

Moving targets and violent geographies ¹

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Modern war has always been a moving target. The trajectory from total war in Europe and beyond in 1914-1918 through what James Gibson calls America's 'technowar' in South East Asia in the 1960s and 70s to what I have called 'the everywhere war' in the early twenty-first century reveals an extraordinary series of transformations in the nature and very meaning of war. ² And yet, for all these convulsions, there is also an enduring sameness about modern war. Even as we are assured that later modern war has succeeded in limiting combatant and civilian casualties through its new modes of intelligence, surveillance and reconnaissance (ISR), new weapons systems, and new modes of accountability, and even as new systems of medical evacuation and advances in military medicine have enabled the injured to survive wounds that in the past would surely have killed them, military violence continues to be registered on the frail, fleshy human body.

The intimate dialectic between the political technology of war and the human body was recognised by Walter Benjamin – one of Allan Pred's most vital sources of political and intellectual inspiration – in 1936. The storm clouds were already gathering over Europe, but Benjamin noted that a process set in train during the First World War had not halted:

'Wasn't it noticeable at the end of the war that men who returned from the battlefield had grown silent – not richer, but poorer in communicable experience? What ten years later was poured out in the flood of war books was

¹ I am extremely grateful to Trevor Barnes, Craig Jones and Michael Smith for their comments on a draft of this essay.

² James Gibson, *The Perfect War: technowar in Vietnam* (New York: Atlantic Monthly Press, 1986; 2000); Derek Gregory, 'The everywhere war', *Geographical Journal* 177 (3) (2011) 238-50.

anything but experience that can be shared orally. And there was nothing remarkable about that. For never has experience been more thoroughly belied than strategic experience was belied by tactical warfare, economic experience by inflation, bodily experience by mechanical warfare, moral experience by those in power. A generation that had gone to school on horse-drawn streetcars now stood under the open sky in a landscape where nothing remained unchanged but the clouds, and beneath these clouds, in a field of force of destructive torrents and explosions, was the tiny, fragile human body.'

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As we approach the centenary of the First World War – once known as the Great War, 'the war to end all wars', until Lt Col Charles Repington committed the shocking ordinal sequence to print in 1920 – I explore the same dialectic at work in our troubled present. My focus is on the seemingly strange conjunction of supposedly 'unmanned' aircraft being used to kill individual human beings: on a non-human or, more accurately, a more-than-human assemblage activated with the express intention to kill the only too human.⁴ My argument is in two parts. First, I re-trace the trajectory with which I began in order to establish a provisional genealogy of the drone – or, more technically, the Unmanned Aerial Vehicle (UAV), Unmanned Aircraft System (UAS) or Remotely Piloted Aircraft (RPA)⁵– and inscribe its development within a concerted attempt to achieve 'victory through air power'. The phrase is Alexander de Seversky's, a veteran of the First World War and a fervent advocate of military aviation in the Second, who in 1942 foresaw a future in which bombing would be conducted over such vast

³ Walter Benjamin, 'The storyteller: observations on the works of Nikolai Leskov' (trans. Harry Zohn), in Michael W. Jennings, Howard Eiland and Gary Smith (eds) *Walter Benjamin: selected writings* Vol. 3: 1935-1938 (Cambridge MA: Harvard University Press) pp. 143- 16: 143-4.

⁴ Cf. Ian Shaw and Majed Akhter, 'The unbearable humanness of drone warfare in FATA, Pakistan', *Antipode* 44 (4) (2012) 1490-1509. Benjamin did not quite anticipate this conjunction, but in the third version of 'The work of art in the age of its technical reproducibility' he used 'the remote-controlled aircraft which needs no crew' – this was also written in 1936 – to juxtapose its technology of experimental, endless repeatable procedures that made the minimum possible use of human beings with a much older political technology that was its dialectical opposite: human sacrifice. Grégoire Chamayou develops the comparison in relation to drone warfare in his *Théorie du drone* (Paris: La fabrique, 2013) pp. 121-9; I have commented on his argument in 'Sacrifice, suicide and drones' at <http://geographicalimaginings.com/2013/08/05/theory-of-the-drone-6-sacrifice-suicide-and-drones>, 5 August 2013.

⁵ There are good reasons to prefer these technical terms, but 'drone' has become so entrenched in contemporary debates that I will revert to the popular usage.

distances that intermediate bases – like the United States Army Air Force bomber stations in Britain – would be unnecessary: ‘The entire logic of aerial warfare makes it certain that ultimately war in the skies will be conducted from the home grounds, with everything in between turned into a no-man’s land.’⁶ Today’s remote operations do take place (literally and violently so, as Pred would surely have reminded us) from the ‘home grounds’, or what the United States now prefers to call ‘the homeland’, against targets thousands of miles away. They are not carried out by the ‘inter-hemispheric super-bombers’ of Seversky’s dreams, however, but by far smaller, slower and strictly limited capability Predators and Reapers. Even so, the expansive prospect conjured up by Seversky requires me to address not only genealogy but also geography, and so in the second part I set out the ways in which drones have re-drawn the increasingly indistinct contours of later modern war.

Genealogies of the drone

Drones have multiple applications for ‘dirty, dangerous or difficult’ work, many of them civil rather than military, but it is their use as vectors of military violence that concerns me here.⁷ The United States uses them in networked attacks, sometimes as ‘eyes in the sky’ for conventional strike aircraft or ground troops, but much of the contemporary debate revolves around their direct role in targeted (or ‘extra-judicial’)

⁶ A.P. de Seversky, *Victory through air power* (New York: Simon & Schuster, 1942) pp. 138-9; see also Philip Meilinger, ‘Proselytiser and prophet: Alexander P. de Seversky and American airpower’, *Journal of strategic studies* 81 (1) (1995) 7-35. The book was turned into a rabidly racist film by Walt Disney, advocating the wholesale destruction of Japan from the skies. The film, unlike the print version, had little public success when it was released in June 1943 but Disney was undeterred and Bugs Bunny was enlisted as an enthusiastic reader of the book in Disney’s *Falling Hare* later that year. The history of bombing, remote or otherwise, is a profoundly racialized one, and its intersections with popular culture have played an important role in its public acceptance.

⁷ My focus is on drones operated by the US Air Force, sometimes as part of Joint Special Operations Command, and on those directed by the Central Intelligence Agency. These are primarily Mid-Altitude Long Endurance (MALE) platforms like the Predator and Reaper. The US Army and Marine Corps operate drones too, but these are typically much smaller and unarmed. Their main function is to provide real time intelligence for close combat and attack by ground troops and their speed, range and altitude are correspondingly much lower than the Predator or Reaper. They include the hand-launched Raven and the trailer-launched Shadow. In 2010 the Army deployed a developmental version of its Gray Eagle to Afghanistan – an upgraded Predator – and its full operational deployment started in 2012.

killing. Yet targeted killing from the air has a longer history than most commentators think. According to Chateaubriand, during the French invasion of Russia in 1812 the military governor of Moscow devised a secret plan in which a rotor-wing powered hydrogen balloon ‘was to float above the French army, pick out the Emperor among his thousands, and fall on his head in a shower of fire and steel.’ Quite how the balloonists were to identify Napoleon ‘among his thousands’ at Borodino was never clear – positive identification continues to be a problem for today’s remote operators – but in any case the wings of the airship ruptured in a trial run and Count Rostopchin was forced to abandon the project.⁸

It was an arresting and, as it happens, an arrested beginning: assassination was not on the minds of the first artificers of remote aerial operations, who envisaged destruction on a far greater scale. Many, perhaps most flight innovations were the stuff of fiction before being turned into fact. In 1909, no doubt inspired by H.G. Wells’s *The war in the air* which had been published the previous year, Walter Booth’s short science fiction film ‘The Airship Destroyer’ showed an airship attack on Britain. The film fed off and into the invasion scare of the pre-war years. After counter-attacks by aircraft had failed, Booth showed the airship finally destroyed by a ground-to-air ‘torpedo’ controlled by wireless. The film had limited success until it was re-released at the height of the Zeppelin raids on Britain, but in 1910 British engineer Raymond Phillips spectacularly combined and reversed Booth’s two plot devices. He used a twenty-foot model Zeppelin to demonstrate a wireless-controlled ‘aerial torpedo’ before an entranced audience at the London Hippodrome. According to the *New York Times*:

‘He claims to be able, sitting at a transmitter in London, to send a dirigible balloon through the air at any height and almost any distance. He can load his balloon with dynamite bombs, he claims, and without leaving his office can send it over a city and wipe the city out.’

He told his audience:

⁸ There are several versions of the story, which I discuss in ‘A shower of balls’ at <http://geographicalimagination.com/2012/10/27/a-shower-of-balls>, 27 October 2012.

‘I don’t want to brag, but I feel sure that if England purchases my aerial torpedo she will make short work of the enemy’s fleets and cities in any future war. Why, I can sit in an armchair in London and drop bombs in Manchester or Paris or Berlin.’

