what they might feel about the strikes). When he defended his thesis at NYU earlier this year, Begley asked: 'Do we really want to be as connected to our foreign policy as we are to our smart phones? ... Do we really want these things to be the site of how we experience remote war?'¹ These are good questions, and Apple's answer was clear enough. A number of other artists have also used digital platforms to bring into view these sites of remote violence – I am thinking in particular of Begley's Dronestream and James Bridle's Dronestagram, but there are a host of others² – and their work set me thinking about the multiple and compound geographies through which these operations are executed. In this article I will focus on just four of them.

My view is both narrow and wide. It is narrow because I discuss only the use of Predators and Reapers by the US Air Force in Afghanistan and Iraq, sometimes as part of Joint Special Operations Command, and their involvement in CIA-directed targeted killings in Pakistan, Yemen and Somalia. Other advanced militaries also operate drones, some of them armed and some for intelligence, surveillance and reconnaissance (ISR), as part of networked military violence, but it is even more difficult to detail their operations. The US Army and Marine Corps use drones too, but most of these are much smaller and limited to providing ISR for close combat and ground attack. Within these limits, my view is also wide, however, because I want to disclose the matrix of military violence that these remote platforms help to activate. Much of the critical response to drones is unduly preoccupied with the technical (or techno-cultural) object – the drone – and virtually ignores these wider dispositions and propensities. This is, I will argue, both an analytical and a political mistake.

Homeland insecurities

The first set of geographies is located within the United States, where the US Air Force describes its remote operations as 'projecting power without vulnerability'. Its Predators and Reapers are based in or close to the conflict zone, where Launch and Recovery crews are stationed to handle take-off and landing via a C-band line-of-sight data link; given the technical problems that dog what Jordan Crandall calls 'the wayward drone', there are also large maintenance crews in-theatre to service the aircraft.³ Once airborne, however, control is usually handed to flight crews stationed in the continental United States via a Ku-band satellite link to a ground station at Ramstein Air Base in Germany and a fibre-optic cable across the Atlantic. The network also includes senior officers and military lawyers who monitor operations from US Central Command's Combined Air Operations Center at Al Udeid Air Base in Qatar, and specialized image analysts in the United States who scrutinize the full-motion video feeds from the aircraft and are linked in via the Air Force's Distributed Common Ground System. Taken together, the suite of four aircraft that constitutes a Combat Air Patrol capable of providing coverage twenty-four hours a day seven days a week involves 192 personnel, and most of them (133) are located outside the combat zone and beyond immediate danger (FIGURE 1). This is risk-transfer war with a vengeance, where virtually all the risks are transferred to populations overseas.⁴ Those who live in the attack zones often criticize drone strikes as cowardly, but the fact that most of those flying these online missions do not put their own lives on the line has also sparked a series of domestic debates about military ethics and codes of honour. These have traditionally invoked a reciprocity of risk that gave war what Clausewitz saw as its moral force: to kill with honour, the soldier must be prepared to die. Now the remote warrior remains the vector of violence but is no longer its potential victim.⁵

Indeed, some critics have ridiculed the drone crews as 'cubicle warriors' who merely 'commute' to war.⁶

CAP Requirements: Single 24/7/365 MQ-1/9



FIGURE 1

The remotely piloted aircraft can remain in the air for at least 18 hours – some have recorded flights of more than 40 hours – and this requires crews to work in shifts of 10–12 hours and to alternate between home and work. Many of them report considerable difficulty in this interdigitation. As in previous wars, crews of conventional aircraft are forward deployed at varying distances from the conflict, and when they return to their bases at the end of a mission they remain within a military space that enables them to maintain focus and ‘psychic integrity’. The same is true for the Launch and Recovery crews, but it is much harder for crews of Predators and Reapers in the United States, who, as one of them put it, ‘commute to work in rush-hour traffic, slip into a seat in front of a bank of computers, fly a warplane to shoot missiles at an enemy thousands of miles away, and then pick up the kids from school or a gallon of milk at the grocery store on [their] way home for dinner’. He described it as living ‘a schizophrenic existence between two worlds’; the sign at the entrance to Creech Air Force Base announced ‘You are now entering CENTCOM AOR [Area of Operations]’, but ‘it could just as easily have read “You are now entering C.S. Lewis’s *Narnia*” for all that my two worlds intersected.’⁷ ‘The weirdest thing for me’, one pilot admitted, is ‘getting up in the morning, driving my kids to school and killing people’.⁸ Another

confirms ‘the peculiar new disconnect of fighting a telewar’ from ‘a padded seat in American suburbia’ and commuting home ‘always alone with what he has done’.⁹

Remote crews are perhaps most vulnerable to this form of post-traumatic stress disorder – a product not so much of what they have seen as what they have done, though the two are of course connected – and it must be aggravated by the constant switching between worlds. In George Brant’s play *Grounded* a pilot describes the difficulty of maintaining the separation necessary for her to decompress, and gradually and ever more insistently one space keeps superimposing itself over the other; the fixed, precise sensor of the Gorgon Stare yields to a blurred vision in which she finds it virtually impossible to know where (or who) she is. The two worlds begin to become one: the desert on the night drive home from Creech starts to look like the greyed-out desert landscape in Afghanistan, and the face of a little girl on the screen, the daughter of a High Value Target, turns into the face of her own child.¹⁰ Brant’s play is all the more powerful because public attention has been artfully orchestrated so that it does not make that connection: it too is insulated by a ‘remote split’. When critics of CIA-directed drone strikes in Pakistan and elsewhere demand to know about their legal basis and the rules and procedures that are followed, they

divert the public gaze from Waziristan to Washington. Madiha Tahir has noted how what she calls the Obama administration's 'theatrical performance of faux secrecy' over its drone war in Pakistan's Federally Administered Tribal Areas (FATA) – a teasing dance in which the veil of official secrecy is deliberately let slip once, twice, three times – functions to draw its audience's eye towards the American body politic and away from the Pakistani bodies on the ground. It has been a hideously effective sideshow, in which Obama and an army of barkers and hucksters – unnamed spokesmen 'speaking on condition of anonymity' because they are 'not authorized to speak on the record', and front-of-house spelers like Harold Koh and John Brennan¹¹ – induce not only a faux secrecy but its obverse, a faux intimacy in which public debate is focused on transparency and accountability as the only 'games' worth playing. Yet when you ask people who live under the drones what *they* want, Tahir continues,

They do not say 'transparency and accountability'. They say they want the killing to stop. They want to stop dying. They want to stop going to funerals – and being bombed even as they mourn. Transparency and accountability, for them, are abstract problems that have little to do with the concrete fact of regular, systematic death.¹²

Remote splits

The second set of geographies turns on the strange connection that makes these operations possible. Killing at an ever-increasing distance is a leitmotif in the history of war, and American aviator Charles Lindbergh saw it as the very diagnostic of modern war, where 'one kills at a distance, and in doing so does not realize that he is killing'. Far from imagining 'writhing, mangled bodies' on the ground below, he wrote in 1944, it was like 'viewing it on a motion-picture screen in a theater on the other side of the world'.¹³ Many commentators have argued that Lindbergh's metaphor has been realized – and radicalized – in today's drone wars. Certainly killing is now conducted over an even greater distance and is not only projected onto but also executed *through* a screen. Several critics insist that distance increases indifference, though there is a longer warrant for this than many of them realize. In his *Lettre sur les aveugles* (1749), Denis Diderot asked: 'Do we ourselves not cease to feel compassion when distance or the smallness of the object produces the same effect on us as lack of sight does on the blind?' His question resonates through the much later history of bombing;

one RAF Bomber Command veteran of World War II surely spoke for countless others when he admitted that 'Those sparkling lights on the velvet background, they weren't people to me, just the target. It's the distance and the blindness which enabled you to do these things.'¹⁴ The difference today is that the video feeds from the drones have removed the blindness, yet critics insist that the sense of detachment is not only retained but in fact heightened by the screen itself, which they say reduces military violence to a video game and inculcates a 'Playstation mentality' among its perpetrators.¹⁵

