

THE SPATIAL POLITICS OF DRONE WARFARE

by

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## ABSTRACT

This dissertation investigates drone warfare, which is the military's use of unmanned planes to strike enemy targets, an integral and relatively new strategy in the 'war on terror'. The dissertation is composed of three unique research papers. The first gets to grips with how this warfare is represented in video games. These virtual spaces contain carefully crafted aesthetics that are important for widespread cultural participation, recruitment, and legitimization. The second paper investigates the use of U.S. military drones in the tribal regions of Pakistan, a historically 'exceptional' territory that today finds itself the continued subject of colonial violence. The paper is motivated by understanding the logic of the legislation that enables such warfare, as well as the military's 'fetishization' of the drone as an actor devoid of social relations. The third paper builds upon the second to take seriously the drone as an object of extreme political importance. The analytic is driven by 'object-oriented philosophy' and argues that drones are metaphysical objects responsible for slicing and dicing the world into their own image. Overall, the main contribution of the dissertation is to signal and review the political importance of a new and deadly military zeitgeist: one that encroaches upon everyday life, geopolitics, and reality itself.



## INTRODUCTION

### **Bloody Numbers**

The story of blind men fumbling to describe an elephant is well-known. A trunk, a tusk, a tail – all parts of the elephant’s body confounding the hapless interpreters. To examine the U.S.-led ‘war on terror’ follows a similar impossibility: the size of the imperial beast is so vast that a unified description is difficult. Tusks and tails tear through a single narrative. Seeing this as less a methodological problem than a lesson in parallax, this dissertation reveals the geographies of the ‘war on terror’ from three interconnected viewpoints: representation, territory and metaphysics.

Specifically, this dissertation takes stock of U.S.-led ‘drone warfare’, which is the military’s use of unmanned planes to strike enemy targets, an integral (and relatively new) strategy of the ‘war on terror’. This is realized through three central papers that comprise the bulk of this investigation (Appendices A, B, and C). Their findings suggest that drone warfare is reconfiguring everyday life, geopolitics, and reality itself. In this introduction, I briefly sketch what is at stake with this dissertation – outlining the magnitude of the elephant in the room. The next chapter summarizes the findings.

Contemporary U.S. foreign policy is underwritten by a legacy of intervention. Since the close of the Second World War, every corner of the globe has felt the consequences of a New American Century. Iraq, Afghanistan, Vietnam, and Cuba – these countries have all fallen under the crosshairs of Presidents ranging from Kennedy to Obama. Although these personalities have varied (at least superficially), a violent Washington consensus has persisted: that the Republic is a beacon of liberty that shines across the globe and that it is the duty of these United States to transform the world wherever chaos spills from shadow.

The numbers involved in maintaining an empire are daunting. For the fiscal year of 2010, the budget allocated to the Department of Defense (DoD) was just under \$700 billion – and to add defense-related expenditure from outside the DoD – would take the number to over a trillion dollars, easily surpassing the money spent on the nation's social security, not to mention the combined budgets of the next 15 countries in the world. Over a quarter of U.S. defense expenditure is passed directly into the hands of private contractors. The additional cost of war in Afghanistan and Iraq is staggering. For the former theater of violence, there has been \$445.1 billion dollars allocated since 2001, while Iraq has benefited from \$815 billion dollars since 2003 (<http://costofwar.com/en/about/counters/>).

The U.S. has 300,000 troops and 90,000 sailors stationed abroad (more than the rest of the world combined). And according to a DoD report from 2008, these boots on the ground could be marching at 761 sites in 39 countries (Bacevich, 2010). At the time of writing, there have been over 4,500 U.S. military casualties in the 'war on terror', with over 100,000 more wounded. It is more difficult to assess civilian casualties. In Iraq, the website 'Iraq Body Count' (<http://www.iraqbodycount.org/>) estimates there have been 108,000 documented deaths, whereas 'Just Foreign Policy' (<http://www.justforeignpolicy.org/iraq>) puts the number at a much higher 1.4 million. Whatever the exact figure, the message of these bloody numbers is that thousands upon thousands of people have lost their lives to a war with no foreseeable end.

**Figure 1: MQ-1 Predator Drone** (Source: United States Air Force, <http://www.af.mil/shared/media/photodb/photos/081131-F-7734Q-001.jpg>)



Drone warfare represents the latest phase in the ‘war on terror’. A drone is an unmanned aircraft that is piloted remotely. They are typically used for surveillance, but some drones are equipped with missiles used in lethal airstrikes. The rise of the drone army coincides with the widespread use of robotic technology by the military. The original 2003 U.S.-led invasion of Iraq had zero robots. Yet by the end of 2008 the figure had leapt to a staggering 12,000 (Singer, 2009: 32). Indeed, over the course of ‘Operation Enduring Freedom’ and ‘Operation Iraqi Freedom’, U.S.-led forces have used unmanned ground vehicles for over 30,000 missions, with flying drones notching half a million hours in the sky (Department of Defense 2009, page XIII).

**Figure 2: MQ-1 Predator Drone Pilots** (Source: United States Air Force, <http://www.af.mil/shared/media/photodb/photos/070807-F-9602H-101.jpg>)



In 2008, armed drones flew over Iraq and Afghanistan for 135,000 hours (equivalent to 15 years of flight) and dropped 187 missiles and bombs (Mockenhaupt, 2009). The U.S. military plans to triple its inventory of high-altitude armed and unarmed drones by 2020. In 2009 the U.S. purchased more unmanned than manned aircraft. The military currently has close to 7,000 unmanned aircraft, with 39 combat-air patrols flying over Iraq and Afghanistan constantly, expected to rise to 50 a day over the next two years and 65 a day by 2013. The cost for this increase is projected to reach \$29 billion by 2020 – a growth of three percent that outpaces the total proposed defense budget of one

percent. Last year the DoD requested \$6.1 billion for new unmanned aircraft systems (United States Government Accountability Office, 2010).

The deployment of these U.S. drones in Pakistan has gained the most international controversy. Following President George W. Bush, Obama has dramatically increased clandestine CIA strikes: in 2009 there were over 50 of these in Pakistan's Federally Administered Tribal Areas (FATA), compared with 45 during the entire administration of Bush (Bergen and Tiedemann, 2010). The CIA's use of drones in Pakistani territory to 'assassinate' Al-Qaeda militants is wildly unpopular, with only 9% of Pakistanis supporting it (Al Jazeera, 2009). And this is hardly surprising. Despite the official rhetoric of clinical kills and surgical strikes, civilian casualties are heavy, with the New America Foundation reporting that since 2004 there have been 205 drone attacks in Pakistan responsible for between 1,294 and 1,989 deaths, of which between 983 and 1,453 were described as 'militants' by the press (<http://counterterrorism.newamerica.net/drones>). In 2010, 91 percent of these strikes were in North Waziristan.

If the numbers are startling, they only represent empty points on a constellation yet to be drawn. Having some sense of the magnitude of the problem, what is now required is an investigation into the geographies of drone warfare. The dissertation covers three main topics, all of which offer unique viewpoints on the overriding problematic of the

'war on terror'. I summarize and contextualize these findings in the next chapter, as well as offer a conclusive section.

## PRESENT STUDY

As already signaled in the introduction, the dissertation is composed of three original research papers, each of which tackles the underlying logics of drone warfare. In this section, I very briefly contextualize and summarize the main findings of these papers: 'Playing War', 'The Unbearable Humanness of Drone Warfare in FATA, Pakistan', and 'Predators in the Sky: Investigating Military Drones'.