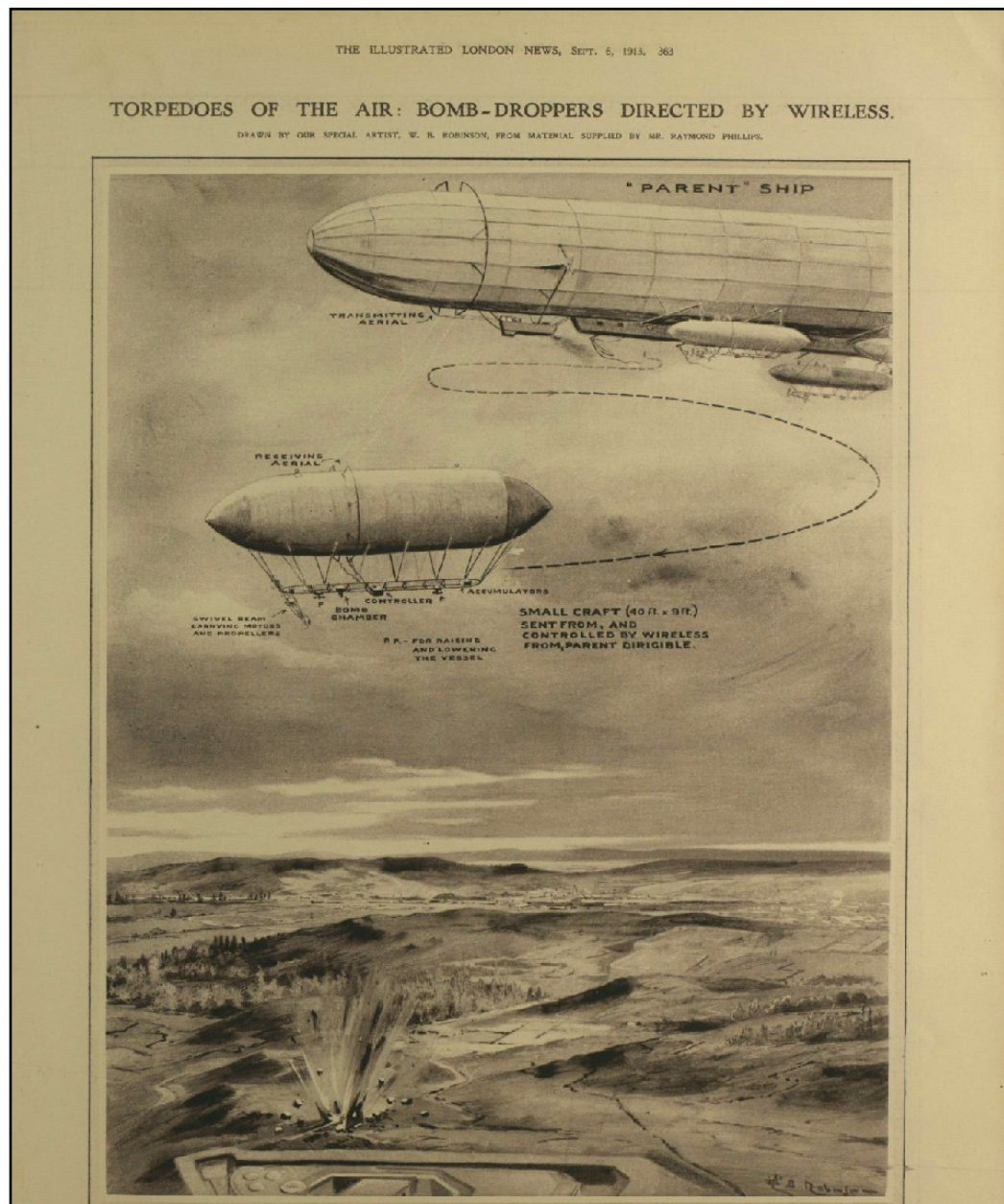
Given the first city on his list it is scarcely surprising that there should have been questions about navigation. Asked how he would know that his airship was over ‘the town you purpose to destroy’, Phillips replied that he might work with a large-scale map or a ‘telephotographic lens which, being en rapport with a reflector placed before the operator, would show him the country over which the airship flew’. Offering his invention to the British government, he predicted that ‘it will do away altogether with existing methods of warfare.’⁹

One of Phillips’ rivals in the audience spotted a weakness in the system. ‘I believe that it would be possible for another operator to interfere with Mr Raymond Phillips’ control,’ speculated Harry Grindell Matthews, using what one newspaper called ‘hostile electric currents’, and he predicted that he could, ‘by manipulating an instrument of my own, compel it [the airship] to turn round and return to the place from which it was sent.’¹⁰ The two men agreed to a duel between their devices, and although I have been unable to find any record of the outcome Phillips was evidently undeterred. In September 1913 the *Illustrated London News* devoted a whole page to ‘torpedoes of the air’ – what it called ‘bomb-droppers directed by wireless’ – and its drawing (Figure 1) was based on materials provided by Phillips.¹¹

⁹ ‘Torpedo airship controlled by wireless is the latest invention’, *New York Times*, 22 May 1910. Phillips insisted that his invention would be far cheaper than an artillery bombardment: ‘Every time a big naval gun is fired £300 is spent. But for £300 I can make, equip and dispatch to any distance three wireless-controlled airships carrying huge quantities of explosives.’ And unlike any shell or naval torpedo, which once used was ‘usually gone beyond recovery’, Phillips could ‘bring back my aerial torpedoes as soon as they have done their work, load them with a fresh cargo of bombs, and send them out again.’ Similar (though not unassailable) economic arguments have been made for the use of drones today.

¹⁰ The same fear haunts today’s remote operations. Unencrypted video feeds from Predators have been intercepted by insurgents in Afghanistan and Iraq, and control signals to the aircraft are also vulnerable to GPS spoofing: see Pierluigi Paganini, ‘Hacking drones’ at <http://resources.infosecinstitute.com/hacking-drones-overview-of-the-main-threats>, 4 June 2013.

¹¹ ‘Torpedoes of the air’, *Illustrated London News*, 6 September 1913.



**Figure 1: Torpedoes of the air: Bomb-droppers directed by wireless
(*Illustrated London News* 1913)**

A year later both sides in the First World War were using aircraft. Orville Wright had always believed that the most immediate market for the new flying machines would be the military, but even though there had been several commercially sponsored bombing competitions before the war he maintained that the primary function of

military aircraft would be 'scouting' not 'bomb-dropping'.¹² They were first used for direct observation and aerial photography, but later and larger aircraft bombed targets on the battlefield and also towns and cities in Britain, France and Germany, while Zeppelins carried out a series of bombing raids against the British mainland. Despite Phillips' offer, however, the military showed little interest in such seemingly outlandish ideas as a remote-controlled aerial torpedo. The exception was the 'Aerial Target' project led by Archibald Low at the Royal Flying Corps' Experimental Works at Feltham and then at Brooklands. Low had been working on an electronic range finder for the artillery, but the new project put his remote skills to work in a radically different direction.¹³ The codename was a deliberate deception because the plan was to develop a pilotless aircraft as a flying bomb rather than a target drone, which would be guided by wireless from an accompanying manned aircraft to attack Zeppelins and ground targets.

¹² On pre-war bombing competitions, see Derek Gregory, 'Episodes in the history of bombing' at <http://geographicalimaginings.com/2012/10/01/episodes-in-the-history-of-bombing>, 1 October 2012. When the United States finally entered the war, Wright conceded that bombing the Krupp Gun Works in Essen – 'only about 150 miles from the present lines of battle' – made sound strategic sense, but he also insisted that bombing over greater distances was still impracticable. 'I have never considered bomb dropping as the most important function of the airplane, and I have no reason to change this opinion now that we have entered the war': 'Orville Wright says 10,000 airplanes would end the war within 10 weeks', *New York Times*, 1 July 1917.

¹³ On one reading, it was not so very different. Insisting that 'there's nothing categorically new about the drone phenomenon,' Tom McCarthy points precisely to the use of aircraft to range artillery on the Western Front:

'In World War I aerial observers used wireless to range remote ordnance onto remote targets. With drones, of course, the observer/ranger doesn't even need to be above the battlefield, but that's just an extension of distance, an expansion of scale.'

Although McCarthy concatenates several issues in this passage, his point is a sharp one. He argues that war, then as now, was 'networked, threaded with technologies and given over to geometries and spaces that exceed us': Omar Fast, *5,000 Feet is the Best* (Oslo: Sternberg Press, 2012) p. 47; I discuss these themes in relation to McCarthy's novel *C* and the First World War in 'Gabriel's map: cartography, corpography and modern war', in Derek Gregory and Peter Meusburger (eds) *Knowledge and power* (Heidelberg: Springer, forthcoming).

Six prototypes were constructed in 1916-17, but their degrees of success varied from zero to minimal and none of them saw combat.¹⁴

Long-range strategic bombing came into its own during the Second World War, particularly by RAF Bomber Command and the United States Army Air Force against targets in Germany, Italy and occupied Europe and in Japan. The Allies experimented with long-distance navigation systems like Gee, which used radio pulses transmitted from ground stations in Britain to guide the aircraft, and Oboe, which used radar pulses transmitted back to the ground stations to track the aircraft and locate the bomb release point. The use of ground stations was a significant advance but these supported remote navigation not remote control systems. There were also attempts to use onboard imagery from ground-scanning H2S and higher frequency H2X radar to fix the target, but in most instances these were insufficiently accurate to convert area bombing into precision bombing. Air strikes were planned and executed within a photo-cartographic imaginary whose high-resolution, high-altitude photography and specially constructed target maps turned cities into opaque abstractions that had both affective and analytical force in making bombing possible.¹⁵

It was not until the dog days of the war that the USAAF toyed with unmanned systems. Its ill-fated Project Aphrodite planned to use war-weary Flying Fortresses and Liberators, both heavy bombers but now stripped of ancillary equipment and packed with high explosives, which – once the US Navy's Special Attack Unit came onboard – were to be guided onto their targets from an escort aircraft using television cameras

¹⁴ In March 1914 Low had successfully demonstrated an early version of television, and the *Times* reported that 'if all goes well with this invention, we shall soon be able, it seems, to see people at a distance' – a capability that, over 50 years later, would be integral to the USAF's experiments with reconnaissance drones over North Vietnam. As the *Times* continued, it was an open question 'whether Dr Low will be regarded as a benefactor, or the opposite.' But Low never linked his two projects. See Paul R. Hare, 'The low flying bomb', *Cross & Cockade* 42 (1) (2011) 45-48; Gary Warne, 'The Predator's ancestors – UAVs in the Great War', at <http://warnepieces.blogspot.ca/2012/07/the-predators-ancestors-uavs-in-great.html>, 25 July 2012.