Matters are, however, considerably more complicated than this suggests. Today's video games are profoundly immersive, and the high-resolution full-motion video feeds from the drones allow crews to claim time and time again that they are not thousands of miles from the war zone but just eighteen inches away: the distance from eye to screen. The sense of optical proximity is palpable and pervasive. Crews are often required to track someone for weeks, even months: 'We see them playing with their dogs or doing their laundry. We know their patterns like our neighbours' patterns. We even go to their funerals.'¹⁶ In consequence, the same officer suggested, 'war somehow becomes personal', while another insisted that he and his colleagues 'understand that the lives we see in the screens are as real as our own'.¹⁷ Journalist Mark Bowden echoes these sentiments. 'Drone pilots become familiar with their victims', he writes, watching them 'in the ordinary rhythms of their lives – with their wives and friends, with their children.' What he calls 'the dazzling clarity of the drone's optics' means that 'war by remote control turns out to be intimate'.¹⁸

This 'rush to the intimate' has become increasingly focal to many military operations, and here – as elsewhere¹⁹ – it is violently invasive and thoroughly conditional. Those conditions are revealing. Most obviously, crews can see without being seen, and, as Grégoire Chamayou has argued, 'the fact that the killer and his victim are not inscribed in "reciprocal perceptual fields" facilitates the administration of violence' because it ruptures what psychologist Stanley Milgram in his experiments on *Obedience to Authority* called 'the experienced unity of the act'.²⁰ The physical separation between an act and its consequences is clearly heightened in remote split operations, but it is also dispersed across the network as senior officers, military lawyers, image analysts and ground commanders all scrutinize the video feeds from the Predators and Reapers. This distributes

'the personal' in such a way that for most crews it also becomes more *impersonal*.²¹ The technology is 'mesmerizing', reporter Mark Benjamin concedes, but 'it also makes the process of killing another human being eerily impersonal.'²² This happens because the video feeds display what Harun Farocki calls 'operative images' that 'do not represent an object but are *part of an operation*'.²³ The 'impersonality' of the operation is not a function of the technology alone: what matters is, precisely, its incorporation *into* a process – a standard operating procedure – and a chain of command that is both techno-scientific and quasi-judicial. The conjunction is crucial. Eyal Weizman notes that the software programs used for collateral damage estimation, for example, activate a calculative instrumentality that works not only to operationalize but also to justify what is to be done: in short, 'violence legislates'.²⁴ Killing is conducted under the sign of military Reason, which invests the process with a seriousness of purpose that is expressly designed to minimize emotional response. This is compounded by an intrinsically *visual* economy that imbues the operation with a peculiarly truncated meaning. As Nasser Hussain observes, sound shapes images, and in this case

the lack of synchronic sound renders it a ghostly world in which the figures seem unalive, even before they are killed. The gaze hovers above in silence. The detachment that critics of drone operations worry about comes partially from the silence of the footage.²⁵

It takes crews from six to twelve months to absorb the technical mediations that sustain remote split operations, so that 'you put yourself more and more in the position that this is more and more real life and that you are actually there', as one sensor operator told Omer Fast: but over the same period, he continued, 'you become emotionally distant'.²⁶ And here, in a different interview, is the same officer who earlier spoke of war becoming more 'personal':

I would couch it not in terms of an emotional connection but a ... seriousness. I have watched this individual, and regardless of how many children he has, no matter how close his wife is ... I am tasked to strike this individual. The seriousness of it is that I am going to do this and it will affect his family.²⁷

This form of invasive, irruptive intimacy – a 'voyeuristic intimacy', Matthew Power calls it²⁸ – militates against any identity with those whose lives are under surveillance. They remain obdurately other, as one female pilot made plain when she said

'she didn't want to be like the women in Afghanistan she watched – submissive and covered from head to toe'.²⁹ This sense of difference is the product of more than cultural estrangement; it also flows from a techno-cultural hermeneutics of suspicion. When drone crews are called upon to provide close air support to ground troops, their sensory geography expands because they become immersed not only in video feeds but also in a stream of radio communications and online messaging with ground troops via mIRC. In this way they establish what Colonel Kent McDonald of the USAF School of Aerospace Medicine describes as a 'virtual relationship' with troops on the ground that is impossible for those others who necessarily – and sometimes accidentally³⁰ – remain purely optical signatures.³¹ It is, within obvious limits, a reciprocal relationship from which others are completely excluded. As another officer explained,

Those employing the system are very involved at a personal level in combat. You hear the AK-47 going off, the intensity of the voice on the radio calling for help. You're looking at him, 18 inches away from him, trying everything in your capability to get that person out of trouble.³²

'Intimacy' is thus cultivated within a culturally divided field – yet another sort of remote split – in which crews are interpellated to identify so closely with their comrades-in-arms that they are predisposed to interpret every other action – which is to say every Other action – as hostile or sinister, sometimes with disastrous consequences for the innocent.³³ My point is not that military investigations of civilian casualties often cite 'human error rather than machine malfunction' – which is true enough, and carries its own diminished sense of moral agency³⁴ – because the terrain of miscalculation is not mapped by the traverse from one to the other: it is also produced by the operative function of a techno-cultural system whose dispositions facilitate such outcomes. 'Of course persons use technological instruments,' Judith Butler reminds us, 'but instruments surely also use persons (position them, endow them with perspectives, establish the trajectory of their actions); they frame and form anyone who enters into the visual or audible field, and, accordingly, those who do not...'³⁵

In contrast to close air support, when crews are involved in targeted killing they work from the military's Joint Prioritized Effects List – or, in the case of CIA-directed air strikes, from the 'disposition matrix' approved by the Counterterrorism Center³⁶ – where the presumption of innocence has already

been removed. Martin's description of the normative change in targeting is revealing. 'I doubted whether B-17 or B-29 pilots and bombardiers of World War II agonized over dropping tons of bombs over Dresden or Berlin,' he claimed over the killing of a target known as 'Rocket Man' in Sadr City, 'as much as I did over taking out one measly perp in a car.' The crew deliberated because 'we had to be cautious with a shot in this neighborhood to avoid killing a bunch of people who didn't necessarily deserve to be killed.'³⁷ The casual appeal to the vernacular of law enforcement – 'We finally got the perp!' – is by no means exceptional, and is embedded in the administrative apparatus that authorizes targeted killing and also in the more general juridification of the kill-chain. Military lawyers insist on maintaining what they term a 'visual chain of custody' throughout 'the prosecution of the target'; they are Defense attorneys not defence attorneys, and these formularies evidently weigh the scales against those who are caught in the militarized field of view.³⁸

Target space, body-space

These considerations intersect with a third set of geographies that circle around targeted killing, which is, I need to emphasize, not the only function carried out by drones. Neither is it exclusively executed by them, as Russian dissidents in London and Iranian scientists in Tehran have discovered to their cost. Nonetheless, many commentators have argued that the involvement of drones, specifically, in targeted killing threatens to transform the locus and meaning of war itself. The 'battlefield' denotes both a physical space and a normative space. Its physical deconstruction has been accelerating since at least the First World War, when bombing redrew the contours of killing so dramatically that Giulio Douhet could confidently declare that in future

[T]he battlefield will be limited only by the boundaries of the nations at war, and all of their citizens will become combatants, since all of them will be exposed to the aerial offensives of the enemy. There will be no distinction any longer between soldiers and civilians.³⁹