### Playing War

Starting with video games is no coincidence. For millions of people across the globe, the 'war on terror' is only known through the virtual spaces they enter and exit on a daily basis. Video games are therefore essential sites for military recruitment, consent, and legitimization. Since their inception, video games have passed far-too-easily under the radar of critical human geography. But this is changing: with the advent of realistic graphics, multi-million dollar budgets, and sales revenues in the billions, video games are now seen as important cultural artifacts. Indeed, the U.S. Army was so convinced of their significance it developed its own game called *America's Army*, a recruitment tool played by 8 million people. Playing war has never been so serious.



Since the terrorist attacks on the World Trade Center on September 11, 2001 video games about the 'war on terror' have become increasingly popular (Ouellette 2008). The recent November 2009 release of *Call of Duty: Modern Warfare 2* is a cause célèbre. The game follows the U.S. Army's fictional trials and tribulations against a new Russian ultranationalist terrorist organization across diverse geographies, from Afghanistan to Washington D.C. It set a new worldwide sales record of approximately \$550 million over just five days and the controversial game has now grossed in excess of \$1 billion. It is within this virtual world of this game that players are able to pilot a drone and deliver their very own missiles to 'terrorists' below. These images in the video game are eerily similar to those broadcast by the military from the UAVs in the Middle East.

**Figure 3: Screenshot from Predator drone in *Call of Duty: Modern Warfare 2***



**Figure 4: Video feed from Predator** (Source:<http://defensetech.org/wp-content/uploads//2009/12/predator-video-grab.jpg>)



The Predators that are circling in the Pakistani skyline and the Predators that are processed in gaming consoles are now blurring together in a virtual embrace, their images both resonating in violent concert. As U.S. Army Officer Michael Macedonia (2002: n.p.) explains: ‘The military is undergoing a major cultural shift in its approach to simulation. The use of entertainment technology is not a new phenomenon in the military ... What is different today is the emergence of a culture that accepts computer games as powerful tools for learning, socialization, and training’. Video game users, from children to adults, are now sought by the U.S. Army as playful warriors in a ‘...war deprived of its substance – a virtual war fought behind computer screens, a war experienced by its participants as a video game, a war with no casualties’ (Žižek 2002:

37). These intimate and everyday spaces of the home computer are now instrumental to the post 9-11 cultural shift in the 'war on terror' (Gregory 2008).

The U.S. Army's cultural turn focuses on the civilian sphere as a site of consent and consumption, and involves recruiting play as an intimate technology of participation. Video game play is fundamentally a type of active participation in a virtual space. In the case of games like *Modern Warfare 2*, the player is able to assume the role of soldiers combating a digital 'war on terror'. My argument in the first paper is that video games are 'transitional spaces'. Using the psychoanalytic methodology of Donald Winnicott (1971), I provide an *interpretative* framework of what it means to 'play' – the co-mingling between self and world – and how this co-mingling is always-already a political moment, locked within a military representational logic. In this sense, war video games need to be thought of as spaces in which imperial architectures and players interact. Such everyday occurrences for millions of players around the world is analytically important, and has for too long slipped under the radar of critical human geography. The first paper in the dissertation therefore takes aim at understanding the 'military entertainment complex' and the oriental representations it authorizes, and why playing war is a political *invitation* to a wider (and everyday) colonial present (Gregory 2004).

In short, war video games are transitional spaces that matter to the politics of modern warfare and colonialism. Tucked away under televisions in millions of homes, they are

banal technologies that distribute carefully crafted military aesthetics. Understanding play as a political practice locked within a violent imperial topos, rather than existing 'in-itself', is the central message of this paper.

### **The Unbearable Humanness of Drone Warfare in FATA, Pakistan**

Drones are used by the U.S. military to violate Pakistani sovereignty in the pursuit of Taliban and Al-Qaeda targets. The second paper in this dissertation argues that the Federally Administered Tribal Areas (FATA) have been the historical target of colonial interventions designed to render the territory as 'exceptional' – an argument framed by Giorgio Agamben (1998, 2005). In addition to the impact of British colonial law, the second part of the argument is that the drone has become fetishized as an autonomous political actor, devoid of social relations. The consequences are immediate: the continued violence waged by U.S. drones in Pakistan's tribal areas results from the interaction between law and technology.

**Figure 5:** Federally Administered Tribal Areas, Pakistan (Source: Wikimedia Commons [http://commons.wikimedia.org/wiki/File:Map\\_of\\_FATA\\_in\\_Pakistan.PNG?uselang=en-gb](http://commons.wikimedia.org/wiki/File:Map_of_FATA_in_Pakistan.PNG?uselang=en-gb) )



FATA is divided into seven tribal agencies spanning 27,244 square kilometers and is home to 3.1 million people. FATA, especially the agencies of North and South Waziristan, has been subjected to drone bombardment since 2004, with the intensity of attacks increasing under the Obama administration. The tribal regions that today comprise FATA have, as far back as the 14th century, been constructed as ‘special cases’ that could not be governed according to normal rules. The current legal and geopolitical position of FATA can thus only be understood from its colonial past as a ‘frontier’ region for the British Raj. This peculiar political space, forged in the furnace of the ‘Great Game’

between Britain and Russia, required a correspondingly peculiar legal order – the Frontier Crimes Regulations (FCR) of 1901. As Amnesty International notes ‘[d]espite numerous recent promises by Pakistan’s government to reform the FCR and improve the legal situation of the people of FATA...governed by this law, as of May 2010, the FCR continued to relegate millions of people in northwest Pakistan to second-class legal status’ (2010:26).

Together with the presence of colonial law, drones are significant in understanding the exceptional story of FATA. Consider, for example, that when a Predator drone crashed in Pakistan in September 2008, and photos of its burned—but still identifiable—wreckage were broadcast across Pakistani television, Chairman of the Joint Chiefs of Staff Admiral Michael Mullen was forced to comment. His reply: ‘It wasn’t a U.S. UAV’. Such barefaced denial reveals much about the drone. Of course the drone was U.S. manufactured and U.S. controlled. But because there was no human flesh in the pieces of the drone’s wreckage, the accountability of the U.S. military was suspended, and a brazen denial enacted (‘there was no pilot!’). In this sense, the drone is fundamentally a fetishized object, as it presents itself to the world as an autonomous agent, isolated from the imperial and military apparatus behind it. The legal space that drones operate in is thus located in the deadly residue of drone and document.

The primary relationship evoked in most discussions of drone warfare is between a drone and its battlefield of objectified targets, rather than the relationship between the team of technicians operating the drone as agents of American empire and the unsuspecting bodies surveilled and slaughtered on the ground in neo-colonial Pakistan. In other words, drone warfare in Pakistan is unbearably human: from the fetishized drones to the legal history of FATA, both are social foundations to a war presented to the world as robotic and surgical. The deployment of futuristic drones in Pakistan is allied with long-standing, juridical-territorial practices that produce a space of exception – where those subject to the violence wrought by the coming robot army have little or no recourse, nationally or internationally.

### **Predators in the Sky: Investigating Military Drones**

The third paper extends the insights of the second. In the paper on FATA, I used the work of Karl Marx to consider the drone as a fetishized object, since the social relations that surround it are hidden or masked by the military. In this sense, I am wary of using the word 'autonomy' to describe drones. But in order to fully understand the consequences of drone warfare, it is necessary to explicitly engage the technology under discussion. The result is to drastically rethink the status of an object, beyond its 'matter-of-factness' or 'givenness'. This requires thinking about objects metaphysically.