¹⁵ Derek Gregory, 'Doors into nowhere: Dead cities and the natural history of destruction', in Peter Meusburger, Michael Heffernan and Edgar Wunder (eds), *Cultural Memories* (Heidelberg: Springer, 2011) pp. 249-283; David Fedman and Cary Karacas, 'A cartographic fade to black: mapping the destruction of urban Japan during World War II', *Journal of historical geography* 38 (3) (2012) 306-28.

mounted in their noses and remote ('robot') control. Like Low's Aerial Target, these too were flying bombs – the project was developed in July 1944 to attack the hardened launching sites for the V-1 rockets that had started to rain down on Britain that summer – and, as Benjamin and Phillips had recognized, there is an important difference between torpedoes and flying bombs that can only be used once and drones that can be used over and over again. But the focal importance of Aphrodite lies in its reliance on a real-time visual feed to guide the aircraft's remote control system. Although only fifteen, unsuccessful missions were flown against the launch sites and an expanded target list that included submarine pens and other targets inside Germany before the project was abandoned in January 1945 – Lt General Jimmy Doolittle complained that it had been put together 'with baling wire, chicken guts and ignorance' – General Henry Arnold remained enthusiastic and asked for further research into remote controlled, television-assisted aircraft.¹⁶ He was convinced these new devices would 'fly over enemy territory and look through the leaves of trees and see whether they're moving their equipment.' 'I see a manless air force', Arnold told his chief scientific advisor, and on VJ-Day he predicted that 'the next war may be fought by airplanes with no men in them at all.'¹⁷ At a press conference three days later he pressed home the claim:

¹⁶ Conrad Crane, *Bombs, cities and civilians: American airpower strategy in World War II* (Wichita: University of Kansas Press, 1993) pp. 78-85; Walter J. Boyne, 'The remote control bombers', *Air Force Magazine* 93 (11) (2010) 86-88; 'Operation Aphrodite' at <http://fly.historicwings.com/2012/08/operation-aphrodite>, 12 August 2012. For a full discussion, see Timothy Schultz, 'Flight without Flyers', pp. 193-249 in his 'Redefining Flight: how the predecessors of the United States Air Force transformed the relationship between airmen and aircraft' (PhD dissertation, Duke University, 2007). In another parallel with today's operations, the radio remote-control system could not handle take-offs, and so volunteer crew took the aircraft up 2,000 feet, when they handed control to operators in the 'mother ship' before parachuting to safety. The final report on the project concluded that the system 'should be used as a tactical rather than a strategic weapon', with a launching base 'well forward' and guided from a ground-control station. Without a 'mother ship' to guide the aircraft, the short-lived Operation Willie Orphan experimented with radar stations, radio beacons and ground controllers.

¹⁷ Michael Sherry, *The rise of American airpower: the creation of Armageddon* (New Haven: Yale University Press, 1987) p. 187.

‘One year ago we were guiding bombs by television, controlled by a man in a plane fifteen miles away. I think the time is coming when we won’t have any men in a bomber.’¹⁸

It is not hindsight to see this determination to enlist new technologies of vision in the service of what Sherry sees as a ‘dehumanized’ mode of military violence as a precursor to today’s remote operations. But the way forward was far from clear; remote operations require more than visual feeds, and it was twenty years before another vital series of way stations opened up. During its air wars over North and South Vietnam, Laos and Cambodia the American military continued to rely on conventional strike aircraft. During the Rolling Thunder campaign from 1965 to 1968 fighter-bombers attacked specified targets in North Vietnam, for example, while long-range B-52 bombers from Guam and later Thailand conducted pulverizing Arc Light missions over target boxes in the South (a new kind of area bombing ridiculed by one critic as ‘bombing forests’). The B-52 crews saw nothing of what was happening on the ground beneath them; bombing became a deadly form of applied geometry in which the aircrew ‘sitting in their air-conditioned compartments more than five miles above the jungle’ saw it merely as ‘a familiar technical exercise.’ They ‘knew virtually nothing about their targets,’ the *New York Times* reported, ‘and showed no curiosity.’ ‘We’re so far away,’ one of them explained, that ‘it’s a highly impersonal war for us.’¹⁹ This presents a sharp contrast to remote operations over Afghanistan and Pakistan, as we will see, but in concert with these conventional air strikes the military also developed three elements that prefigured the technical infrastructure in which remote operations would subsequently be embedded. These were a system of close-in, real time aerial reconnaissance from slow, propeller-driven aircraft, whose core principles approximated today’s ‘pattern of life’ analysis but without the formal algorithms or advanced network analysis; television-guided reconnaissance drones launched from

¹⁸ Sidney Shalett, ‘Arnold Reveals Secret Weapons, Bomber Surpassing All Others’, *New York Times*, 18 August 1945; Schultz, *Redefining Flight*, p. 15.

¹⁹ Joseph Treaster, ‘Aboard B-52 bomber high over Vietnam a crew takes part in an impersonal war’, *New York Times* 13 October 1972.

Hercules transport aircraft, which at first produced only still images but which later transmitted real-time video feeds; and a remote networked sensor-shooter system ('the electronic battlefield') that used seismic and sonar sensors, relay aircraft and an early visual display terminal to dispatch bombers to interdict movement along the Ho Chi Minh Trail.²⁰ The three elements remained separate, but they would eventually be brought together in an integrated hunter-killer system.

The challenge was to develop these elements so that ISR and lethal strikes could be executed from the same remote platform. The prospect was demonstrated with stunning clarity in 1983, when the Israel Defense Forces showed American General P.X. Kelley a videotape of his secret tour of the bombed US Marine barracks in Beirut in October that same year. A small drone circling out of sight had captured imagery of the visit with the general's head displayed in the crosshairs.²¹ The Marines were more interested in image capture than targeted killing, however, and over the next decade several joint ventures between Israeli Aircraft Industries and US aerospace companies provided a stream of small battlefield reconnaissance drones for the US Army, Marine Corps and Navy. The US Air Force remained absolutely committed to conventional aircraft, and no attempt was made to arm these remote platforms by the other services. That project emerged on an altogether different track. In 1977 Abraham Karem, a former Israeli Air Force engineering officer who had also worked for Israeli Aircraft Industries on its drone programme, emigrated to Los Angeles and by 1981 his fledgling company had successfully tested a prototype radio-controlled drone called the Albatross. It turned out to be a prophetic name. Karem's work attracted the attention of the Pentagon's Defense Advanced Research Projects Agency (DARPA), but the US Army and Navy were so dismayed at the difficulty of fitting sophisticated sensor systems

²⁰ This was still area bombing. As the officer responsible for the system explained, 'We are not bombing a precise point on the ground with a point target bomb – we can't determine each truck's location that accurately with ground sensors, which are listening – not viewing – devices. Since we never actually "see" the trucks as point targets, we use area-type ordnance [including napalm and cluster bombs] to cover the zone we know the trucks to be in'. For a detailed discussion of these elements and their subsequent integration, see Derek Gregory, 'Lines of descent', in Peter Adey, Mark Whitehead and Alison Williams (eds) *From above: war, violence and verticality* (London: Hurst, 2013) pp. 41-69.

²¹ Chamayou, *Théorie du drone*, p. 44.

into the aircraft that they withdrew from the project.²² Karem set about developing a bigger, heavier and in many ways less advanced version for a putative export market, the GNAT-750, but this was a desperate commercial strategy that failed to save his company. In 1990 Hughes Aircraft bought Leading Systems Inc. and sold it on to General Atomics, which retained Karem and his development team. Five years later the project finally achieved commercial success when the CIA purchased its first two GNAT-750s to monitor events over what was fast becoming the former Yugoslavia.²³

CIA Director James Woolsey recalled those early test flights over Bosnia-Herzegovina with something approaching wonder: 'I could sit in my office, call up a classified channel and in an early version of e-mail type messages to a guy in Albania [the location of the Ground Control Station] asking him to zoom in on things'.²⁴ Even so, the utility of those early transmission was limited, and even as the GNAT-750 was deployed its design was being developed into a new platform, the RQ-1 Predator, which incorporated three major modifications. The original intention had been to provide still imagery and text interpretation, but this was replaced by real-time motion video in colour (by day) and infrared (by night). A more serious limitation was range; the GNAT-750 could only operate 150 miles from the ground control station because it relied on a C-band line of sight data link. The CIA experimented with using relay aircraft to expedite data transmission – the same solution that had been used for the 'electronic battlefield' along the Ho Chi Minh Trail – but the breakthrough came with the use of the Ku-band satellite system that dramatically increased the operational

²² DARPA had other irons in the fire. In the 1970s it had commissioned two prototype drones, Praere and Calere, based on the work of John Stuart Foster that promised to combine reconnaissance and strike capabilities. A series of weapon systems was spun off from this early work; one set led to the development of 'so-called 'smart bombs' and missiles like the JDAM, but Fred Kaplan argues that 'something close to Foster's vision finally materialized in the mid-1990s' with the Predator: 'The world as free-fire zone', *MIT Technology Review* at <http://www.technologyreview.com/featuredstory/515806/the-world-as-free-fire-zone>, 7 June 2013.

²³ 'The Dronefather', *The Economist* 1 December 2012; Richard Whittle, 'The man who invented the Predator', *Air & Space*, April 2013 at <http://www.airspacemag.com/flight-today/The-Man-Who-Invented-the-Predator-198846671.html>.

²⁴ Peter Finn, 'Rise of the drone', *Washington Post* 23 December 2011; for the role of the CIA's Directorate of Science and Technology in the development of the Predator, see Frank Strickland, 'The early evolution of the Predator drone', *Studies in Intelligence* 57 (1) (2013) 1-6.

range. The upgrade had been tested in the United States, and was retrofitted to Predators in Europe in August 1995. Although data was then rapidly transmitted across the Atlantic, the key intelligence nodes were still in Europe, like the Combined Air Operations Centre (CAOC) at Vicenza in Italy, and the drones were still controlled from ground stations within the region, at first from Gjader in Albania and later from Tazar in Hungary. A third, no less revolutionary innovation was the installation of an onboard global positioning system (GPS); early target imagery had to be geo-located using a PowerScene software program, but the introduction of satellite-linked GPS made a considerable difference to the speed and accuracy of targeting.²⁵

Four of the aircraft were flown by the US military for the CIA, but the US Army had become the lead service for Predator operations and in response the US Air Force activated its own UAV unit, the 11th Reconnaissance Squadron, at Indian Springs Auxiliary Field (since re-named Creech Air Force Base) near Nellis Air Force Base in Nevada in July 1995. These inter-service rivalries were significant – Thomas Ehrhard notes that the Predator’s capabilities lay ‘between the Army’s battlefield range and the Air Force’s preferred altitude and speed comfort zone’²⁶ – and the trick would eventually be to link the two in integrated air-ground operations. But the NATO intervention in Yugoslavia was originally restricted to an air campaign, and while the CIA and the USAF supplied real-time imagery from their drones the air strikes against

²⁵ Linda Kozaryn, ‘Predators bound for Bosnia’, American Forces Press Service, 8 February 1996. One of the first two GNAT-750s crashed on approach in California during CIA trials. Of the four Predators that were initially deployed to Bosnia, described as ‘an Advanced Concept Technology Demonstration’, at least one was shot down (some reports claim two) because the drones were not equipped with the radar required to see through dense cloud cover, which forced them to fly at low altitudes where they became easy targets for Serbian ground fire; another was made to crash when it lost power over Bosnia (drones continue to be vulnerable to cloud and bad weather): James Risen and Ralph Vartabadian, ‘Spy plane woes create Bosnia intelligence gap’, *Los Angeles Times*, 2 December 1995; Larry Ernst, ‘Predator: our experience in Bosnia using UAVs in combat’, *Proc. SPIE 2829 Airborne reconnaissance XX* (131) (1996) doi: 10.1117/12.259747; Steve Hansen, ‘MSIIA hunts Predator in Bosnia’, *The Edge* 1 (1) (1997); R. Dixon, ‘UAV employment in Kosovo: lessons for the operational commander’, Report, Naval War College, February 2000.