Drones have now dissolved even those physical limits. One of the central foreign policy questions that confronted the Bush administration, and has since been pursued with undiminished ferocity by its successor, was fighting 'war in countries we're not at war with', and drones have routinely and repeatedly transgressed the borders of belligerent states in pursuit of their transnational hunter-killer missions:

most notably in the course of the 'covert' war in Pakistan.⁴⁰ But in stark contrast to Douhet's grim prognostications about re-mapping the normative space of war – which have been dismally confirmed by every strategic bombing campaign from the First World War on⁴¹ – drones are supposed to have reinforced the principle of distinction. Their protagonists claim that their persistent presence and heightened capacity for surveillance guarantee an unprecedented compliance with the requirement under international humanitarian law to discriminate between combatants and civilians.⁴² The debate is necessarily both a substantive one – over numbers killed and wounded⁴³ – and a semantic one over the boundaries between combatant and civilian in irregular warfare. But it is underwritten by a normative problematic, even a 'nomos' in something like the sense of a spatial ordering proposed by Carl Schmitt, because at the heart of the American response to 9/11 lies what Frédéric Mégret sees as 'a deliberate attempt to manipulate what constitutes the battlefield *and to transcend it in ways that liberate rather than constrain violence*'.⁴⁴ This amounts to a concerted project to transform one of the central registers of the imaginary of war into the *individuation* of killing.⁴⁵ Practically and rhetorically, individuation sanitizes the battlefield: publics are no longer confronted by images of the widespread destruction caused by the area bombing of cities or the carpet-bombing of villages in the rainforest. 'This isn't Dresden', I've been told time and time again, as though that is the appropriate standard against which to judge the contemporary conduct of war. These strikes against individuals are punctuation points in what Jeremy Scahill calls 'dirty wars' that 'liberate violence' by threatening to turn the whole world into a battlefield.⁴⁶

In conventional wars combatants are authorized to kill on the basis of what Paul Kahn calls their corporate identity:

The combatant is not individually responsible for his actions because those acts are no more his than ours.... [W]arfare is a conflict between corporate subjects, inaccessible to ordinary ideas of individual responsibility, whether of soldier or commander. The moral accounting for war [is] the suffering of the nation itself – not a subsequent legal response to individual actors.

The enemy can be killed no matter what s/he is doing (apart from surrendering). There is no legal difference between killing a general or killing his driver, between firing a missile at a battery that is locking on to your aircraft or dropping a bomb on a barracks at

night. ‘The enemy is always faceless,’ Kahn explains, ‘because we do not care about his personal history any more than we care about his hopes for the future.’ Combatants are thus vulnerable to violence not only because they are its vectors but also because they are enrolled in the apparatus that authorizes it: they are killed not as individuals but as the corporate bearers of a contingent (because temporary) enmity. But now, in so far as military force is directed against specific individuals on the basis of determinate acts that they have committed or, by pre-emptive extension, are likely to commit, this inaugurates a different political subjectivity through which the enemy is transformed into the criminal. ‘The criminal is always an individual,’ Kahn notes, ‘the enemy is not.’⁴⁷

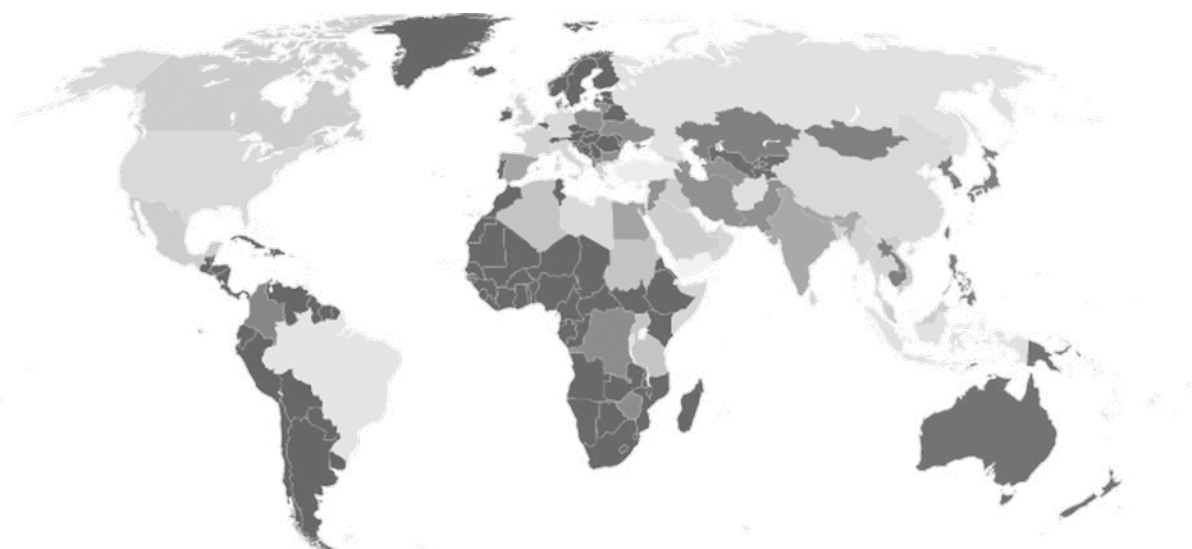
This has at least four implications for the geography of military violence. First, individuation transforms the *contours of intelligence*; so much so that Peter Scheer suggests that ‘the logic of warfare and intelligence have flipped, each becoming the mirror image of the other.’⁴⁸ As targets have contracted to individuals, so intelligence gathering has swollen to incorporate data-mining and interception on a global scale. It is naturally difficult to connect the dots in much detail, but the global intrusions of the National Security Agency in particular have been extensively documented by Glenn Greenwald using classified information from former NSA contractor Edward Snowden. Although FIGURE 2 (below) is only a crude snapshot of the collection capacity of its Global Access Operations, ‘Boundless Informant’ is evidently a high-level cover set for a host of interconnected systems that together map an increasingly vital dimension of the everywhere war. Pakistan emerges as a major focus of covert surveillance, where a High Value Target of particular interest has been Hassan

Ghul, al-Qaeda’s chief of military operations. A series of intercepts provided NSA’s Counter-Terrorism Mission Aligned Cell (CT-MAC) with a ‘vector’ for the compounds used by Ghul as he moved about the FATA – in effect, a set of safe houses – and eventually an email from his wife was intercepted which contained sufficient information to fix the real-time coordinates for a drone strike near Mir Ali in North Waziristan that killed him and two companions on 1 October 2012.⁴⁹ In this case, and no doubt many others, the space of the individual-as-target is an instantiation of what Rob Kitchin and Martin Dodge call ‘code/space’, a space produced and activated by software, whose spatiality is ‘simultaneously local and global, grounded in certain locations but accessible from anywhere across the network’.⁵⁰

Second, individuation requires an *adjudicative apparatus* to identify positively, detect and prosecute the individual-as-target, and this has reinforced the operational juridification of military violence:

That is, to the extent that someone can be targeted for the use of military force (capture, detention, killing) only because of the precise, specific acts in which he or she as an individual participated, military force now begins to look more and more like an implicit ‘adjudication’ of individual responsibility.⁵¹

The traditional distinction between military and police operations, one ordering ‘the outside’ and the other ordering ‘the inside’, has already been destabilized through the catch-all invocation of the ‘security forces’, but this has now been rendered even more permeable by what Chamayou calls a ‘state doctrine of non-conventional violence’ that combines elements of military and police operations without fully corresponding to either: ‘hybrid operations, monstrous



offspring [*enfants terribles*] of the police and the military, of war and peace'.⁵² These new vectors of state violence traverse the borders in both directions, inwards and outwards, and in Kahn's horrified eyes represent 'statecraft as the administration of death'. Neither warfare nor law enforcement, he concludes, 'this new form of violence is best thought of as the high-tech form of a regime of disappearance'.⁵³