Autonomous and intelligent drones are only a step or two away from realization. But what if military robots are *already* autonomous, in the sense that they themselves act upon the world, opening up certain possibilities while simultaneously closing others down? Accordingly, autonomy can be thought of both technologically (i.e. robots making decisions alone) but also philosophically (i.e. objects transforming other objects in the world). As such, the third paper not only adds to the list of ‘objects’ to be taken seriously by critical geographers, but argues that objects—in this case drones—are thoroughly *metaphysical*, capable of slicing and dicing bits of reality to produce the world in their own image. In short, technology is not autonomous because it is independent of its conditions (which would be to fetishize the object), but is autonomous precisely because it is enmeshed within its conditions – reworking, reshaping, and reconfiguring socio-political life. If philosophers have for too long ignored objects as a worthy topic, it is precisely because they tended to assume they were neutral tools, rather than centers of force relations.

There are different ways of discussing objects as philosophical forces, all with their own political openings and closings. They can be thought of as co-constitutive of subjects, knotted in a dialectical relay. Speaking to this, Marx (1973: 92) writes: ‘Production thus not only creates an object for the subject, but also a subject for the object’. He later extends this to think about the interactions of humans and machines: ‘The worker’s activity, reduced to a mere abstraction of activity, is determined and regulated on all



sides by the movement of the machinery, and not the opposite' (693). Latour (1993, 2005) chooses not to place special emphasis on humans, casting them alongside nonhumans as 'actants' capable of mediating each other in a *network*, while assemblage theory places its emphasis on relations (DeLanda, 2006). Underneath these topographies are the neo-materialists that view the very stuff of the world as inherently lively and productive (Deleuze and Guattari, 1987; Bennett 2010). In all such cases, a type of 'flat ontology' is put forward to collapse the Cartesian distinction between subject and object. In Marx, this manifests itself as a reversal of Hegel's dialectic; in Latour it manifests itself in the proliferation of hybrids; and in Deleuze the rhizome is the untranscendable dimension of existence. All these approaches have influenced geographers discussing a 'more-than-human-world' (Braun, 2004; Bakker and Bridge 2006; Robbins and Marks, 2010; Shaw et al., 2010; Whatmore, 2002).

Graham Harman (2002, 2005) takes quite a different approach with his 'object-oriented philosophy'. He develops the metaphysics of Martin Heidegger, specifically his analysis of tools. Heidegger (2010) argued that our everyday usage of tools (such as hammers), causes them to retreat into a non-theoretical background of activity. These objects 'withdraw' from a pure objective presence. Harman (2002) contends that, contrary to Heidegger, this withdrawal also takes place within the inanimate realm, and not just between humans and their objects. Inanimate things 'unlock' each other only to a minimal extent, leaving behind an inaccessible surplus: 'No object ever unlocks the

entirety of a second object, ever translates it completely and literally into its own native tongue' (Harman, 2002: 223). Harman is thus arguing that objects are metaphysical, not just '... manipulable clods of matter, not philosophical dead weight best left to 'positive science. Instead, they are more like undiscovered planets, stony or gaseous worlds which ontology is now obliged to colonize with a full array of probes and seismic instruments—most of them not yet invented' (Harman, 2002: 19). When objects encounter each other, there is an event of connection but also of supreme *disconnection*, which is to say, objects reduce each other to caricatures – they literally 'objectify' each other.

If objects do not unlock the 'totality' of their being, but only ever connect on a superficial level, it follows that the world is bursting with caricature, parallax, and metaphor. And it follows directly that when things do relate, they do so vicariously – objects are never completely honest with each other: 'When two rocks smash together, what occurs is not some impossible fusion of two substances, but rather a marriage of two caricatures, two limited sets of features siphoned by the rocks from one another...'  
(Harman, 2005: 95). What Harman fails to discuss is the explicitly *political* consequences of this object-oriented philosophy. Is it not precisely the case that objects politicize other objects, in the sense of an ontological reduction? My argument in its singularity is as follows: the drone reduces all objects it surveys and destroys to its own caricature.

Ultimately then, the speculation in the third paper is that drones not only patrol the skies in a world – from Afghanistan to Pakistan – but simultaneously patrol the metaphysical limits of the appearance in that world. These deadly robots become the *transcendental logic* of a world, configuring the aesthetic conditions of the sensible. Drones tear open a world only to then present it in a closed form, as their own caricature. Military drones are thus responsible for the dual opening and closing of a world, since the world it translates can never present itself in all its cruel complexities.

Of course, drones exist because of the billions of dollars that are pumped into their investment and procurement by the U.S. military. But nonetheless, the drone is also responsible for a violent caricature. These speculations are not technologically determinist (i.e. ‘drone x causes event y’), but should be read as a series of statements that suggest how the drone limits the metaphysical *conditions* within a world – deciding not simply *what* objects appears, but *how* they appear.

### **The Force of Things**

There is no object which is not already possessed since in itself it is not an appearance but the apparition of force ... A force is domination, but also the object on which domination is exercised’ (Deleuze, *Nietzsche and Philosophy*, 2006:4).

...what is new is not the multiplicity of objects any course of action mobilizes along its trail—no one ever denied they were there by the thousands; what is new is that objects are suddenly highlighted not only as being full-blown actors, but also

as what explains the contrasted landscape we started with, the over-arching powers of society, the huge asymmetries, the crushing exercise of power (Latour, *Reassembling the Social*, 2005: 72).

Objects condition the world, producing and policing the very faultline between what appears and what does not. In a nutshell, this was the central argument of the third paper of the dissertation, where I argued that drones ‘caricature’ the world according to the very metaphysical logics that they authorize. I ended that same paper by speculating upon the possibility of analyzing the ‘state’ as an ‘empire of objects’ (hereafter ‘empire’). It is this thesis that I expand upon in this section, in order to provide a conclusive statement about the dissertation’s contribution.

An object-oriented philosophy is an important analytic, because it highlights the role of objects in producing the world, as they go about morphing and deforming reality around their own contagious DNA. But this ostensible movement from ‘subject’ to ‘object’ is controversial, since it signals the end of human-centric politics. But it doesn’t signal the end of the political, so long as an object-oriented philosophy accounts for the *ontological asymmetry* of objects in the world. If the dissertation at hand argues that objects caricature other objects, it must be added that such caricaturing is not entirely ‘open’ or ‘democratic’. There is no parliament of things.

To construct this argument, consider that for Harman (2002), an object's 'tool-being' is an inexhaustible source of potential that no amount of connections can reveal. This introduces a great deal of contingency in the world, but it fails to tell us why a drone is different from a dog. To address this difference, I argue that we need to think about the efficacy of the object in terms of its affective potential, its *force-full-ness*. Not so much what an object is, but what an object can do. This topology of force teases out the unevenness disclosed by an object-oriented philosophy.