²⁶ Thomas P. Ehrhard, *Air Force UAVs: the secret history* (Arlington: Mitchell Institute for Airpower Studies, 2011) p. 55; for a much fuller discussion see his ‘Unmanned aerial vehicles in the United States armed services: a comparative study of weapon system innovation’ (PhD dissertation, the Johns Hopkins University, June 2000).

Serbian targets were carried out by conventional strike aircraft. It was a similar story when NATO acted against Serbia's assault on Kosovo in 1999. Both Army and Air Force drones were used to provide imagery for air strikes, and there were determined attempts to use the real-time video feeds to 'compress the kill-chain': to contract the time between target identification and target execution by relaying imagery from the CAOC to forward air controllers in the theatre of operations so that they could choreograph the strikes. But the delay in image transmission was still long enough for Serbian tanks and troops to move before the fighter-bombers arrived. This prompted the Air Force to equip its Predators with laser designators so that they could 'paint' the targets for the strike aircraft, but the conflict ended before they could be used.²⁷

Still, hunter and killer were now integrated, but they remained separate platforms. In February 2001 at Nellis Air Force Base the Air Force successfully test-fired a Hellfire-C laser-guided missile from a Predator, but it was the CIA that became the lead agency in what its Director George Tenet called 'an interagency effort to fully develop the capabilities of the armed Predator' (re-classified as the MQ-1). This aircraft had its first operational deployment in October 2001 in Afghanistan.²⁸ The US-led war in Afghanistan relied on barrages of sea-launched cruise missiles and intensive high-altitude bombing, and Predators continued to provide ISR and post-strike damage assessment, supplying real-time video feeds to US Central Command headquarters in Tampa, Florida, to the CIA in Langley, Virginia and to the Pentagon.²⁹ As the war ground on, eventually in parallel with the US-led war in Iraq, the main function of the MQ-1 (and its faster and deadlier offshoot, the MQ-9 Reaper, which came into service in September 2007) became the provision of close air support to ground forces, often in co-

²⁷ Richard Newman, 'The little Predator that could', *Air Force Magazine* 85 (3) (2002) 48-53; Walter Boyne, 'How the Predator grew teeth', *Air Force Magazine* 92 (7) (2009) 42-45.

²⁸ These were not the first Predators over Afghanistan. In September 2000 they were deployed from a base in Uzbekistan in a joint mission directed by the CIA to boost the search for Osama bin Laden.

²⁹ For the consequences of the US bombing of Afghanistan during the invasion of 2001 and the occupation that followed, the work of Marc Herold is indispensable: <http://pubpages.unh.edu/~mwherold>. For operational details see Tim Ripley, *Air war in Afghanistan: US and NATO air operations from 2001* (Barnsley: Pen & Sword, 2011).

operation with conventional strike aircraft. This was not the preserve of the CIA, and so the Air Force assumed responsibility and ratcheted up its combat air patrols from these remote platforms.³⁰ The network became more elaborate and the targeting cycle more detailed. Video was fed to specialist image analysts through the Distributed Common Ground System in the United States and to senior commanders and military lawyers at the Combined Air and Space Operations Center at Al Udeid Air Base in Qatar, who oversaw each strike, while the targeting process was refined to include more advanced software programs for collateral damage estimation and weapons selection.³¹

But the CIA did not leave the field; it had its own interest in hunter-killer missions. The agency had a murky record of clandestine assassination in central America and South East Asia. Its paramilitary role had been most visible in the Phoenix Program during the Vietnam war, and the question that preoccupied the White House, Langley and the Pentagon was whether a different 'bird' could emerge from the ashes.³² The answer was to take another leaf from Israel's playbook. The IDF had openly resumed targeted killings in the occupied Palestinian territories since the start of the second intifada in September 2000, and many of the assassinations had been carried

³⁰ It takes four UAVs to maintain a single Combat Air Patrol, which requires the platform to be on station 24 hours a day, seven days a week: so-called 'persistent presence'. In 2004 the US Air Force's Predators and Reapers supported just 5 CAPs; by 2006 this had grown to 11, by 2008 to 33, by 2010 to 48, and by the end of 2012 to 60 (all figures include Afghanistan and Iraq). These raw numbers do not capture the increase in real-time ISR, because over the same period the capacity of the onboard sensors increased dramatically, particularly with the introduction of wide area airborne surveillance. Hence the danger of 'swimming in sensors, drowning in data'.

³¹ Derek Gregory, 'From a view to a kill: drones and late modern war', *Theory, culture and society* 28 (7-8) (2011) 188-215; Gregory, 'Lines of descent'.

³² For a critical history see Douglas Valentine, *The Phoenix Program* (New York: William Morrow, 1990); for a revisionist account, Mark Moyar, *Phoenix and the birds of prey* (Annapolis: Naval Institute Press, 1997). President Gerald Ford banned 'political assassinations' in 1976, and President Jimmy Carter extended the ban to all assassinations and to US contractors and proxies.

out by attack helicopters and F-16 aircraft.³³ In early 2001 the US State Department had vigorously condemned the programme, but in the wake of 9/11 all bets were off. Was it now possible to conduct a new type of clandestine warfare using drones?

At first, the CIA continued to make the running, and the first CIA-directed targeted killing took place outside the war-zone and over a year later, in Yemen in November 2002. The target was Qaed Salim Sinan al-Harethi, one of what were then just seven 'High Value Targets' who had been identified by the CIA's Counterterrorism Center. Harethi was described as 'a senior al Qaeda operative' suspected of being involved in the bombing of the USS Cole in the Gulf of Aden in October 2000. Five other men travelling with him were killed in the strike, which was carried out in concert with President Saleh and his own intelligence agency by a Predator armed with two Hellfire missiles flying from Djibouti (just 300 miles across the Gulf) under the operational control of the CIA's Special Activities Division. As Lt General Michael DeLong explained, the US Air Force carried out the attack. At the time, DeLong was deputy commander at US Central Command at MacDill Air Force Base in Tampa:

"Tenet calls and said, "We got the target." ... I called General Franks [commander of CENTCOM]. Franks said, "Hey, if Tenet said it's good, it's good." I said, "Okay ... I'm going down to the UAV room." ... We had our lawyer there. Everything was done right. I mean, there was no hot dog. ... The rules of war, the rules of combat that we had already set up, the rules of engagement ahead of time. Went by them. Okay, it's a good target. ...

I'm sitting back ... looking at the wall, and I'm talking to George Tenet. And he goes, "You got to make the call?" These Predators had been lent to him, but

³³ Drones were used to provide ISR for many, perhaps most of these attacks, and by August 2006 Israel Aircraft Industries were working on using them to 'close the sensor-to-shooter chain', but the first documented case of an armed drone carrying out a targeted killing was on the first day of 'Operation Cast Lead', 27 December 2008 near Gaza City. See Laura Blumenfeld, 'In Israel, a divisive struggle over targeted killing', *Washington Post* 27 August 2006; B'Tselem, 'Palestinians killed during the course of a targeted killing in the Occupied Territories' at <http://www.btselem.org/statistics/fatalities/before-cast-lead/by-date-of-event/wb-gaza/palestinians-killed-during-the-course-of-a-targeted-killing>.

the weapons on board were ours. So I said, "Okay, we'll make the call. Shoot them." 34

This was, as Seymour Hersh observed, a manhunt.³⁵

It was a slow start. It was more than eighteen months later before the focus of the CIA's drone programme switched to the Federally Administered Tribal Areas (FATA) in Pakistan, which remained the main hunting ground for the next decade.³ The United States regarded the borderlands as an extension of the battle space in Afghanistan, and the number of 'High Value Targets' slowly increased along with the number of strikes. The coincidence of the battle spaces was eventually marked by the designation 'AfPak', a cavalier term proposed by US Special Representative Richard Holbrooke in 2008, but the CIA's priorities had already been signalled by the creation of a Pakistan-Afghanistan Department within its Counterterrorism Center.³⁷ After the assassination of Benazir Bhutto President Bush expanded the target list beyond al Qaeda to the Taliban and other 'nexus' targets and increased the tempo of attacks; by

³⁴ Interview with Lt. Gen. Michael DeLong, Frontline, 14 February 2006 (transcript) at <http://www.pbs.org/wgbh/pages/frontline/darkside/interviews/delong.html>. Everything may have been 'done right', but in this particular case – for all the apparent concern about authorisation – killing was made commonplace, even casual. When asked 'What does it feel like when you know you're going down there to kill somebody?' DeLong replied: 'It's no different than going to the store to buy some eggs; it's just something you got to do.'

³⁵ Seymour Hersh, 'Manhunt', *New Yorker* 23 December 2002, pp. 66-74. The same language was used by Bush and Rumsfeld to characterise the central operations of the 'global war on terror': see also Mark Mazetti, *The way of the knife: the CIA, a secret army and a war at the ends of the earth* (New York: Penguin, 2013) pp. 85-87; Jeremy Scahill, *Dirty wars: the world is a battlefield* (New York: Nation Books, 2013) pp. 75-80. Mazetti reports that when Saleh granted permission 'he seemed proud that Yemen would be the first place outside of Afghanistan that the CIA was preparing to use the Predator.'