Third, individuation refers to the *technical production* of an individual as an artefact of targeting separated from the exploded fleshiness that flickers briefly on the Predator's video screen. S/he is someone who is apprehended as a screen image, a network trace and a sensor signature, and the individual-as-target that results is doubly artificial, at once constructed and constricted. 'High Value Targets' are named and made the object of 'personality strikes' – although in Afghanistan many of them have been nexus targets with only proximate associations to senior Taliban or al-Qaeda fighters – but most targeted killings are 'signature strikes' against anonymous ('faceless') subjects.⁵⁴ They are brought within the militarized field of vision through the rhythmanalysis and network analysis of a suspicious 'pattern of life', a sort of weaponized time-geography, whose grammar of execution has been dissected by Joseph Pugliese with forensic skill:

The military term 'pattern of life' is inscribed with two intertwined systems of scientific conceptuality: algorithmic and biological. The human subject detected by drones' surveillance cameras is, in the first scientific schema, transmuted algorithmically into a patterned sequence of numerals: the digital code of ones and zeros. Converted into digital data coded as a 'pattern of life', the targeted human subject is reduced to an anonymous simulacrum that flickers across the screen and that can effectively be liquidated into a 'pattern of death' with the swivel of a joystick. Viewed through the scientific gaze of clinical biology, 'pattern of life' connects the drone's scanning technologies to the discourse of an instrumentalist science, its constitutive gaze of objectifying detachment and its production of exterminatory violence. Patterns of life are what are discovered and analyzed in the Petri dish of the laboratory.⁵⁵



Killing is made the culmination of a natural history of destruction – in precisely *not* the sense intended by W.G. Sebald⁵⁶ – and the targets are rendered as 'individuals' in a calculative rather than corporeal register. Any others who are incidentally killed in the course of a strike almost always remain unidentified by those responsible for their deaths, 'collateral damage' whose anonymity confirms on them no individuality but only a collective ascription.⁵⁷ And by fastening on a single killing – through a 'surgical strike' – all the other people affected by it are removed from view. Any death causes ripple effects far beyond the immediate victim, but to those that plan and execute a targeted killing the only effects that concern them are the degradation of the terrorist or insurgent network in which the target is supposed to be implicated. Yet these strikes also, again incidentally but not accidentally, cause immense damage to the social fabric of which s/he was a part – the extended family, the local community and beyond – and the sense of loss continues to haunt countless (and uncounted) others.⁵⁸ Amnesty International documented a strike near the village of Ghundi Kala in North Waziristan on 24 October 2012, for example, and included an annotated photograph (FIGURE 3, above) showing the position of Mamana Bibi's family who were working in the fields with her when she was killed. Nobody has explained why the grandmother was targeted but her son, comforting her grieving grandchildren who were traumatized by what they saw on that bright

afternoon, explained that 'She was the string that held our family together. Since her death the string has been broken and life has not been the same. We feel alone and we feel lost.'⁵⁹ Critical attention has focused, consequently and understandably, on the constitution of what Judith Butler calls a 'grievable life', but it is no less important to contemplate what constitutes a 'survivable life'.⁶⁰ We surely need to ask, with Madiha Tahir, what it does to someone to live among the rubble, to have to negotiate a sense of loss that is both deeply personal and irredeemably social?⁶¹ The same question has haunted the history of bombing for a hundred years, but its gravity is not diminished by substituting Predators and Reapers for Lancaster bombers and Flying Fortresses.

Fourth, individuation impels the war to go wherever the individual-as-target goes. This is *dynamic targeting* with a vengeance. The logic of the manhunt is one of pursuit and evasion, Chamayou argues, of predator and prey, in which one advances and the other flees.⁶² In Afghanistan–Pakistan this has become a *danse macabre* in which insurgents cross the border into Afghanistan at the start of the fighting season in the spring and retreat to their sanctuaries in Pakistan at the end of the summer. But the space of military and paramilitary violence is no longer circumscribed by any battlefield or discontinuous war zone: the locus of targeted killing is defined by the fugitive presence of the enemy–prey. These are not alternatives, clearly, and US counter-insurgency and counter-terrorism work together. Its 'kinetic' (deadly force) operations deploy drones in firefights with insurgents in Afghanistan and in targeted killing in Afghanistan and in Pakistan, Yemen, Somalia and elsewhere. But there is an important distinction between the two. As Kahn explains, lethal force can legally be used against an enemy because of their status: this is the logic of war sanctioned by international humanitarian law (sometimes called the law of armed conflict). But lethal force can only be used against a suspected criminal after a 'showing of dangerousness': this is the logic of law enforcement governed by international human rights law. The American legal rationale for its targeted killing programme blurs the two. The Obama administration insists that international humanitarian law is the operative legal armature for the use of lethal force in its counter-insurgency and counter-terrorism campaigns, but it has also invoked what its legal officers have called an 'elongated' concept of imminence to extend the temporal envelope within which targeted individuals are deemed to pose a threat

to the United States: its justification then becomes one of self-defence.⁶³ This is also an argument over the spatial envelope of targeted killing, because the emergence of transnational armed conflict between states and non-state actors as a dominant modality of later modern war relocates killing on uncharted legal terrain in which the target is contracted to the individual human body even as the field of military violence expands to encompass the globe. Chamayou describes this as a dialectic between specification and globalization. 'The zone of armed conflict, fragmented into micro-scale kill-boxes, reduces itself in the ideal-typical case to the single body of the enemy prey: the body as the field of battle', while 'because we can target our quarry with precision, the military and the CIA say in effect, we can strike them wherever we see fit, even outside a war zone.'⁶⁴ It is the prospect of a global hunting ground produced through and punctuated by 'mobile zones of exception' that so deeply disturbs most critics.⁶⁵

Global threats

These considerations feed directly into a fourth set of geographies that map what Ian Shaw calls a 'Predator Empire' in which, according to Fred Kaplan, the world becomes 'a free-fire zone'.⁶⁶ The signs are not difficult to see. By March 2011 the US Air Force's Predators and Reapers had flown one million combat hours, and by October 2013 those hours had already doubled. In January 2012 the Pentagon committed to increasing its armed drones by 30 per cent, as part of a 'leaner and more agile' military capability, and mandated the Air Force to mount 65 regular Combat Air Patrols by 2014 with a capacity to 'surge' to 85. Remote split operations have already expanded from Creech Air Force Base to several other bases in the United States, and the USA has deployed drones in conflicts and 'overseas contingency operations' in Afghanistan, Iraq, Libya, Mali, Pakistan, Somalia and Yemen.