To repeat, objects are not static things or lumps of dead matter. They are instead centers of force relations, bundles of affective qualities capable of caricaturing the difference they encounter. Levi Bryant (2011) argues that 'What Deleuze says here of animals holds equally, I believe, for all objects, whether animate or inanimate: all objects are defined by their affects or their capacity to act and be acted upon' (2011: 274). Objects are therefore force-full: they are full of forces. It is here that Deleuze's reading of Nietzsche is indispensable, as he distills the German's philosopher's thought down to the struggle between active and reactive forces, creating a political ontology of force. Being is not a substance, but the restless strife of forces vying for supremacy. In Nietzsche's original words:

My idea is that every specific body strives to become master over all space and to extend its force (its will to power) and to thrust back all that resists its extension. But it continually encounters similar efforts on the part of other bodies

and ends by coming to an arrangement ("union") with those of them that are sufficiently related to it: thus they then conspire together for power. And the process goes on. (*The Will to Power*: 636)

Adding to this, Deleuze writes:

There is no quantity of reality, all reality is already quantity of force. There are nothing but quantities of force in mutual 'relations of tensions'. Every force is related to others and either obeys or commands. What defines a body is this relation between dominant and dominated forces. Every relationship of forces constitutes a body – whether it is chemical, biological, social or political. (2006: 37)

The spirit of both quotes points to a world in which unequal forces clash and collide, creating, if only temporarily, the contours of existence at any given time. Deleuze defines an active force as: 'Appropriating, possessing, subjugating, dominating...' (2006: 39). Reactive forces, on the other hand, are always defined in inferior relation to superior forces. It follows directly from this that: 'We will never find the sense of something (of a human, a biological or even physical phenomenon) if we do not know the force which appropriates the thing, which exploits it, which takes possession of it or is expressed in it', with Deleuze then adding 'The history of a thing, in general, is the succession of forces which take possession of it and the co-existence of the forces which struggle for possession' (p.3).

It is in this context that the process of objects 'caricaturing' each other must be understood. When objects relate, connect, or associate, they do so either actively or

passively, which is to say that some objects are more powerful than others, more able to transform the objects they encounter. A drone translates the entire lifeworld of the human being it surveys into a digital snapshot (with sometimes tragic consequences). But the same human, looking into the sky and seeing nothing, is unable to directly affect the drone. Furthermore, since objects exist alongside each other in vast networks and assemblages, it becomes possible for entire associations of objects to dominate and exercise power: what I term empire.

In their well-known text called *Empire*, Hardt and Negri write (2004: XII): 'Our basic hypothesis is that sovereignty has taken a new form, composed of a series of national and supranational organisms united under a single logic of rule. This new global form of sovereignty is what we call Empire', adding, 'In contrast to imperialism, Empire establishes no territorial center of power and does not rely on fixed boundaries or barriers. It is a decentered and deterritorializing apparatus of rule that progressively incorporates the entire global realm within its open, expanding frontiers' (p. XII). More specifically, their analysis of Empire is centered on the alliance of global powers such as the G8, the WTO, and the UN. Empire is therefore the process of a global and active sovereignty bullying the subordinate forces resisting its march.

The reason for mentioning their book here is twofold. First, I use my term empire similarly and provocatively, to describe the 'state' not as a conscious ruler, a parliament,

or a nation, but as a *power-full association*, as a *capacity to caricature the world*, as the *sovereign articulator of things*. Second, there is an important political reason for abstracting certain objects as belonging to empire. Drones, laser-guided missiles, bombs, tazers, barbed wire, borders, checkpoints, landmines, body scanners, etc., are all objects able to serve the state's domination of people. An object-oriented philosophy without empire evacuates the important unevenness of caricature: a tank is not the same as a stone. In this sense, difference – the ability to be different – always exists within a world of objects jostling for ascendance, and an empire impeding, subordinating, and preventing the world from becoming-other.

Importantly, empire should not be understood as the material that underpins human actions. There is no human-object binary. Speaking to this, Latour (2005: 75) writes:

To distinguish a priori 'material' and 'social' ties before linking them together again makes about as much sense as to account for the dynamic of a battle by imagining a group of soldiers and officers stark naked with a huge heap of paraphernalia—tanks, rifles, paperwork, uniforms—and then claim that 'of course there exist some (dialectical) relation between the two'. One should retort adamantly 'No!' There exists no relation whatsoever between 'the material' and 'the social world', because it is this very division which is a complete artifact.

In my dissertation, empire therefore names the association of drones, military technologies, television screens, optic wires, suburban pilots, infrastructures, weapon manufacturers, and strategic military documents that subjugate countless worlds of



innocent people. For Latour (2005: 64): 'Power and domination have to be produced, made up, composed'. Any analysis of the asymmetrical power relations wrought by empire must take into account the composition of objects themselves – then, and only then – is a fuller, more geographically specific account of the crushing blows of imperial power mapped.

## References

- Agamben, G. 1998. *Homo Sacer: Sovereign Power and Bare Life*. Stanford: Stanford University Press.
- Agamben, G. 2005. *State of Exception*. Chicago: University of Chicago Press.
- Al Jazeera. 2009. Pakistan: State of the Nation. <http://english.aljazeera.net/focus/2009/08/2009888238994769.html> (accessed May 2010).
- Amnesty International. 2010. 'As If Hell Fell On Me': The Human Rights Crisis in Northwest Pakistan. London: Amnesty International Publications.
- Bacevich, A. J. 2010. *Washington Rules: America's Path to Permanent War*. New York: Metropolitan Books.
- Bakker, K. and Bridge, G. 2006. Material worlds? Resource Geographies and the 'Matter of Nature'. *Progress in Human Geography*, 30: 5–27.
- Bergen, T. and Tiedemann, K. 2010. The Year of the Drone: An Analysis of U.S. Drone Strikes in Pakistan, 2004-2010. New America Foundation. [http://counterterrorism.newamerica.net/sites/newamerica.net/files/policydocs/bergen\\_tiedemann2.pdf](http://counterterrorism.newamerica.net/sites/newamerica.net/files/policydocs/bergen_tiedemann2.pdf) (accessed December 2010)
- Bennett, J. 2010. *Vibrant Matter: A Political Ecology of Things*. Durham: Duke University Press.
- Braun, B. 2004. Modalities of Posthumanism. *Environment and Planning A*, 36: 1352–1355.
- Bryant, L. 2011. In Bryant, L., Srnicek, N. and Harman, G. eds. *The Speculative Turn: Continental Materialism and Realism*. Melbourne: re.press
- DeLanda, M. 2006. *A New Philosophy of Society: Assemblage Theory and Social Complexity*. New York: Continuum.
- Deleuze, G. 2006. *Nietzsche and Philosophy*. London: Continuum.
- Deleuze, G. and Guattari, F. 1987. *A Thousand Plateaus: Capitalism and Schizophrenia*. University of Minnesota Press: Minneapolis.

Gregory, D. 2004. *The Colonial Present: Afghanistan, Palestine, and Iraq*. Malden, MA: Blackwell.

Gregory, D. 2008. The Rush to the Intimate: Counterinsurgency and the Cultural Turn in Late Modern War. *Radical philosophy*, 150: 8–23.

Harman, G. 2002. *Tool-being: Heidegger and the Metaphysics of Objects*. Peru, Illinois: Open Court Publishing.

Harman, G. 2005. *Guerilla Metaphysics: Phenomenology and the Carpentry of Things*. Peru, Illinois: Open Court Publishing.

Heidegger, M. 2010. *Being and Time*. Albany: State University of New York Press.

Latour, B. 1993. *We Have Never Been Modern*. New York: Harvester Wheatsheaf.

Latour, B. 2005. *Reassembling the Social: An Introduction to Actor-Network-Theory*. Oxford: Oxford University Press.