³⁶ The first strike in the FATA took place in South Waziristan on 18 June 2004, with the full support of President Musharraf's government, when Nek Muhammad, a Taliban commander knowingly misrepresented by the US as an 'al Qaeda facilitator' was killed along with four of his companions. In fact he had been marked by Pakistan and its Inter-Services Intelligence Agency as an enemy of the state, and his death was the price the CIA agreed to pay Islamabad for its tacit consent to 'covert' drone strikes in the FATA: Mark Mazzetti, 'A secret deal on drones, sealed in blood', *Washington Post*, 6 April 2013; Mazzetti, *The way of the knife*, pp. 103-109.

³⁷ By 2011 the CIA had created an equivalent department for Yemen and Somalia: Greg Miller and Julie Tate, 'CIA shifts focus to killing targets', *Washington Post*, 1 September 2011.

the end of 2008 there had been 46 drone strikes in Pakistan. Even so, the CIA did not have a monopoly on targeted killing. The Pentagon had developed its own Joint Prioritised Effects List for time-sensitive 'aerial strikes against enemy leadership targets' as part of its counterinsurgency campaign in Afghanistan.³⁸ But ever since that first drone strike in Yemen US Secretary of Defense Donald Rumsfeld had been determined to edge out the CIA – as Jeremy Scahill puts it, he had 'no interest in being the support team' – and he decided to promote a revitalized and expanded Joint Special Operations Command (JSOC) as the leading edge of US counter-terrorism too.³⁹ JSOC became notorious for its 'night raids' by ground forces, but it also includes an Air Force component, and Dana Priest and William Arkin have claimed that the CIA's targeted killing campaign 'paled in comparison to the size of the drone war being waged abroad by the US military, mainly through JSOC and mostly in Afghanistan.'⁴⁰ The plan was to develop a still more clandestine form of what Steve Niva calls 'a modular form of war that could be delinked from the conventional military battlespace and extended across new cartographies.'⁴¹

My narrative has been highly selective, but it does show that the history of drones cannot be separated from the wider matrix of military and paramilitary violence in which they have been embedded. The history of bombing is a crucial part of the story,

³⁸ Col. James Garrett, 'Necessity and proportionality in the Operation Enduring Freedom VII Campaign', Strategy Research Project, US Army War College, 20 March 2008; see especially pp.12-17.

³⁹ Scahill, *Dirty wars*, pp. 54-60; Rumsfeld was staunchly supported by Vice-President Dick Cheney. The lines between counterinsurgency and counter-terrorism have become as blurred as those between the US military and the CIA; for a discussion see Colleen Bell and Brad Evans, 'Terrorism to insurgency: mapping the post-intervention security terrain', *Journal of intervention and statebuilding* 4 (4) (2011) 371-390; the transition from counter-terrorism to counterinsurgency that they identified has arguably been reversed since then.

⁴⁰ Dana Priest, *Top Secret America: the rise of the new American security state* (New York: Little, Brown, 2011) pp. 202-20: 210.

⁴¹ Steve Niva, 'Disappearing violence: JSOC and the Pentagon's new cartography of networked warfare', *Security dialogue* 44 (3) (2013) 185-202: 196. 'More clandestine' because the CIA operates under Title 50 of the US Code whereas JSOC (like the rest of the US military) operates under Title 10 and no Congressional notification of its actions is required. For an aggressive defence of JSOC's legal warrant and of Title 50 by the former senior legal adviser for Special Operations Command, see Andru Wall, 'Demystifying the Title 10–Title 50 debate: distinguishing military operations, intelligence activities and covert action', *Harvard Security Journal* 3 (2011) 85-141.

because it describes the emergence of a political technology of long-distance and stand-off killing that followed no single line of descent. In the course of its development, a series of technologies – each with its own affordances and dispositions – was assembled that eventually joined ‘hunter’ and ‘killer’ in a networked assemblage and sometimes in the same aerial platform. As that union occurred, and as an integral part of the formation of an intrinsically political armature for these new technologies, the lines between military and intelligence agencies became blurred, and new complicities between different states emerged in the shadows of these already shadowy wars. Even as so-called strategic bombing continued to take its toll of terrified populations, however, these new technologies also made it possible to contract the radius of violence – though not necessarily of terror: those ‘living under drones’ in the FATA and elsewhere report a pervasive sense of fear induced by the persistent presence of Predators and Reapers in the skies overhead ⁴²– through the new capacity to put ‘warheads on foreheads.’ ⁴³ In one, tremendously powerful sense, the target remained unchanged throughout all these transformations: it was still the human body. But the eyes of the new hunter-killers are now directed at particular bodies (not areas or boxes) and so, as I must now show, embedded in these remote operations is a series of distinctive geographies.

Geographies

There are four compound geographies through which drone operations are executed. The first set might be bundled together as ‘homeland security’ since they are all located within the continental United States. The US Air Force describes its remote operations as ‘projecting power without vulnerability’; the suite of four aircraft that constitute a Combat Air Patrol involves 192 personnel, and most of them (133) are

⁴² International Human Rights and Conflict Resolution Clinic at Stanford Law School and Global Justice Clinic and NYU School of Law, *Living under drones: death, injury and trauma to civilians from US drone practices in Pakistan* (September 2012). Unlike the bombing grounds of the Second World War, there are no air-raid warnings, no anti-aircraft defenses and no air-raid shelters in the FATA.

⁴³ Anna Mulrine, ‘Warheads on foreheads’, *Air Force Magazine* 91 (10) (2008) 44-47.

located outside the combat zone and beyond immediate danger (Figure 2).⁴⁴ This is risk-transfer war with a vengeance, where virtually all the risks are transferred to populations overseas.⁴⁵ Those who live in the attack zones often criticize drone strikes

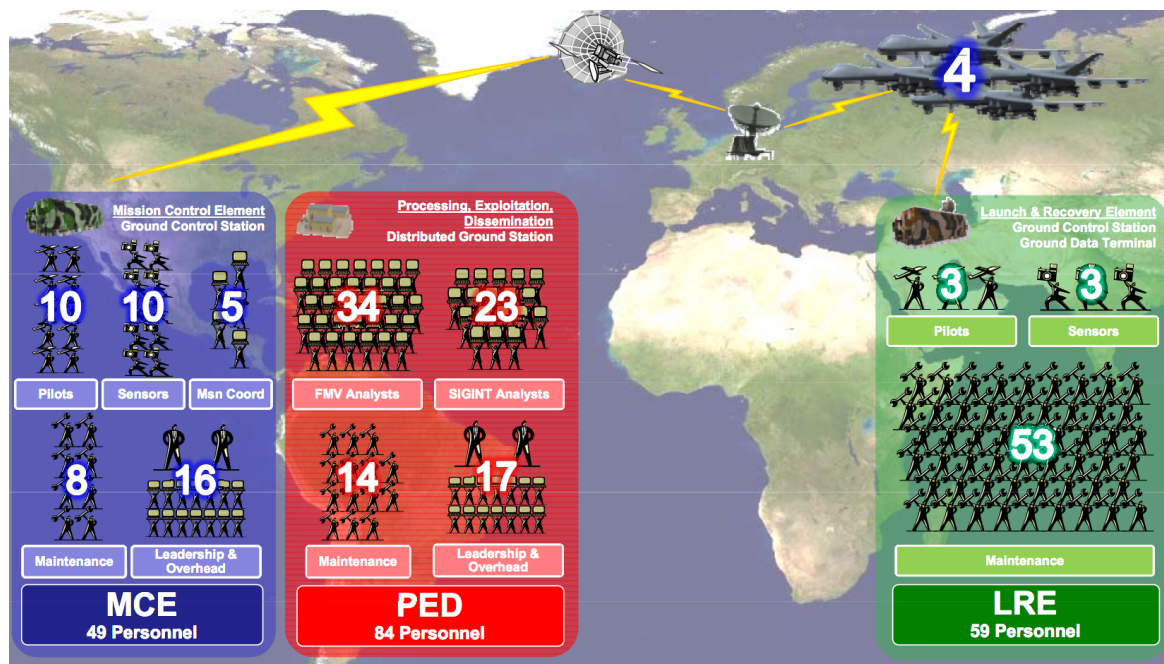


Figure 2: USAF Staffing a Combat Air Patrol of 4 Predators or Reapers (11 September 2010)

as cowardly, but the fact that 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 presumptive moral force: to kill with honour, the soldier

⁴⁴ There are forward-deployed Launch and Recovery crews who handle take-off and landing, still through a C-band line of sight link, before handing off the missions to US-based crews via a Ku-band satellite link to a ground station at Ramstein Air Base in Germany and a fiber optic cable across the Atlantic to the United States; given the technical problems that continue to dog what Jordan Crandall has described as 'the wayward drone', there are also large maintenance crews in-theatre to service the aircraft. For a rare account of life of crews on a four-month rotation at one of these forward operating bases (Kandahar), see Ron Blackhurst, 'The air force men who fly drones in Afghanistan by remote control', *Daily Telegraph*, 24 September 2012. Some combat missions have also been flown by crews based in Afghanistan and Iraq.

⁴⁵ Martin Shaw, *The new western way of war: risk transfer war and its crisis in Iraq* (Cambridge: Polity, 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.

must be prepared to die. Now the remote warrior is still the vector of violence but no longer its potential victim.⁴⁶

Indeed, some critics have ridiculed the drone crews as ‘cubicle warriors’ who merely ‘commute’ to war.⁴⁷ Their 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 them 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 forward-deployed 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.’⁴⁸ ‘The weirdest thing for me,’ one pilot admitted, is ‘getting up in the morning, driving my kids to school and killing

⁴⁶ Chamayou, *Théorie du drone*, pp. 139-50; see my discussion in ‘From invisibility to vulnerability’ at <http://geographicalimagination.com/2013/08/08/theory-of-the-drone-8-from-invisibility-to-vulnerability>, 8 August 2013. 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’, *International feminist journal of politics* (2013, forthcoming).