But some cautions are in order. Shaw's 'Predator Empire' convenes 'the strategies, practices and technologies arranged around the deployment of drones for targeted killings', but this is to contract the functional space of their use to assassination. And yet it also extends their reach: 'Everywhere and nowhere, drones have become sovereign tools of life and death' administered through what Shaw calls 'an expanding geography of drone bases'.⁶⁷ His gazetteer is derived from Nick Turse, whose 'secret empire of drone bases' lists more than sixty sites. Yet more than half of them are *within* the continental United States

and far from what he calls the 'foreign jewels in the crown' (some of which look very much like paste to me).⁶⁸ Perhaps this does not matter very much; the purpose of remote operations is precisely to project power from 'the homeland'. But these hunter-killer platforms have a comparatively short range – 770 miles for a Predator and 1,150 miles for a Reaper – so they have to be based close to the theatre of operations: hence those forward-deployed Launch and Recovery crews. The Pentagon is involved in various experiments designed to increase operational flexibility, which include launching drones from aircraft carriers or collapsing drone bases into a cargo container so that they can be deployed rapidly and launched within four hours of their arrival.⁶⁹ But in their present and near-future forms these are not weapons of global reach (the United States already has terrifying capabilities for that, and is developing others like Prompt Global Strike, which threatens to deliver a conventional missile attack anywhere in the world within one hour).⁷⁰ These remote platforms are also remarkably limited in the theatres in which they can be used. They are slow – the cruising speed of a Predator is around 84 mph, a Reaper 230 mph – and far from agile, so that they are vulnerable to air attack, and they fly at altitudes that bring them within the range of anti-aircraft defences, so that they cannot operate in 'A2/AD' (anti-access/area denial) battle spaces.⁷¹ In September 2013 General Mike Hostage, commander of USAF Air Combat Command, described them as 'useless in a contested environment'. Even allowing for the intra-service collision between contrasting visions of air power, these limitations make it difficult to see Predators and Reapers – even as placeholders – as the advancing edge of American Empire.⁷² This is not to dispute the palpable reality of American imperialism, whose military footprint is stamped on more than a thousand bases around the world. Neither is it to deny its unprecedented attempt to establish a triple-canopy system of global surveillance that includes unarmed drones like the Global Hawk.⁷³ But its military power and its capacity for unrivalled military violence are vested in far more than its Predators and Reapers.

This does not mean that we can turn a blind eye to their development and deployment. Many other states already have or are actively developing a military drone capability; most of these platforms are unarmed, but since they can be used in networked warfare to direct conventional strike aircraft the distinction is not as reassuring as it might seem.⁷⁴ And as drone technology becomes less expensive

so the prospect of non-state actors using drones to launch attacks becomes ever more likely.⁷⁵ But Kaplan's 'free-fire zone', with its reinscription of one of the most wretched devices of the Vietnam War, seems overdrawn too. What I have described as 'the everywhere war' is also a *somewhere* war, and when the United States uses armed drones to take its war outside the zones of declared hostilities, it is always to some of the most vulnerable and defenceless populations on earth whose own governments often turn out to have been complicit in exposing them to death.⁷⁶ In these regions there are no air-raid sirens, no anti-aircraft defences and no air-raid shelters: and often limited emergency services to come to the aid of the innocent.

Mat(t)erialities

This has been a report from a rapidly changing field. There is an ever expanding array of peaceful uses for unarmed drones, and even those that I have described here are, like other modern military systems, embedded in a series of nominally civilian technologies that most of us take for granted. In fact, it is precisely the ways in which armed drones – their technologies, visualities and dispositions – have become part of everyday life that needs the closest scrutiny and, as I suggested at the outset, it is artists who have often led the way in interrogating these developments. James Bridle puts it well:

We all live under the shadow of the drone, although most of us are lucky enough not to live under its direct fire. But the attitude they represent – of technology used for obscuration and violence; of the obfuscation of morality and culpability; of the illusion of omniscience and omnipotence; of the lesser value of other people's lives; of, frankly, endless war – should concern us all.⁷⁷

It is here, too, that the 'remote split' that characterizes these operations is at its most insidious. In the United States public debate has fastened on the summary power of the president to authorize the assassination of American citizens and the threat to domestic privacy posed by surveillance drones; even those who probe the legal-administrative apparatus through which the Obama administration conducts its targeted killings focus attention on Washington, while those who investigate the practice of remote operations concentrate on air bases in the continental United States. These are all important issues, but we should be no less concerned at the ways in which drones have turned other lifeworlds into deathworlds. I understand why Roger Stahl complains that the

media fascination with the lives of drone pilots artfully domesticates war, reinscribing the logic of the national security state and inviting the reader-viewer to move easily ‘from the kitchen to the cockpit’.⁷⁸ But the interdigit(al)ization of war and peace has a still wider geography. Here is photojournalist Noor Behram, who has spent years bravely documenting the effects of drone strikes on his native North Waziristan:

This was like any other day in Waziristan. Coming out of the house, witnessing a drone in the sky, getting along with our lives until it targets you. That day it was in the morning and I was at home playing with my children. I spotted the drone and started filming it with my camera and then I followed it...⁷⁹

This needs a wide-angle lens capable of capturing the geographies I have outlined here. Drones have undoubtedly made a difference to the conduct of later modern war – and, in the case of targeted killing, to its transformation into something else altogether – but their use cannot be severed from the matrix of military and paramilitary violence of which they are but a part. And it is that matrix that should be the primary target of critical analysis and political action.

Notes

1. Josh Begley, ‘Dronestream’, New York University, 15 May 2013, <http://vimeo.com/67691389>.
2. See dronestre.am and <http://dronestagram.tumblr.com>. For reviews of interventions by visual artists in debates over drone strikes, see Elspeth van Veen, ‘Drone Imaginaries: There Is More Than One Way to Visualise a Drone’, www.academia.edu/2905784/Drone_Imaginaries_There_is_more_than_one_way_to_imagine_a_drone; Honor Harger, ‘Unmanned Aerial Ecologies’, <http://honorharger.wordpress.com/2013/04/21/unmanned-aerial-ecologies-into-drones-airspace-and-canaries-in-the-mine>; Matt Delmont, ‘Drone Encounters: Noor Behram, Omar Fast and Visual Critiques of Drone Warfare’, *American Quarterly*, vol. 65, no. 1, 2013, pp. 193–202.
3. Jordan Crandall, ‘Ontologies of the Wayward Drone: A Salvage Operation’, 11 February 2011, www.cttheory.net/articles.aspx?id=693.
4. Martin Shaw, *The New Western Way of War: Risk Transfer War and Its Crisis in Iraq*, Polity Press, Cambridge, 2005. Shaw makes no mention of drones and emphasizes risk-transfer war as a general characterization of later modern war. In fact, advanced militaries have always sought to engage in asymmetric warfare – this is not confined to their struggles with rag-tag, non-state actors – and clearly prefer to be able to overwhelm their opponents through technological superiority.
5. Grégoire Chamayou, *Théorie du drone*, La Fabrique, Paris, 2013, pp. 139–50; see my discussion in ‘From invisibility to vulnerability’, 8 August 2013, <http://geographicalimaginings.com/2013/08/08/theory-of-the-drone-8-from-invisibility-to-vulnerability>. Chamayou is extremely effective at exposing the masculinist virtues (and virilities) written in to these codes; for more on the ‘un-manning’ of UAVs, see Mary Manjikian, ‘Becoming Unmanned: The Gendering of Lethal Autonomous Warfare Technology’, *International Feminist Journal of Politics*, 2013.
6. Lambèr Royakkers and Rinie van Est, ‘The Cubicle Warrior: The Marionette of Digitized Warfare’, *Ethics and Information Technology*, vol. 12, no. 3, 2010, pp. 289–96.
7. Matt Martin with Charles W. Sasser, *Predator. The Remote-control Air War over Iraq and Afghanistan: A Pilot’s Story*, Zenith, Minneapolis, 2010, pp. 44–5. In a still more surreal (and astonishingly imperial) gesture of compartmentalization, when Robert Kaplan visited Creech he was told ‘Inside that trailer [a shipping container serving as the Ground Control Station] is Iraq; inside the other, Afghanistan’; see ‘Hunting the Taliban in Las Vegas’, *The Atlantic*, vol. 298, no. 2, 2006, p. 81.
8. Rob Blackhurst, ‘The Air Force Men Who Fly Drones in Afghanistan by Remote Control’, *Telegraph*, 24 September 2012. Notice that it is not the killing that is so strange – which is, after all, what these officers are trained to do – but its proximity to everyday life.
9. Elisabeth Bumiller, ‘A Day Job Waiting for a Kill Shot a World Away’, *New York Times*, 29 July 2012; see also Elijah Solomon Hurwitz, ‘Drone Pilots: “overpaid, underworked and bored”’, *Mother Jones*, 18 June 2013. For a detailed analysis of the conditions of work for drone crews, see Peter Asaro, ‘The Labor of Surveillance: New Subjectivities of Military Drone Operators’, *Social Semiotics*, vol. 23, no. 2, 2013, pp. 196–224.
10. George Brant, *Grounded*, Oberon Books, London, 2013. Like Omer Fast’s *5,000 Feet is the Best*, the fictional status of this work should not blind us to its obvious ‘grounding’ in a careful reading of interviews with and reports of real drone crews.
11. Koh served as the State Department’s Legal Advisor; Brennan made most of his statements as Deputy National Security Advisor for Homelands Security and Counterterrorism before becoming Director of the CIA in March 2013.
12. Madiha Tahir, ‘Louder than Bombs’, *New Inquiry* 6, 2012. There is in any case another objection to the siren calls for ‘transparency and accountability’. Fleur Johns insists that these toy with fantasy because it is exceptionally doubtful whether international law has ever been able to provide the sort of vigorous scrutiny the critics demand of it. ‘The latest technology for automated killing is, it seems, to be matched by an equally obscure, remotely operated technology of control programmed to render transparent a power perpetually located elsewhere.’ See *Non-legality in International Law*, Cambridge University Press, Cambridge, 2013, p. 6.
13. Michael Sherry, *The Rise of American Air Power: The Creation of Armageddon*, Yale University Press, New Haven CT, 1987, pp. 209–10. For these reasons it seems naive to object to drones because they enable killing at a distance; not only does this have a far longer military history, but if you think it wrong to kill someone from 7,500 miles away over what distance do you think it is acceptable?
14. Harold Nash, quoted in James Taylor and Martin Davidson, *Bomber Crew*, Hodder & Stoughton, London, 2004, p. 447; for a fuller discussion, see Derek Gregory, ‘Lines of Descent’, in Peter Adey, Mark Whitehead and Alison Williams, eds, *From Above: War, Violence and Verticality*, Hurst, London, 2013, pp. 41–70.
15. Philip Alston, ‘Report of the [United Nations] Special Rapporteur on Extrajudicial, Summary or Arbitrary Executions [Addendum]: Study on Targeted Killings’, May 2010; Chris Cole, Mary Dobbins and Amy Hailwood, *Convenient Killing: Armed Drones and the ‘Playstation’ Mentality*, Fellowship of Reconciliation, Oxford, 2010. For the general claim that video games are desensitizing and that the screen acts as a barrier between act and consequence, see Dave Grossman, *On Killing: The Psychological Cost of Learning to Kill in War and Society*, Bay Back Books, New York, 1995.