Macedonia, M.R. 2002. In Herz, J. C. and Macedonia, M. R. 2002 Computer Games and the Military: Two Views. *Defense Horizons* 11.  
<http://www.ndu.edu/inss/DefHor/DH11/DH11.htm> (accessed 7 November 2009).

Marx, K. 1973. *Grundrisse*. New York: Penguin.

Mockenhaupt, B. 2009. We've Seen the Future, and it's Unmanned. *Esquire Magazine*.  
<http://www.esquire.com/features/unmanned-aircraft-1109> (accessed May 2010).

Ouellette, M. A. 2008. "I Hope You Never See Another Day Like This": Pedagogy & Allegory in "Post 9/11" Video Games. *Game Studies*, 8.  
[http://gamestudies.org/0801/articles/ouellette\\_m](http://gamestudies.org/0801/articles/ouellette_m) (accessed 7 November 2009).

Robbins, P. and Marks, B, 2009. Assemblage Geographies. In *Geographies of Difference*. Eds Smith, S., Marston, S., Pain, R. and Jones III, J. P. Sage Publications: Thousand Oaks.

Shaw, I. G. R., Robbins, P., and Jones III, J. P. 2010. A Bug's Life and the Spatial Ontologies of Mosquito Management. *Annals of the Association of American Geographers*, 100: 373–392

Singer, P. W. 2009. *Wired for War: The Robotics Revolution and Conflict in the 21st Century*. New York: Penguin Press.

United States Government Accountability Office, 2010. Unmanned Aircraft Systems: Comprehensive Planning and a Results-Oriented Training Strategy Are Needed to Support Growing Inventories. <http://www.gao.gov/new.items/d10331.pdf> (accessed May 2010).

Whatmore, S. 2002. *Hybrid Geographies: Natures, Cultures, Spaces*. London: Sage.

Winnicott, D. 1971. *Playing and Reality*. London: Tavistock Publications.

Žižek, S. 2002. *Welcome to the Desert of the Real*. London; New York: Verso.

## Appendix A: Playing War

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This paper argues that war video games are transitional spaces that connect players to the 'war on terror'. It explores the pervasive influence of militarism in video games and how the U.S. Army is enlisting play as an active force in blurring the distinctions between civilian and soldier. The paper begins by theorizing what exactly it means to 'play', and settles on the concept of 'transitional space' provided by psychoanalyst Donald Winnicott. It then investigates the 'military entertainment complex', an assemblage of institutions and sites that produce military video games for commercial release. Next, the paper looks at the aesthetics of video games, revealing an entrenched colonial logic instrumental for military recruitment and consent. The final section pulls all of this together to argue that video games are transitional spaces instrumental to understanding the everyday geographies of violence, terror, and warfare.

### Introduction: The Drone

An Unmanned Aerial Vehicle (UAV) or as it is more affectionately called, a 'drone', is a remotely operated aircraft used by the military for surveillance and bombing sorties.

The U.S. Air Force has 130 'Predators', which are medium-altitude, long-endurance UAV systems that are 27 feet long and cost \$20 million each (U.S. Air Force 2009). First used in Bosnia and Kosovo in the mid 1990s, they are now instrumental for reconnaissance in Afghanistan, Iraq and Pakistan, recording thousands of hours of footage each month.

These unmanned drones are controlled half way around the world in the Western United States by pilots who use joysticks and computer screens. One of these remote sites is Davis-Monthan Air Force Base in Tucson, Arizona. At the base, pilots from the 214th Reconnaissance Group meticulously scan desert roads 8,000 miles away for

insurgent activity. If spotted, the Predator hovering at 16,000 feet is able to drop one of the 'AGM-114 Hellfire' missiles mounted under its wings: a clinical kill, whose infra-red results are instantly broadcast by satellite to the ground station crew.

But it's not just trained pilots that are able to control these Predator drones. In millions of homes around the world there exists another computer screen and joystick, only this time the kills displayed are entirely virtual and the deserts wholly digitized. *Call of Duty: Modern Warfare 2* is a video game that lets you pilot a UAV and deliver your very own Hellfire missiles to 'terrorists' below. These images in the video game are eerily similar to those broadcast by the military from the UAVs in the Middle East (see Figure 1). On video-sharing website YouTube, there is an archived news report from CNN documenting the first time a U.S. Army drone killed a human being in 2007 (<http://www.youtube.com/watch?v=FhDnO6Y0hG4>). The reporter states: 'It may look like a video game, but it's very real'. On the comments section below the video, one user writes: 'I am going to see the Air Force recruiter in the morning about signing up for Predator drone duty! I am excited!' With this bleeding between reality and virtuality, it is hard to know whether video games are becoming more like war, or war is becoming more like video games. Certainly, for millions of players across the globe, war *is* a game.

**Figure 1: *Call of Duty: Modern Warfare 2* in-game screenshot from drone**



Since the terrorist attacks on the World Trade Center on September 11, 2001 video games about the 'war on terror' have become increasingly popular (Ouellette 2008). The recent November 2009 release of *Call of Duty: Modern Warfare 2* is a cause célèbre. It follows the massively popular *Call of Duty* franchise which has already sold tens of millions of copies across various gaming systems. This particular incarnation follows the U.S. Army's trials and tribulations against a new Russian ultranationalist terrorist organization in diverse geographies, from Afghanistan to Washington D.C. Amid controversy surrounding its violence, including one U.K. politician calling for its outright censorship, the release of the game was an international cultural event, and the single biggest entertainment launch in history. It set a new worldwide sales record of

approximately \$550 million over just five days (outpacing even popular movies such as *Avatar*) and the controversial game has now grossed in excess of \$1 billion.

What then are we to make of this war video game? For one, the Predators that are circling in the Afghan skyline and the Predators that are processed in gaming consoles are now blurring together in a virtual embrace, their images both resonating in violent concert. As once U.S. Army Officer Michael Macedonia (2002: n.p.) explains: 'The military is undergoing a major cultural shift in its approach to simulation. The use of entertainment technology is not a new phenomenon in the military ... What is different today is the emergence of a culture that accepts computer games as powerful tools for learning, socialization, and training.' Video game users, from children to adults, are now sought by the U.S. Army as playful warriors in a '...war deprived of its substance – a virtual war fought behind computer screens, a war experienced by its participants as a video game, a war with no casualties' (Žižek 2002: 37). These intimate and everyday spaces of the home computer are now instrumental to the post 9-11 cultural shift in the 'war on terror' (Gregory 2008).

The Army's cultural turn focuses on the civilian sphere as a site of consent and consumption, and involves recruiting play as an intimate technology of participation. Video game play is fundamentally a type of active participation in a virtual space. In the case of games like *Modern Warfare 2*, the player is able to assume the role of soldiers



combating a digital 'war on terror'. My argument in this paper is therefore that video games are 'transitional spaces' (Winnicott 1971). Using this psychoanalytic methodology is important because it emphasizes the indeterminacy of play. This paper cannot hope to capture and explain the multitude of personalities, contexts, and empirical events that produce video game practices. What it does do is provide an *interpretative* framework of what it means to 'play' – the co-mingling between self and world – and how this co-mingling is always-already a political moment, locked within wider representational logics (whether military, colonial, or racist and so on). In this sense, war video games need to be thought of as spaces in which imperial architectures and players interact, without an underlying inevitability. Such everyday occurrences for millions of players around the world is analytically important, and has for too long slipped under the radar of critical human geography. This paper therefore takes aim at understanding the 'military entertainment complex' and the oriental representations it authorizes, and why playing war is a political *invitation* to a wider (and everyday) colonial present (Gregory 2004). In the follow section the paper outlines what exactly it means to play, drawing on literature from game studies and deploying the psychoanalytic concept of transitional space.