⁴⁷ Lambèr Royakkers and Rinie van Est, ‘The Cubicle Warrior: The marionette of digitized warfare’, *Ethics and Information Technology* 12 (3) (2010) 289-96.

⁴⁸ Matt Martin with Charles W. Sasser, *Predator: the remote-control air war over Iraq and Afghanistan: a pilot’s story* (Minneapolis: Zenith, 2010) pp. 44-5. In a still more surreal (and astonishingly imperial) gesture of compartmentalisation, 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’: ‘Hunting the Taliban in Las Vegas’, *The Atlantic* 298 (2) (2006) 81-2: 81.

people.’⁴⁹ 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.’⁵⁰

In George Brant’s play *Grounded* a pilot describes her shock at the switching:

‘We’ll be working in shifts, tapping each other out and taking the controls. A never-ending mission. Home will be training too. Getting used to the routine. Driving to war like it’s shift work. Like I’m punching the clock. Used to transition home once a year. Now it’ll be once a day. Different. Definitely different.’

She finds it increasingly difficult to maintain the separation – 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 the pilot finds it increasingly difficult 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.⁵¹

Brant’s play is all the more powerful because public attention has been, I think no less artfully orchestrated so that it does not make that connection. When critics of CIA-directed drone strikes in Pakistan and elsewhere demand to know about their legal basis, about the rules and procedures that are followed, they divert the public gaze from

⁴⁹ Blackhurst, ‘Air force men’; notice that it is not the killing that is so strange – which is, after all, what these officers are trained to do – but its almost visceral proximity to everyday life.

⁵⁰ 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* 23 (2) (2013) 196-224.

⁵¹ George Brant, *Grounded* (London: Oberon Books, 2013); like Omer Fast’s *5,000 Feet is the Best*, the fictional status of the work should not blind us to its obvious ‘grounding’ in a careful reading of interviews with and reports of real drone crews.

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 the 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 entranced 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 authorised to speak on the record', and front-of-house spielers like Harold Koh and John Brennan ⁵² – 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.' ⁵³

The second set of geographies turns on the strange connection that makes these 'remote-split' 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

⁵² Koh served as the State Department's Legal Adviser; 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.

⁵³ Madiha Tahir, 'Louder than bombs', *The New Inquiry* (6) (2012) *Game of drones*. 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': *Non-legality in International Law* (Cambridge: Cambridge University Press, 2013) p. 6.

of the world.’⁵⁴ Many commentators have argued that Lindbergh’s metaphor has been realised – and radicalised – in today’s drone wars. Certainly killing is now conducted over an even greater distance and is not only projected on to 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 realise. 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.’⁵⁵

The difference today is that the video feeds from the drones have removed the blindness, but 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’ amongst its perpetrators.⁵⁶

But matters are considerably more complicated. 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

⁵⁴ Lindbergh’s wartime journals are quoted in Sherry, *Rise of American air power*, pp. 209-10.

⁵⁵ Harold Nash, quoted in James Taylor and Martin Davidson, *Bomber Crew* (London: Hodder & Stoughton, 2004) p. 447; for a fuller discussion see Gregory, ‘Lines of descent’.

⁵⁶ 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 Dobbing and Amy Hailwood, *Convenient killing: armed drones and the “Playstation” mentality* (Oxford: Fellowship of Reconciliation, 2010). For the general claim that video games are de-sensitizing 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* (New York: Bay Back Books, 1995).

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 neighbors’ patterns. We even go to their funerals.’⁵⁷

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.’⁵⁸ 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...’⁵⁹

This ‘rush to the intimate’ has become increasingly focal to many military operations, and here – as elsewhere⁶⁰ – it is violently invasive and thoroughly conditional. Those conditions are revealing. Most obviously, crews can see without being seen, and Grégoire Chamayou has argued that ‘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.’⁶¹ The physical separation between an act and its consequences is clearly radicalised in remote split

⁵⁷ Nicola Abé, ‘Dreams in Infrared: the woes of an American drone operator’, *Spiegel Online*, 14 December 2012 at <http://www.spiegel.de/international/world/pain-continues-after-war-for-american-drone-pilot-a-872726.html>

⁵⁸ ‘We are Predator/UAV Pilot/Operators currently in Afghanistan’, at http://www.reddit.com/r/IAmA/comments/17j9wa/we_are_predator_uav_pilotoperators_currently_in, January 2013.

⁵⁹ Mark Bowden, ‘The killing machines’, *The Atlantic*, 14 September 2013.

⁶⁰ Derek Gregory, ‘The rush to the intimate: counterinsurgency and the cultural turn’, *Radical Philosophy* 150 (2008) 8-23.

⁶¹ Chamayou, *Théorie du drone*, p. 167; Stanley Milgram, *Obedience to authority: an experimental view* (New York: Harper & Row, 1974).

operations, but it is also dispersed across the network as senior officers, military lawyers, image analysts and ground commanders all scrutinise 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*.⁶² The technology is ‘mesmerising’, reporter Mark Benjamin concedes, but ‘it also makes the process of killing another human being eerily impersonal.’⁶³ 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*’.⁶⁴ 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-juridical. 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 operationalise but also to justify what is to be done: in short, ‘violence legislates’.⁶⁵ Killing is conducted under the sign of military Reason, which invests the process with a seriousness of purpose that is expressly designed to minimise emotional response. This is compounded by an intrinsically visual economy that invests 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.

⁶² 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, *Predator*, p. 212.

⁶³ Mark Benjamin, ‘Killing “Bubba” from the skies’, *Salon*, 15 February 2008 at http://www.salon.com/2008/02/15/air_war/

⁶⁴ Harun Farocki, ‘Phantom images’, *Public* 29 (2004) 12-24; my emphasis.

⁶⁵ ‘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* (London: Verso, 2012) p. 12. Reciprocally, international law works to establish what Madiha Tahir calls ‘the proper order of violence.’

The detachment that critics of drone operations worry about comes partially from the silence of the footage.’⁶⁶

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.’⁶⁷ 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.’⁶⁸

This form of invasive, irruptive intimacy – a ‘voyeuristic intimacy’, Matthew Power calls it⁶⁹ – 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.’⁷⁰ But 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

⁶⁶ Nasser Hussain, ‘The sound of terror: phenomenology of a drone strike’, *Boston Review* 16 October 2013 at <http://www.bostonreview.net/world/hussain-drone-phenomenology>.

⁶⁷ Fast, *5,000 Feet*, p. 100.

⁶⁸ David Wood, ‘Drone strikes: a candid, chilling conversation with top US drone pilot’, *Huffington Post*, 15 May 2013 at http://www.huffingtonpost.com/2013/05/15/drone-strikes_n_3280023.html

⁶⁹ Matthew Power, ‘Confessions of a drone warrior’, *GQ* 23 October 2013.

⁷⁰ Abé, ‘Dreams’.

commanders 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 accidentally ⁷¹ – remain purely optical signatures. ⁷² 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’. ⁷³

And after a successful strike troops message or sometimes e-mail the drone crews: ‘They would want to just say, ‘Hey, thanks, man.’” ⁷⁴ ‘Intimacy’ is thus cultivated within a culturally divided field – a different 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. ⁷⁵ My point is not that military investigations of civilian casualties often cite ‘human error

⁷¹ 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 fire-fight 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: 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 11 April 2011.

⁷² Elisabeth Bumiller, ‘Air Force drone operators report high levels of stress’, *New York Times*, 18 December 2011.

⁷³ Megan McCloskey, ‘Two worlds of a drone pilot’, *Stars and Stripes*, 27 October 2009. Grossman, On killing, pp. 90, 149-50 suggests that a sense of accountability to comrades-in-arms is a powerful means of overcoming resistance to killing.

⁷⁴ Bumiller, ‘Air Force’.

⁷⁵ I describe one such incident in Uruzgan province in Afghanistan in February 2010, in which 23 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). The subsequent investigation faulted the Predator crew involved for inaccurate reporting.

rather than machine malfunction’ – which is true enough, and carries its own diminished sense of moral agency ⁷⁶ – 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...’ ⁷⁷

In contrast to close air support, when crews work from the Joint Prioritised Effects List – or in the case of CIA-directed air strikes from the ‘disposition matrix’ approved by the Counterterrorism Center ⁷⁸ – 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 agonised 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.’ ⁷⁹ But the casual appeal to the vernacular of law enforcement – ‘We finally got

⁷⁶ Cf. Jeremy Packer and Joshua Reeves, ‘Romancing the drone: military desire and anthropobia from SAGE to swarm’, *Canadian Journal of Communications* 38 (2013) 309-31: 324; Neta Crawford, *Accountability for killing: moral responsibility for collateral damage in America’s post-9/11 wars* (New York: Oxford University Press, 2013) emphasizes the importance of widening the focus from individual to collective moral responsibility.

⁷⁷ Judith Butler, *Frames of war: When is life grievable?* (London: Verso, 2010) p. xi; Caroline Holmqvist, ‘Undoing war: war ontologies and the materiality of drone warfare’, *Millennium* 41 (3) (2013) 535-52; see also Lucy Suchman, ‘Situational awareness: deadly bioconvergence at the boundaries of bodies and machines’, *Mediatropes* 13 (2013) (forthcoming).

⁷⁸ Daniel Kleidman, *Kill or capture: the war on terror and the soul of the Obama presidency* (New York: Houghton Mifflin, 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.

⁷⁹ Martin, Predator, pp. 50-3; he 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’: Andrew McGinn, ‘Local drone pilot explains missions’, *Dayton Daily News*, 22 June 2013.

the perp!’ – is by no means exceptional, and is embedded in the administrative apparatus that authorises 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 militarised field of view.⁸⁰

These considerations intersect with a third set of geographies that circle around targeted killing which, it must be remembered, is 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. But many commentators have argued that the involvement of drones 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 re-drew 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.’⁸¹

⁸⁰ 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’: *State violence and the execution of the law: biopolitical caesurae of torture, black sites, drones* (New York: Routledge, 2013) p. 209.