16. Nicola Abé, 'Dreams in Infrared: The Woes of an American Drone Operator', *Spiegel Online*, 14 December 2012, www.spiegel.de/international/world/pain-continues-after-war-for-american-drone-pilot-a-872726.html.
17. 'We are Predator/UAV Pilot/Operators Currently in Afghanistan', January 2013, www.reddit.com/r/IAMa/comments/17j9wa/e_are_predator_uav_pilotoperators_currently_in.
18. Mark Bowden, 'The Killing Machines', *The Atlantic*, 14 September 2013.
19. Derek Gregory, 'The Rush to the Intimate: Counter-insurgency and the Cultural Turn', *Radical Philosophy* 150, 2008, pp. 8–23.
20. Chamayou, *Théorie du drone*, p. 167; Stanley Milgram, *Obedience to Authority: An Experimental View*, Harper & Row, New York, 1974.
21. The network also distributes responsibility: 'The responsibility for the shot could be spread among a number of people in the chain: pilot, sensor, [Joint Terminal Attack Controller], ground commander. That meant no single one of us could be held to blame' (Martin with Sasser, *Predator*, p. 212).
22. Mark Benjamin, 'Killing "Bubba" from the Skies', *Salon*, 15 February 2008, www.salon.com/2008/02/15/air_war.
23. Harun Farocki, 'Phantom Images', *Public* 29, 2004, pp. 12–24; my emphasis.
24. 'It is the very act of calculation – the very fact that calculation took place – that justifies their action'; Eyal Weizman, *The Least of All Possible Evils: Humanitarian Violence from Arendt to Gaza*, Verso, London and New York, 2012, p. 12. Reciprocally, international law works to establish what Madiha Tahir calls 'the proper order of violence'.
25. Nasser Hussain, 'The Sound of Terror: Phenomenology of a Drone Strike', *Boston Review*, 16 October 2013, www.bostonreview.net/world/hussain-drone-phenomenology.
26. Fast, *5,000 Feet is the Best*, p. 100.
27. David Wood, 'Drone Strikes: A Candid, Chilling Conversation with Top US Drone Pilot', *Huffington Post*, 15 May 2013, www.huffingtonpost.com/2013/05/15/drone-strikes_n_3280023.html.
28. Matthew Power, 'Confessions of a Drone Warrior', *GQ*, 23 October 2013.
29. Abé, 'Dreams'. The presumptive passivity of Afghans in general and Afghan women in particular is a common trope of the Orientalist-humanitarian narrative of the war as a 'rescue' mission; see Thomas Gregory, 'Potential Lives, Impossible Deaths: Afghanistan, Civilian Casualties and the Politics of Intelligibility', *International Feminist Journal of Politics*, vol. 14, no. 3, 2012, pp. 327–47.
30. I am thinking of the 'friendly fire' incident – the first of its kind involving a drone – in which video from a Predator circling over a firefight near Sangin in Helmand province in Afghanistan in April 2011 captured a US Marine and a Navy corpsman whose infrared signatures were mistakenly interpreted as hostile; both men were killed by a Hellfire missile. See Ewan MacAskill, 'Two US Soldiers Killed in Friendly-fire Drone Attack in Afghanistan', *Guardian*, 11 April 2011; Jill Laster and Ben Iannota, 'Hard Lessons from Predator Strike Gone Wrong', *Air Force Times*, 19 February 2012.
31. Elisabeth Bumiller, 'Air Force Drone Operators Report High Levels of Stress', *New York Times*, 18 December 2011.
32. Megan McCloskey, 'Two Worlds of a Drone Pilot', *Stars and Stripes*, 27 October 2009. Grossman suggests that a sense of accountability to comrades-in-arms is a powerful means of overcoming resistance to killing (*On Killing*, pp. 90, 149–50).
33. I describe one such incident in Uruzgan province in Afghanistan in February 2010, in which twenty-three civilians were killed and more than a dozen wounded, in 'Lines of Descent', and I provide a more extended analysis of this and other attacks in 'Militarized Vision' (forthcoming).
34. Cf. Jeremy Packer and Joshua Reeves, 'Romancing the Drone: Military Desire and Anthrophobia from SAGE to Swarm', *Canadian Journal of Communications* 38, 2013, p. 324; Neta Crawford emphasizes the importance of widening the focus from individual to collective moral responsibility; see *Accountability for Killing: Moral Responsibility for Collateral Damage in America's Post-9/11 Wars*, Oxford University Press, Oxford and New York, 2013.
35. Judith Butler, *Frames of War: When Is Life Grievable?*, Verso, London and New York, 2010, p. xi; Caroline Holmqvist, 'Undoing War: War Ontologies and the Materiality of Drone Warfare', *Millennium*, vol. 41, no. 3, 2013, pp. 535–52; see also Lucy Suchman, 'Situational Awareness: Deadly Bioconvergence at the Boundaries of Bodies and Machines', *Mediatropes* 13, 2013.
36. Daniel Kleidman, *Kill or Capture: The War on Terror and the Soul of the Obama Presidency*, Houghton Mifflin, New York, 2012; Greg Miller, 'Plan for Hunting Terrorists Signals U.S. Intends to Keep Adding Names to Kill Lists', *Washington Post*, 23 October 2012; for UK involvement, see Ian Cobain, 'Obama's Secret Kill List – the Disposition Matrix', *Guardian*, 14 July 2013.
37. Martin with Sasser, *Predator*, pp. 50–53. Martin also describes the target list as a 'BOLO' sheet (p. 82), using the standard US police abbreviation for 'Be On the Look-Out' for a person wanted in connection with a crime. Another senior pilot 'likened the job to what he's seen of cop movies and stakeouts'; see Andrew McGinn, 'Local Drone Pilot Explains Missions', *Dayton Daily News*, 22 June 2013.
38. These modalities preclude what Joseph Pugliese describes as a 'general system of exchange' between the hunter-killer apparatus 'and its anonymous and unsuspecting victims, who have neither a right of reply nor recourse to judicial procedure'. See *State Violence and the Execution of the Law: Biopolitical Caesurae of Torture, Black Sites, Drones*, Routledge, New York, 2013, p. 209.
39. Giulio Douhet, *The Command of the Air*, trans. Dino Ferrari, University of Alabama Press, Tuscaloosa, 1988, p. 10 (first published in Italian in 1921); see Thomas Hipler, *Bombing the People: Giulio Douhet and the Foundations of Airpower Strategy 1884–1939*, Cambridge University Press, Cambridge, 2013. That this was a Euro-American anxiety bears emphasis. In 1932, the British High Commissioner in Iraq was still insisting that 'the term "civilian population" has a very different meaning in Iraq from what it has in Europe' so that European sensibilities about civilian casualties there were literally misplaced: 'The whole of its male population are potential fighters,' he explained, 'as the tribes are heavily armed.' The same grotesque rationale was still in action seventy years later during the wars in the shadows of 9/11.
40. Maria Ryan, "'War in countries we're not at war with": The "War on Terror" on the Periphery from Bush to Obama', *International Politics* 48, 2011, pp. 364–89. As Michael Hastings writes: '[T]he remote-control nature of unmanned missions enables politicians to wage war while claiming we're not at war'; see 'How America Goes to War in Secret', *Rolling Stone*, 16 April 2012.
41. Yuri Tanaka and Marilyn B. Young, eds, *Bombing Civilians: A Twentieth-century History*, New Press, New York, 2010.
42. The case is put most forcefully in Michael Lewis and Emily Crawford, 'Drones and Distinction', University of Sydney Law School, Legal Studies Research paper 13/35, 2013; see also Jack Beard, 'Law and War in the Virtual Era', *American Journal of International Law* 103, 2009, pp. 403–45. There is a tortuous genealogy to the legal protections afforded to civilians during military conflicts: see Helen Kinsella, *The Image before the Weapon: A Critical History of the Distinction between Combatant and Civilian*, Cornell University Press, Ithaca NY, 2011.
43. In Afghanistan there are no separate figures for casualties caused directly by drone strikes, but since drones are