## Theory at Play

One important development within human geography has been the attendance to the 'banal' as a site of politics, with concern for the everyday geographies of prosaic state action (Painter 2006), militarism (Woodward 2005), terror (Katz 2007), neo-imperialism (Flusty et al. 2008), and geopolitics (Dittmer 2005). It is my contention that video games are a valuable component of this cartography, given that: 'The most interesting stories lie in the connections between many seemingly small things that build a bigger picture...' (Woodward 2005: 731). But how exactly does play inform political networks and military multiplicities? To answer these questions is difficult, since play is relatively under-theorized in cultural studies more generally (Eskelinen 2004), with a few notable exceptions (Caillois 1979; Ehrmann 1969; Huizinga 1950; Sutton-Smith 1997). While there is a growing appreciation of the role of software in transducing everyday spaces and practices (Dodge and Kitchin 2005, 2009), the role of the internet and the politics of cyberspace (Campton 2004; Nunes 2006) as well the role such software has in enlivening commodities and toys (Thrift 2003), the activity of *playing* software is left mostly untouched. While playing and the military have shared an intimate relationship for hundreds of years, video games are far more interactive and affective than, for example, model toys and action figures. Although not wishing to sensationalize video games, it is this intensification and cultivation of the experiential that marks a breakaway (Shaw and Warf 2009).

The aim of this section is not to systematize play research within human geography, but to briefly present how play has been theorized by 'game studies', a multi-disciplinary approach to researching video games from diverse humanities and social science backgrounds (Malaby and Burke 2009). While on the hinterlands of academic research for some time, game studies is now growing at an exponential rate, given that their objects '...like television and music...have become a phenomenon of great cultural importance' (Raessens 2006: 52). Ever since the inception of game studies there has been debate over how to actually study them. The key methodological fault line that splits opinion is whether video games can be studied like other types of media and text or whether they are fundamentally different. This difference is encapsulated between 'narratologists' and 'ludologists'. The former are broadly concerned with discursive (e.g. Krzywinska 2006) and representational issues (such as race, gender, and sexuality), the latter with the role of gameplay (Aarseth 2003; Boellstorff 2006; Eskelinen 2004; Frasca 1999) and player experience (Ash 2009; Atkins 2006; Shaw and Warf 2009).

Although this divide between representation and play is certainly present in game studies, the evolution of the discipline has muddied these lines (Consalvo 2009), with scholars critical of the 'magic circle' view of video games as separable from everyday life (Malaby 2007). As Yee (2006: 68) states: 'Video games play important roles in the increasingly blurred intersections of our social, economic, and political spheres, and

articulating those blurred boundaries in the microcosm of video games reveals larger trends in our digitally mediated world'. Such a hybrid approach is gaining ground in game studies, with play seen as a type of Deleuzian (1993) 'event' that brings together a multiplicity of human and non-human forces in a 'mangle of practice' (Steinkuehler 2006). Similarly, the stability and fixity of player is overturned by '...a more fluid version of the ego, the self as pure becoming' (Cain 2008: 62), in which: '...the intangible yet real, embodied yet distributed, monstrous, operations of human parts—perception, imagination, creativity, anxiety, play—without always already reducing these to the reassuring synecdoches of 'identity' and 'subjectivity'(Giddings 2009: 156). In short, distinctions between player and game space collapse in the process of play.

These understandings of play as a type of 'becoming' are ontologically illuminating and lay the much-needed foundations for taking play seriously. But it appears game studies is going to great lengths to state something simple: *play is a creative moment*, and one that undoes a ludological-narratological divide. Winnicott's (1971) concept of a 'transitional space' provides a clearly written and useful account of play. For the English psychoanalyst, play is a moment of experimentation between self and world. What we gain by using the concept of transitional space is the ability to connect the moment of play into wider geographies of the 'war on terror'.

## Transitional Space

In a somewhat ironic twist, psychoanalysis remains on the edge of conscious geographic thought. Although by no means invisible, it has often been distorted and rendered palatable for a discipline concerned with cultural difference and social constructivism (Callard 2003). Deploying the Lacanian concept of 'extimacy', Kingsbury (2007) addresses the widespread doxa in human geography that psychoanalysis is aspatial, and his later Žižekian work argues that our innermost feelings, desires and ideologies are always-already spatialized and externalized (Kingsbury 2008). In other words, psychoanalysis was never something 'stuck in our heads'. Elsewhere, geographers have adopted psychoanalytic thought to explain geographies of exclusion (Sibley 1995; Wilton 2003), gender (Rose 1996), race and the family (Nast 2000), and the city (Pile 1996). The usage of Winnicott is less common, but his ideas have been adopted to explain spaces of justice and liberation (Aitken and Herman 1997), as well as spaces of healing and psychotherapy (Bingley 2003).

Donald Winnicott (1896-1971) was a renowned British pediatrician and psychoanalyst. Reworking ideas from Kleinian 'objects-relations theory', Winnicott argues that children (and adults alike) use objects and spaces to transition between the inner world of psychic fantasy and the outer world of objective reality. This idea of a 'transitional space' of inbetweenness radically unhinges Western rational thought (i.e. Enlightenment

dualisms) and leads to the: ‘...radical dissemination of subjectivity that undermines any fixed or normative understandings of space, sex, gender and sexuality’ (Kingsbury 2003: 354). In early infancy, Winnicott notes that babies discern objects as belonging to the same inner mental reality as their own. A transitional object is the first object that a baby uses in transitioning out of this narcissism. But at the same time Winnicott notes a paradox, since the infant never fully assimilates itself into an objective state of reality. As such, the infant is suspended between fantasy and reality, in a ‘third space’ of play and experimentation.

Transitional spaces are therefore playful spaces. Essentially a creative experience, when we play we experiment with the space between subjective fantasy and objective reality. Much of the fun found in play is the blurring of these lines into a mixture of objects and sensations that are not quite ‘self’ or ‘world’. In Winnicott’s (1971: 51) words, ‘Playing is inherently exciting due to the interplay in the child’s mind of that which is subjective (near-hallucination) and that which is objectively perceived (actual, or shared reality)’. Play is neither a psychic invention nor a matter of external reality; it is instead a transitional space where both forces co-mingle and produce an emergent, immanent and affective experience.

It is my argument that video games are transitional spaces defined by play: each one a virtual world that the player can creatively participate within. The political question then

becomes what kind of space is the player transitioning into? What are the representations of place used to construct the virtual world? And most importantly of all for this article, how are these transitional spaces complicit with the 'war on terror' and how do they resist it? To begin to answer these questions requires us to understand (1) the 'military entertainment complex' – the assemblage of sites, institutions, and networks that produce war video games; and (2) the specific aesthetics associated with these transitional spaces.

### **The Military Entertainment Complex**

The military entertainment complex (Der Derian 2001; Herz 1997) is the name given to the increased cooperation between the entertainment industry and the military. In the context of this paper, it refers to the interactions and co-productions between the video game industry and the U.S. Army. The post-9/11 appetite for Manichean 'good versus evil' narratives is increasingly structuring video games (Ouellette 2008). Quilting these narratives is the 'war on terror', a cultural substrate that oils a vast engine of digital networks, spaces, and representations – inviting users across the globe to play in a virtual colonial present (Gregory 2004).