⁸¹ Giulio Douhet, *The command of the air* (trans. Dino Ferrari) (Tuscaloosa AL: University of Alabama Press, 1988 (first published in Italian in 1921) p. 10; see Thomas Hipler, *Bombing the People: Giulio Douhet and the foundations of airpower strategy 1884-1939* (Cambridge: Cambridge University Press, 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.

Drones have now dissolved even those physical limits. One of the central foreign policy questions that confronted the Bush administration, and since 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.⁸² But in stark contrast to Douhet’s grim prognostications about remapping the normative space of war – which have been dismally confirmed by every strategic bombing campaign from the First World War on⁸³ – 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.⁸⁴ The debate is necessarily both a substantive one – over numbers killed and wounded⁸⁵ – 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*

⁸² 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) 364-389. ‘[T]he remote-control nature of unmanned missions enables politicians to wage war while claiming we’re not at war’: Michael Hastings, ‘How America goes to war in secret’, *Rolling Stone*, 16 April 2012.

⁸³ Yuri Tanaka and Marilyn B. Young (eds) *Bombing civilians: a twentieth-century history* (New York: The New Press, 2010).

⁸⁴ 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) 403-45. There is a tortuous genealogy to the legal protections afforded to civilians during military conflicts: Helen Kinsella, *The image before the weapon: a critical history of the distinction between combatant and civilian* (Ithaca: Cornell University Press, 2011); see also Neta Crawford, *Accountability for Killing: moral responsibility for collateral damage in America’s post 9/11 wars* (New York: Oxford University Press, 2013).

⁸⁵ 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: <http://www.thebureauinvestigates.com/blog/category/projects/drones>.

rather than constrain violence.'⁸⁶ This amounts to a concerted project to transform one of the central registers of the imaginary of war into the *individuation* of killing.⁸ 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.⁸⁸

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

⁸⁶ Frédéric Mégret, 'War and the vanishing battlefield', *Loyola University Chicago International Law Review* 9 (1) (2012) 131-155: 148; my emphasis.

⁸⁷ 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: Cambridge University Press, 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).

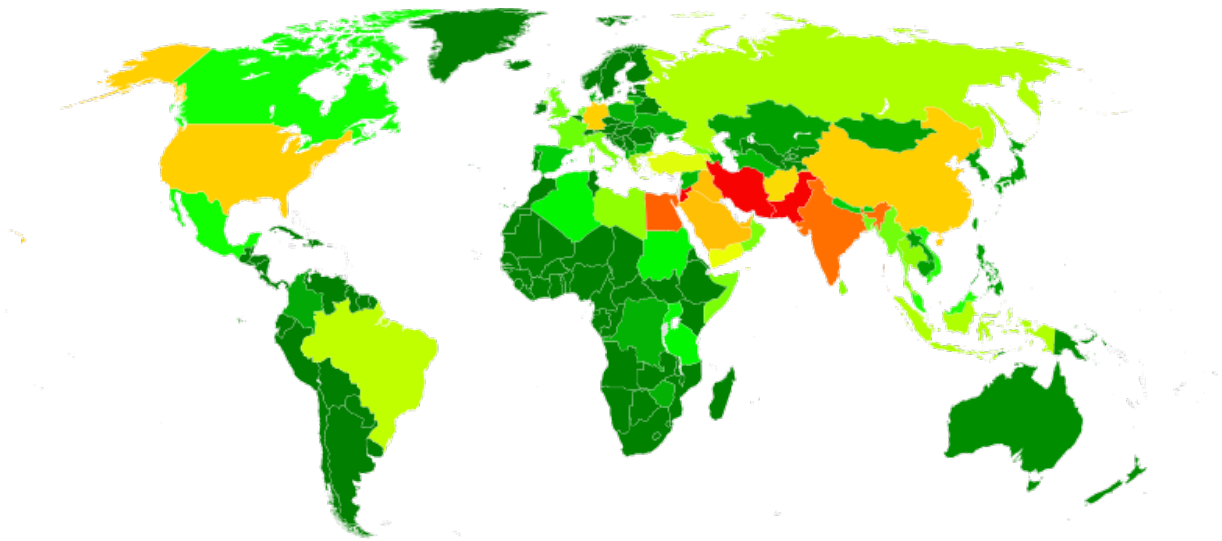
⁸⁸ Scahill, *Dirty wars*; Scahill notes Rumsfeld's memo late in 2004: 'The entire world is the "battlespace"' (p. 173).

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, as we have seen, the enemy is transformed into the criminal. 'The criminal is always an individual,' Kahn notes: 'the enemy is not.'⁸⁹

This has at least four implications for the geography of military violence. First, individuation transforms the very 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.'⁹⁰ 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 journalist Glenn Greenwald using classified information from former NSA contractor Edward Snowden. Although Figure 3 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 e-mail from his wife was intercepted which contained sufficient information to fix the real-time co-ordinates for a drone strike near Mir Ali in North Waziristan that killed him and two companions on 1

⁸⁹ Paul Kahn, 'Imagining warfare', *European journal of international law* 24 (1) (2013) 199-226.

⁹⁰ Peter Scheer, 'Connecting the dots between drone killings and newly exposed government surveillance', *Huffington Post*, 8 June 2013



October 2012.⁹¹ 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.’

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Figure 3: Boundless Informant heat map, March 2013

The colour scheme indicates the intensity of surveillance from light green (low) to red (high)

Second, individuation requires an adjudicative apparatus to positively identify, 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

⁹¹ 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

⁹² Rob Kitchin and Martin Dodge, *Code/space: software and everyday life* (Cambridge MA: MIT Press, 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.

to look more and more like an implicit “adjudication” of individual responsibility.’⁹³ The traditional distinction between military and police operations, one ordering ‘the outside’ and the other ordering ‘the inside’, has already been de-stabilized 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’.⁹⁴ 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.’⁹⁵

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.⁹⁶ They are brought within the militarised field of vision through the rhythmanalysis and network analysis of a suspicious ‘pattern of life’, a sort of weaponised time-geography, whose grammar of execution has been dissected by Joseph Pugliese with forensic skill:

⁹³ Issacharoff and Pildes, ‘Drones and the dilemma of modern warfare’.

⁹⁴ Chamayou, *Théorie du drone*, p. 51; cf. Colleen Bell, Jan Bachmann and Caroline Holmqvist (eds) *The New Interventionism: perspectives on war-police assemblages* (London: Routledge, 2014).

⁹⁵ Kahn, ‘Imagining warfare’, 226.

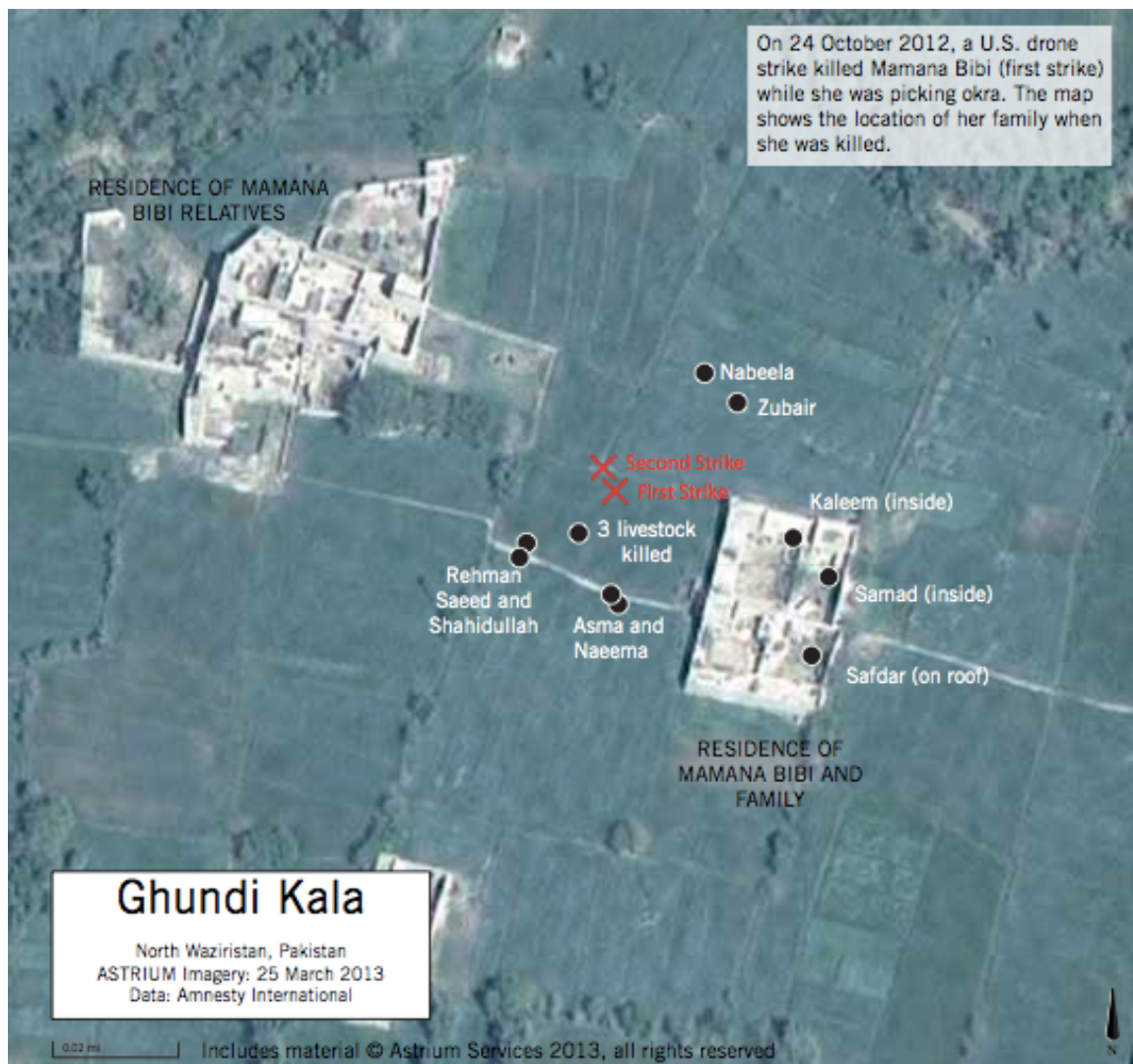
⁹⁶ Kevin Jon Heller, “‘One hell of a killing machine’: Signature strikes and international law’, *Journal of international criminal justice* 11 (2013) 89-119.