- also used to provide the 'eyes' for attacks carried out by conventional strike aircraft or helicopters any count would be difficult to interpret. There are no satisfactory figures for the supposedly clandestine strikes carried out by drones in Pakistan, Yemen or Somalia either, but the most reliable estimates have been provided by the Bureau of Investigative Journalism: www.thebureauinvestigates.com/blog/category/projects/drones.
44. Frédéric Mégret, 'War and the Vanishing Battlefield', *Loyola University Chicago International Law Review*, vol. 9, no. 1, 2012, pp. 131–55, p. 148; emphasis added.
 45. Samuel Issacharoff and Richard Pildes, 'Drones and the Dilemma of Modern Warfare', in Peter Bergen and Daniel Rothenberg, eds, *Drone Wars: The Transformation of Armed Conflict and the Promise of Law*, Cambridge University Press, Cambridge, 2013; and available as NYU School of Law, Public Law & Legal Theory Research Paper Series Working Paper No. 13–34, June 2013; see also Samuel Issacharoff and Richard Pildes, 'Targeted Warfare: Individuating Enemy Responsibility', NYU School of Law, Public Law & Legal Theory Working Papers 343, April 2013.
 46. Scahill, *Dirty Wars*; Scahill notes Rumsfeld's memo late in 2004: 'The entire world is the "battlespace"' (p. 173). As I will subsequently argue, however, this does not mean that drones are the only – or even the most important – spearheads of this new form of global military and paramilitary violence.
 47. Paul Kahn, 'Imagining Warfare', *European Journal of International Law*, vol. 24, no. 1, 2013, pp. 199–226.
 48. Peter Scheer, 'Connecting the Dots between Drone Killings and Newly Exposed Government Surveillance', *Huffington Post*, 8 June 2013.
 49. Glenn Greenwald and Ewan MacAskill, 'Boundless Informant: The NSA's Secret Tool to Track Global Surveillance Data', *Guardian*, 11 June 2013; Greg Miller, Julie Tait and Barton Gellman, 'Documents Reveal NSA's Extensive Involvement in Targeted Killing Program', *Washington Post*, 16 October 2013.
 50. Rob Kitchin and Martin Dodge, *Code/Space: Software and Everyday Life*, MIT Press, Cambridge MA, 2012, p. 17. They do not discuss these military instantiations that convert the life-worlds conjured up by their subtitle into so many death-worlds, but their astute discussion of software and what they call 'everyware' invites a forensic dissection of a twenty-first-century 'everyware war' that is about far more than the cyberwar that has attracted so much concern.
 51. Issacharoff and Pildes, 'Drones and the Dilemma of Modern Warfare'. This reinforces the contemporary incorporation of military lawyers into the kill-chain; see Craig Jones, 'War, Law and Space', <http://warlawspace.com>.
 52. Chamayou, *Théorie du drone*, p. 51; cf. Colleen Bell, Jan Bachmann and Caroline Holmqvist, eds, *The New Interventionism: Perspectives on War–Police Assemblages*, Routledge, London, 2014.
 53. Kahn, 'Imagining Warfare', p. 226. This modality of air power can be treated as 'policing' in the Foucauldian sense proposed by Mark Neocleous, but I am unpersuaded that this is a useful theorization of other modalities of air power. There are continuities between colonial 'air policing' and current US operations in Pakistan, Yemen and Somalia – including a common reliance on uncontested air space – but to apply these terms to other bombing wars is, I think, unhelpful; cf. Mark Neocleous, 'Air Power as Police Power', *Environment and Planning D: Society & Space* 31, 2013, pp. 578–93; 'Police Power All the Way to Heaven: *Cujus est Solum* and the No-Fly Zone', *Radical Philosophy* 182, 2013, pp. 5–14.
 54. Kevin Jon Heller, "'One hell of a killing machine": Signature Strikes and International Law', *Journal of International Criminal Justice* 11, 2013, pp. 89–119.
 55. Pugliese, *State Violence*, pp. 193–4. For discussions of the biopolitical imaginary articulated through these metaphors, see Colleen Bell, 'Hybrid Warfare and Its Metaphors', *Humanity*, vol. 3, no. 2, 2012, pp. 225–47; 'War and the Allegory of Medical Intervention', *International Political Sociology*, vol. 6, no. 3, 2012, pp. 325–8.
 56. Derek Gregory, "'Doors into nowhere": Dead Cities and the Natural History of Destruction', in Peter Meusburger, Michael Heffernan and Edgar Wunder, eds, *Cultural Memories*, Springer, Heidelberg, 2011, pp. 249–83.
 57. Gregory, 'Potential Lives'.
 58. These network effects are a standard trope in later modern bombing. When the IDF in Gaza or the US military in Iraq claim that they 'only' bombed a power station, and deliberately chose to do so at 2 a.m. when only a small night staff would be in the building, they are being disingenuous. They know very well that with a power station out of action water can't be pumped, sewage can't be treated, food can't be refrigerated, hospitals can't operate – so that the effects of the strike ripple out from the initial point of impact in both space and time. The target has been chosen to minimize the immediate apprehension of the strike while maximizing those ripple effects that are displaced in time, space and public consciousness. See Samuel Weber, *Targets of Opportunity: On the Militarization of Thinking*, Fordham University Press, New York, 2005.
 59. *Will I Be Next? US Drone Strikes in Pakistan*, Amnesty International, Washington DC, 22 October 2013, pp. 18–23. There have been several attempts to discredit Amnesty's report, including Michael Lewis's suggestion that this particular strike was carried out by a Pakistan Air Force F-16: 'The Misleading Human Rights Watch and Amnesty International Reports on US Drones', 8 November 2013, at opiniojuris.org. It is perfectly true that the people of the FATA live under the threat of air strikes from both the United States and the Pakistan Air Force, as Amnesty International has reported in detail; see my 'Air Strikes in Pakistan's Borderlands', 19 March 2013, <http://geographicalimagination.com/2013/03/19/air-strikes-in-pakistans-borderlands>, and 'Dirty Dancing and Spaces of Exception in Pakistan', 24 March 2013, <http://geographicalimagination.com/2013/03/24/dirty-dancing-and-spaces-of-exception-in-pakistan>. But both are common enough for people to tell the difference. The attack was not carried out by helicopters or strike aircraft, Mamana Bibi's grandson explained when he described their different sounds: 'I know the difference.' That simple, awful declaration also reminds us of the envelope of fear under which ordinary people live: a space of ever-present potential violence that is activated and aggravated by each strike.
 60. Judith Butler, *Precarious Life: The Powers of Mourning and Violence*, Verso, London and New York, 2004; Butler, *Frames of War*.
 61. Madiha Tahir, 'The Business of Haunting', 2 September 2013, <http://woundsofwaziristan.com/business-of-haunting>.
 62. Chamayou, *Théorie du drone*, ch. 6. Chaymou's *Manhunts: A Philosophical History* (trans. Steven Rendell, Princeton University Press, Princeton NJ, 2012) does not directly address drones, but see Chamayou, 'The Manhunt Doctrine', *Radical Philosophy* 169, September–October 2011.
 63. I cannot begin to do justice to these arguments here; for a summary, see Thomas Gregory, 'Drones: Mapping the Legal Debate', New Zealand Centre for Human Rights Law, Policy and Practice, April 2013, and, for a more extended discussion with different conclusions, Michael Lewis, 'Drones and the Boundaries of the Battlefield', *Texas International Law Journal*, vol. 47, no. 2, 2012, pp. 293–314. The salience of international human rights law was one of the central objections raised by Philip Alston in his capacity as UN Special Rapporteur on Extrajudicial, Summary or Arbitrary Executions; see 'The CIA and Targeted Killing beyond Borders', *Harvard National Security Journal* 2, 2011, pp. 283–446.
 64. Chamayou, *Théorie du drone*, p. 86.