The link between the military and commercial gaming is by no means a new phenomenon and indeed there are several academic sources that trace its history in

more detail (Der Derian 2001; Halter 2006; Herz 1997; Herz and Macedonia 2002; Power 2007; Rentfrow 2008). The initial crossover between commerce and military began with the introduction of *Mech War* in the 1970s to the Army War College, and has continued to accelerate ever since the Department of Defense recognized the strategic potential of wargaming. In 1996 the Marine Corps Modeling and Simulation Management Office adapted the popular game *Doom II: Hell on Earth* into *Marine Doom* for training U.S. soldiers. It was in this moment that video games truly assimilated into mainstream military practice, technology, and training. Aside from the pivotal 2002 release of *America's Army*, the September 2004 release of *Full Spectrum Warrior* on Microsoft's *Xbox* allowed players to command two U.S. fireteams – Alpha and Bravo of the 159th Light Infantry squad, conducting military operations in the fictional Middle Eastern nation of 'Zekistan'. This latter game is noteworthy, and not just because of its flagrant orientalism and support of the 'war on terror', but also for the game's development at the Institute for Creative Technologies (ICT) at the University of Southern California. It is here that the military entertainment complex receives its educational stamp of approval.

The ICT is contracted by the U.S. Army to research and produce virtual simulations and video game worlds that aid soldier training, development and even post-traumatic healing (Morie 2009). The ICT was funded '...in 1999 with a multi-year contract from the U.S. Army to explore a powerful question: What would happen if leading technologists



in artificial intelligence, graphics, and immersion joined forces with the creative talents of Hollywood and the game Industry?' (ICT 2009a). Blending a desire for technological innovation and accurate virtual reality, with the parallel aim of simulating human emotion and behavior, ICT provides the digital architecture for the U.S. Army's new cultural sensitivity: 'Most simulation-based training systems focus on doctrine, strategies and procedures. What sets ICT apart is our emphasis on human relationships, culture and emotions' (ICT 2009b). For example, the *Mission Rehearsal Exercise* (MRE) system is designed to immerse the participant in a virtual learning environment by displaying visuals on an eight-foot-tall screen in a 150-degree arc with a 12-foot radius (ICT 2004). Here, different 'cultural scenarios' are deployed in virtual space to test and recreate a variety of human behaviors and emotional algorithms. The user is able to talk with virtual humans, recreating the interactions with enemy civilians and combatants. Training soldiers to be more culturally and emotionally sensitive is documented across a range of ICT publications, most of which deal explicitly with the sensory experience and psychological feelings involved with a digital other (Core et al. 2006; Gratch and Marsella 2004; Morie and Williams 2003; Morie et al. 2002; Riedl and Stern 2006; Swartout et al. 2004). This emotional-affective research hits its bizarre high note with the implementation of a prototype collar that releases different scents depending on the player's virtual location (Tortell et al. 2007).

What then are we to make of this \$45 million partnership between the ICT and the U.S. Army? Certainly, this institution is emblematic of the military entertainment complex (or as Leonard (2004) suggests, a 'military-academic-entertainment' triangle), a formation that goes well beyond simple exchanges between the military and game producers. There exists a concerted academic engagement with understanding human learning, language, behavior, emotion, and affect – and how to digitize these complexities into the binary architectures of virtual war. From people to polygons, the cultural turn in the U.S. Army's 'war on terror' is constructed across a variety of everyday virtual geographies – from the eight million that play *America's Army* to those fighting in a multitude of other war games (*Full Spectrum Warrior*, *Kuma\War*, *Call of Duty: Modern Warfare 2*). What is crucial in all these virtual spaces is the human experience, whether its U.S. soldiers interacting with animated enemies through a gigantic screen at the ICT, or millions of teenagers participating in the 'war on terror' with keyboards and mice. How these transitional spaces of play are engineered is intimately bound to the video game's aesthetics. Understanding the underlying logic of the representations used by video games is vital in understanding the ideological work the military entertainment complex is capable of.

### **Oriental Aesthetics**

Representation, a social practice and strategy through which meanings are constituted and communicated, is unavoidable when dealing with militarism and

military activities. Armed Forces, and defence institutions, take great care in producing and promoting specific portrayals of themselves and their activities in order to legitimize and justify their activities in places, spaces, environments and landscapes. (Woodward 2005: 729)

This section will argue that war video games are often complicit in reproducing oriental representations and are thus transitional spaces in concert with wider military representations and common senses. In discussing the representations produced by the military entertainment complex, I do not want to suggest it is always professional game developers that distribute them. As Lowood (2008) explains, it was 'indie' developers and internet programmers rather than commercial developers that first responded to the 9/11 bombings. And indeed, the video game 'norm' is threaded into a much wider colonial norm that is located across diverse and interlocking media. As Said (1978: 57) argues: 'It is Europe that articulates the Orient; this articulation is the prerogative, not of a puppet master, but of a genuine creator, whose live-giving power represents, animates, constitutes the otherwise silent and dangerous space beyond familiar boundaries'. This animation that Said discusses is always bound to the representational logic of computer programmers, themselves 'genuine creators' that give life to a virtual other in millions of screens across the planet.

Related to this, Paul Kingsbury (2010: 56) laments that: '...aesthetics, so often opposed to or eclipsed by "the political", is one of the most undervalued categories in human geography. Too often in critical geography, our engagements with aesthetics involve

impatient and arguably reductive appeals to their more 'serious' socio-economic and political dimension'. Yet it is precisely in aesthetics that colonial logics and 'others' are encountered (Hayot and Wesp 2009; Klimmt et al 2008; Leonard 2004; Ouellette 2008; Schwartz 2006). Moreover, it is the prosaic nature of these aesthetics that masks the violent reduction of difference through the autonomy of images (e.g. Baudrillard 1994; Debord 1994). Games developed in the West are influenced by the constraints of Enlightenment aesthetics and ontologies. Dillon's (2008) exploration of colonial design in the popular *Age of Empires* strategy game is telling. First, the game is driven by the exploration of Cartesian space, with the overarching desire for the ownership of land. Nature (depicted in trees, berries, and stones, etc.) is a set of resources to be exploited as quickly as possible without renewal. Second, there is a linear version of time that not only erodes the recurrence of narrative, but extricates time from space. Such dualism, Dillon argues, is not evident in many indigenous cultures. Indeed, the whole concept of exploration – a perennial hallmark of video games – is problematized by Breger's (2008) reading of *Tomb Raider*. This massively popular adventure game relishes in an underlying logic of penetration and appropriation. Lara Croft, the game's heroine, is a hypersexualized stand-in for the millennial practice of Western archeological invasion.

Such implicit game logics give way to more obvious aesthetics. Colonialism in video games is foremost tied to the types of spaces, cities and regions that are represented. If, as Berger (2008) argues, constructing a sense of place is an important element of video

games, then it follows that the types of virtual spaces animated are crucial in producing a colonial imaginary. These spaces create a simplified Islamic world, in which cultural and ethical differences are flattened. The 'Middle East' becomes an anonymous topography of floating signifiers that are tied to nothing and nowhere, and serve only to feed an oriental imagination. These include recurring motifs such as headscarves, turbans, scimitars, tiles, camels, caliphs, djinns, belly dancers, deserts, minarets, bazaars and harems (Sisler 2008). This spatial simplification extends beyond a 'mystical other' (in games such as *Prince of Persia*) into a 'violent other' (in games like *Call of Duty: Modern Warfare 2*) through the representation of Middle Eastern cities suffused with conflict. Höglund (2008) argues that in order to keep the flames of the 'war on terror' burning, the military entertainment complex depicts Middle-Eastern cities as in a state perpetual war. More than just maze-like and mystical, the Middle Eastern city is a site of conflict that must be brought under Western democratic order. And crucially, 'For this necessary conflict to be realized within the game, and in order to avoid the moral issues tied to urban warfare, the Middle Eastern city must be transformed from a teeming habitat into a childless and (often) womanless territory occupied primarily by terrorist guerrillas' (Höglund 2008).