‘The military term ‘pattern of life’ is inscribed with two intertwined systems of scientific conceptuality: algorithmic and biological. The human subject detected by drone’s 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.’⁹⁷

Killing is made the culmination of a natural history of destruction, 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.⁹⁸ 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

⁹⁷ 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* 3 (2) (2012) 225-247; ‘War and the allegory of medical intervention’, *International Political Sociology* 6 (3) (2012) 325-8.

⁹⁸ Thomas Gregory, ‘Potential lives, impossible deaths: Afghanistan, civilian casualties and the politics of intelligibility’, *International Feminist Journal of Politics* 14 (3) (2012) 327-47.



uncounted) others.⁹⁹ 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 showing the position of Mamana Bibi's family who were working

⁹⁹ 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* (New York: Fordham University Press, 2005).

in the fields with her when she was killed (Figure 4). Nobody has explained why the midwife and grandmother was targeted but her son, comforting her grieving

Figure 4: Mamana Bibi and her family, 24 October 2012 (Amnesty International)

grandchildren who were traumatised 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.’¹⁰⁰

More generally we need to ask, with Madiha Tahir, what does it do to someone to live among the rubble, to have to negotiate a sense of loss that is both deeply personal and irredeemably social? The same question has haunted the history of bombing for a hundred years, of course, but its gravity is not diminished by substituting Predators and Reapers for Lancaster bombers and Flying Fortresses.¹⁰¹

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

¹⁰⁰ *Will I be next? US drone strikes in Pakistan* (Washington DC: Amnesty International, 22 October 2013) pp. 18-23; Karen McVeigh, ‘Drone strikes: tears in Congress as Pakistani family tells of mother’s death’, *Guardian*, 29 October 2013. 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’, at opiniojuris.org, 8 November 2013. It is perfectly true that the people of the FATA live under the threat of drone strikes and PAF strikes: see my ‘Air strikes in Pakistan’s borderlands’ at <http://geographicalimagination.com/2013/03/19/air-strikes-in-pakistans-borderlands>, 19 March 2013, and ‘Dirty dancing and spaces of exception in Pakistan’, <http://geographicalimagination.com/2013/03/24/dirty-dancing-and-spaces-of-exception-in-pakistan>, 24 March 2013. 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 13-year old grandson explained, describing their different sounds: ‘I know the difference.’

¹⁰¹ Madiha Tahir, ‘The business of haunting’ at <http://woundsofwaziristan.com/business-of-haunting>, 2 September 2013.

pursuit and evasion, Chamayou argues, of predator and prey, in which one advances and the other flees.¹⁰² 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, of course, and US counterinsurgency and counterterrorism 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 counterinsurgency and counterterrorism 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.¹⁰³ 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

¹⁰² Chamayou, *Théorie du drone*, chapter 6; his *Manhunts: a philosophical history* (trans. Steven Rendell) (Princeton: Princeton University Press, 2012) does not directly address drones, but see Chamayou, 'The manhunt doctrine', *Radical philosophy* 169 (2011).

¹⁰³ 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* 47 (2) (2012) 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 his 'The CIA and targeted killing beyond borders', *Harvard National Security Journal* 2 (2011) 283-446.

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 globalisation. '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.'¹⁰⁴ It is the prospect of a global hunting ground produced through and punctuated by 'mobile zones of exception' that so deeply disturbs most critics.¹⁰⁵

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'.¹⁰⁶ 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 air bases in the continental United States, and the US 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

¹⁰⁴ Chamayou, *Théorie du drone*, p. 86.

¹⁰⁵ Joseph Pugliese, 'Prosthetics of law and the anomic violence of drones', *Griffith Law Review* 20 (4) (2011) 931-61: 944.

¹⁰⁶ Ian Shaw, 'Predator Empire: the geopolitics of US drone warfare', *Geopolitics* 18 (3) (2013) 536-59; Fred Kaplan, 'The world as free-fire zone', *MIT Technology Review*, 7 June 2013 at <http://www.technologyreview.com/featuredstory/515806/the-world-as-free-fire-zone>.

have become sovereign tools of life and death' administered through what Shaw calls 'an expanding geography of drone bases.'¹⁰⁷ His gazetteer is derived from Nick Turse, whose 'secret empire of drone bases' lists more than 60 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).¹⁰⁸ Perhaps this does not matter very much; the purpose of remote operations is precisely to project power from 'the homeland'. But we are still a long way from Seversky's nightmare vision of 'inter-hemispheric super-bombers' with which I began. 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.¹⁰⁹ 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 that is intended to deliver a conventional missile attack anywhere in the world within one hour.)¹¹⁰ These 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 m.p.h., a Reaper 230 m.p.h. – 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

¹⁰⁷ Shaw, 'Predator Empire', pp. 5, 14.

¹⁰⁸ Nick Turse, 'America's secret empire of drone bases', TomDispatch, 16 October 2011.

¹⁰⁹ John Reed, 'The Air Force's drone base in a box', foreignpolicy.com, 17 September 2013. The 'box' contains 18 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.

¹¹⁰ 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 over-rode Air Force objections and instructed the Pentagon to add another three to its fleet.

they cannot operate in 'A2/AD' (anti-access/area denial) battle spaces.¹¹¹ In September 2013 General Mike Hostage, commander of USAF Air Combat Command, described them as 'useless in a contested environment', and even allowing for the collision between contrasting visions of air power, these limitations surely make it difficult to see Predators – even as placeholders – as the advancing edge of American Empire.¹¹² This is not to dispute the palpable reality of American imperialism, whose military map is made up of 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 which includes unarmed drones like the Global Hawk.¹¹³ But its military power, and its capacity for unrivalled military violence, is 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

¹¹¹ '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 http://www.defense.gov/pubs/pdfs/joac_jan%202012_signed.pdf; 'Release of the Joint Operational Access Concept' at <http://www.dodlive.mil/index.php/2012/01/release-of-the-joint-operational-access-concept-joac>, 17 January 2012.

¹¹² John Reed, 'Predator drones "useless" in most wars', Top Air Force general says', foreignpolicy.com, 19 September 2013. Hostage called for the Pentagon to abandon its mandated plan for the 'surge' in the Air Force's Combat Air Patrols conducted by drones.

¹¹³ 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* (Madison: University of Wisconsin Press, 2012) pp. 360-386. McCoy was writing before Edward Snowden's revelations about the National Security Agency disclosed the scale and sophistication of the surveillance of telecommunications on both sides of the Atlantic.

reassuring as it might seem.¹¹⁴ And as drone technology becomes less expensive so the prospect of non-state actors using drones to launch attacks becomes ever more likely.¹ 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.¹¹⁶

Mat(t)erialities

This has been a report from a rapidly changing field. There is an ever expanding suite 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.¹¹⁷ 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. Artists have led the way in interrogating

¹¹⁴ 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). They compare the present situation to the First World War and the transition of military aircraft from reconnaissance to fighting and bombing.

¹¹⁵ David Hastings Dunn, 'Drones: disembodied aerial warfare and the unarticulated threat', *International Affairs* 89 (5) (2013) 1237-1246. 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: 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; available at http://www.academia.edu/4331462/Attack_of_the_Drones_Should_We_Fear_The_Proliferation_of_Unmanned_Aerial_Vehicles.

¹¹⁶ Gregory, 'Everywhere war'; other modalities – and crucially cyber-operations – have other targets in view.

¹¹⁷ See more generally Nick Turse, *The complex: how the military invades our everyday lives* (New York: Metropolitan Books, 2008).

these developments and, in particular the visualities that attend them.¹¹⁸ 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.’

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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’.¹²⁰ But the interdigit(al)isation of war and peace has a

¹¹⁸ Elspeth van Veen, ‘There is more than one way to visualise a drone: visualising the practice of drone warfare’, at <http://aschcenter.blogs.brynmawr.edu/2013/02/20/there-is-more-than-one-way-to-imagine-a-drone-visualising-the-practice-of-drone-warfare>, 20 February 2013; see also Matt Delmont, ‘Drone encounters: Noor Behram, Omer Fast and visual critiques of drone warfare’, *American Quarterly* 65 (1) (2013) 193-202; Honor Harger, ‘Unmanned aerial ecologies’ <http://honorharger.wordpress.com/2013/04/21/unmanned-aerial-ecologies-into-drones-airspace-and-canaries-in-the-mine>, 21 April 2013.

¹¹⁹ James Bridle, ‘Under the shadow of the drone’, at <http://booktwo.org/notebook/drone-shadows>, 11 October 2012; see also my ‘Situational awareness’ at <http://geographicalimagination.com/2013/05/03/situational-awareness>, 3 May 2013

¹²⁰ Roger Stahl, ‘What the drone saw: the cultural optics of the unmanned war’, *Australian Journal of International Affairs* (2013) d.o.i. 10.1080/10357718.2013.817526

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...’¹²¹

This needs an even wider-angle lens. As I have shown, it is a serious mistake to abstract drones from the history of bombing (indeed, the Pakistan Air Force also carries out air strikes in the Federally Administered Tribal Areas) or from the present grim reality of ground war. Drones have undoubtedly made a difference to the conduct of later modern war, and we desperately need to attend to what Elspeth van Veen calls ‘the sensible politics of drone warfare’ – by ‘sensible’ she means, I think, acutely and insistently material¹²² – but neither their genealogy nor their geography can be severed from the matrix of military and paramilitary violence of which they are but a part. And that matrix should remain the primary target of critical analysis and political action.

¹²¹ <http://paglen.tumblr.com/post/30105766943/reaper-drone-over-waziristan-shot-by-noor-behram>; for a discussion of Behram’s work, see Spencer Ackerman, ‘Rare photographs show Ground Zero of the drone war’, at <http://www.wired.com/dangerroom/2011/12/photos-pakistan-drone-war>, 12 December 2011; Delmont, ‘Drone encounters’.

¹²² Elspeth van Veen, ‘There is more than one way to imagine a drone: visualising the practice of drone warfare’, Solomon Asch Center for Study of Ethnopolitical Conflict, 20 February 2013.