65. Joseph Pugliese, 'Prosthetics of Law and the Anomic Violence of Drones', *Griffith Law Review*, vol. 20, no. 4, 2011, p. 944.
66. Ian Shaw, 'Predator Empire: The Geopolitics of US Drone Warfare', *Geopolitics*, vol. 18, no. 3, 2013, pp. 536–59; Fred Kaplan, 'The World as Free-fire Zone', *MIT Technology Review*, 7 June 2013, www.technologyreview.com/featuredstory/515806/the-world-as-free-fire-zone.
67. Shaw, 'Predator Empire', pp. 5, 14.
68. Nick Turse, 'America's Secret Empire of Drone Bases', *TomDispatch*, 16 October 2011.
69. John Reed, 'The Air Force's Drone Base in a Box', 17 September 2013, foreignpolicy.com. The 'box' contains eighteen pallets to ship two partly disassembled MQ-1 Predator aircraft, missiles and control equipment, which is to constitute a 'rapid reaction fleet' provided by the US Air Force to Special Operations Command. The system has been deployed twice since 2012, but it has proved difficult to adapt the model for the larger Reapers.
70. The RQ-4 Global Hawk is a long-range surveillance drone but it is unarmed, and in 2011 the US Air Force withdrew from future acquisitions and transferred its early models to other agencies. It currently operates 20 RQ-4s, but after vigorous lobbying from Northrop Grumman Congress overrode Air Force objections and instructed the Pentagon to add another three to its fleet.
71. 'Anti-access' includes long-range measures designed to keep an armed force out of an operational zone, while 'area denial' involves short-range measures to restrict freedom of manoeuvre within an operational zone. A2/AD is not new, but when the Joint Chiefs of Staff released their Joint Operational Access Concept in January 2012 they insisted that present and emerging technological conditions have radically changed its terms: 'deploying forces will find themselves at risk at ever greater ranges' (A2) and less advanced militaries and even non-state actors can now significantly impede manoeuvre (AD). Releasing the JOAC, the chairman of the JCS explained that A2/AD is 'a defining characteristic of today's operational environment'; it is likely to assume even greater importance during the Obama administration's 'pivot to Asia'. Forward bases are central to the counter-strategies proposed by the JCS, but drones are only listed once, in relation to AD – shorter-range capability – and in concert with conventional weapons systems, cyberattacks and special forces operations. See 'Joint Operational Access Concept', US Department of Defense, 17 January 2012, at www.defense.gov/pubs/pdfs/joac_jan%202012_signed.pdf; 'Release of the Joint Operational Access Concept', 17 January 2012, www.dodlive.mil/index.php/2012/01/release-of-the-joint-operational-access-concept-joac.
72. John Reed, 'Predator Drones "Useless" in Most Wars', Top Air Force General Says', 19 September 2013, foreignpolicy.com. Hostage called for the Pentagon to abandon its mandated plan for the 'surge' in the Air Force's Combat Air Patrols conducted by drones, and two months later (and for the same reason) General Mark Welsh, the Air Force's Chief of Staff, suggested that a *reduction* to 45 'would be a good start'.
73. Alfred McCoy, 'Imperial Illusions: Information Infrastructure and the Future of US Global Power', in Alfred McCoy, Josep Fradera and Stephen Jacobson, eds, *Endless Empire: Spain's Retreat, Europe's Eclipse, America's Decline*, University of Wisconsin Press, Madison, 2012, pp. 360–86.
74. Rob O'Gorman and Chris Abbott, *Remote Control War: Unmanned Combat Air Vehicles in China, India, Iran, Israel, Russia and Turkey*, Open Briefing, 20 September 2013.
75. David Hastings Dunn, 'Drones: Disembodied Aerial Warfare and the Unarticulated Threat', *International Affairs*, vol. 89, no. 5, 2013, pp. 1237–46. Other commentators are more sceptical about the proliferation of armed drones, not least because they depend on a limited supply chain for a systems architecture that can activate the techno-industrial 'ecosystem' required for their distant operation. See, for example, Andrea Gilli and Mauro Gilli, 'Attack of the Drones: Should We Fear the Proliferation of Unarmed Aerial Vehicles?', paper presented to the American Political Science Association, Annual Conference, Chicago, August–September 2013, www.academia.edu/4331462/Attack_of_the_Drones_Should_We_Fear_The_Proliferation_of_Unmanned_Aerial_Vehicles.
76. Derek Gregory, 'The Everywhere War', *Geographical Journal*, vol. 177, no. 3, 2011, pp. 238–50; other modalities – and crucially cyber-operations – have other targets in view.
77. James Bridle, 'Under the Shadow of the Drone', 11 October 2012, <http://booktwo.org/notebook/drone-shadows>; see also my 'Situational Awareness', 3 May 2013, <http://geographicalimagination.com/2013/05/03/situational-awareness>.
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