These male-only inhabitants are thus cast as primitive warriors that charge towards U.S. soldiers with bloodlust. But there is something else at work too. While the enemy is collectivized and anonymized, Sisler (2008) argues that 'coalition forces' are given

individual identities within war games. So it is not the case that colonial reduction is located in a simplified 'us' versus 'them' binary but rather – it is located in a 'complex and nuanced us' versus a 'simplified them'. The ideological work this does is important. It allows for a range of diverse consumers across the U.S., from children and adults alike, to all feel like participants – without the attending moral dilemma that the enemy may be just like them. It is the abstraction and dehumanization of the enemy to a condition of anonymity that is crucial: the enemy becomes familiar yet unrecognizable, distant yet intimate, nowhere yet everywhere, virtual yet real. As Hardt and Negri (2004: 30) state: 'The constant presence of an enemy and the threat of disorder are necessary in order to legitimate imperial violence ... Thus the enemy is no longer concrete and localizable but now has become something fleeting and ungraspable, like a snake in the imperial paradise'.

### **Civilian-Soldiers?**

The previous section outlined the colonial architectures used to create game spaces. When users play video games like *Call of Duty: Modern Warfare 2* (see Figure 2), they are transitioning into an ideologically assembled space, locked within military common sense. This process can construct the civilian player as a participant in the 'war on terror' and a potential recruit. As Leonard (2004: 4) underscores: 'War video games are no longer purely about training soldiers already enlisted; rather, they are about

recruitment and developing future soldiers, while simultaneously generating support among civilian populations for increasing use of American military power'. War video games are transitional spaces in which civilian becomes virtual soldier – at least momentarily. As Stahl (2006: 113) reinforces: 'The blurring of the lines between citizen and soldier initiates a "third space" of cultural production. This third space is a symptom of the larger social militarization, of the recoding of the social field with military values and ideals'. This virtual third space of Winnicottian exchange between self and (virtual) world complicates the player's ability to critically reflect on the politics of the images and tropes disseminated. The civilian transitions into the digital boots of the U.S. Army and adopts the hybrid identity of civilian-soldier, battling for freedom in the over-coded 'war on terror'.

**Figure 2: *Call of Duty: Modern Warfare 2***



In order to maintain this virtual role in the 'war on terror', and in order for it to be adopted by as many people as possible (including the all-important 13+ demographic) the transitional space is often stripped of its violent Real by the game designers. Speaking to this process of moral sanitization, Power (2007: 285) notes: 'Games can reinforce the image of a clean war with clean battle lines, no moral questions posed and no consideration given to the reality of taking a life'. By way of an example, consider the official U.S. Army video game, *America's Army*, where a staggering eight million users regularly shoot and kill pixelated enemies in anonymous Middle Eastern settings. It is noteworthy that violent death animations are kept to a minimum (just like the media's ban on photographing caskets of dead soldiers). As a retired Army Major reveals: 'We want to reach young people to show them what the Army does, and we're obviously proud of that. We can't reach them if we are over the top with violence and other aspects of war that might not be appropriate' (Chris Chambers cited in Schiesel 2005: n.p.). When the player 'dies' in *America's Army*, there is no blood-curdling screams or limbs blown off. It is far more pasteurized, with player's avatars noiselessly falling to the floor before dissolving from the virtual landscape altogether (Gieselmann 2007). As Stahl (2006: 124) quips: 'Bodies tend to disappear as if raptured up to heaven.' Killing without the tragic responsibility that accompanies it is a mainstay of war video games and it is precisely the absence of this moral complexity that facilitates ideological play.



In costing the Pentagon around \$6 million dollars each year to maintain the game's servers (Schiesel 2005), *America's Army* is far more cost-effective than the \$7.7 billion spent for recruitment and retention (Vogel 2009). Moreover, given that the Pentagon spends an estimated \$15,000 wooing each recruit (Stahl 2006), if just 400 people join as a result of playing the Army will have recouped its capital investment. The *America's Army* website denies that it is a recruitment tool, even if the game has a built-in 'Virtual Recruitment Station'. Instead, the Army depicts the game as an online space of education for young adults, which has attracted claims that game is violating U.S. Law by recruiting minors aged 17 and below (American Civil Liberties Union 2008). But *America's Army* is more than a recruitment tool – such a reading falls short. It is also a platform for a new type of cultural consent, providing players at home with a transitional space to participate in the 'war on terror'. As the game itself openly advertises: 'The *America's Army* game provides civilians with an inside perspective and a *virtual role* in today's premier land force: the U.S. Army' (2009, my emphasis). And so it follows that the civilian sphere is now an active transitional space within a larger virtual war, reproducing military representation. Discussing this 'virtual role', Leonard adds:

Americans of all ages are thus able to participate collectively in the War on Terror and in Operation Iraqi Freedom, just as if they were members of the military. Their trigger happiness becomes a metonym for their happiness with American military efforts. With a little money and the switch of a button, the divide between real and virtual—between civilian and military, between domestic and foreign—is erased as we wage war through gaming. (Leonard 2004: 4)

Video games are vital in linking a brutal colonial present with the intimate spaces of the home computer, thus facilitating mass cultural participation (but not necessarily legitimization). Play is an active and cost-effective recruitment technology targeted by the military entertainment complex and has the function of transitioning the player into a wider cultural 'war on terror'. These spaces foster a playful forgetting by violently reducing the complexity of war into a code-induced binary that is hostile to difference and indifferent to humanity. Wrapped within the glitz of a cinematic shell and the thrill of an affective world (Shaw and Warf 2009), war video games are spaces of digital transition, played by a public militia of civilian-soldiers and orchestrated by a growing military entertainment complex.

Such viewpoints as those expressed above are not necessarily wrong, but perhaps they are not playful enough (Kingsbury and Jones 2009). Players have their own fantasies and beliefs they bring to the transitional space that can influence the acceptance and critical distance towards in-game oriental aesthetics. Rather than passive consumers and bloodthirsty civilian-soldiers, players are liminal beings, capable of: '...escaping, maintaining parallel autonomy in relation to, or even transcending the hegemonic ideological, institutional, and economic contexts of the game space' (Zhan 2004: 122). In addition, there are numerous ways that games like *America's Army* can be experimented with. As Allen (2009: n.p.) notes: '...groups of players continually reinscribe the game with new meanings that are divergent from the official Army

message'. Finally, hackers may change the underlying code of the game to invite unexpected bugs, cheats, and glitches into the world (Haynes 2006). Understanding video games as playful prevents a simplistic reading of war games, but the ambivalence of play can only be seen as a limited form of subversion, one that is always-already situated within a pre-coded virtual world. These spaces are engineered by a military entertainment complex that is careful with its constructions, and far from ambivalent in its ideological projections.

#### **Conclusion: 'Till We Rise into Heaven'**

You can't wait until they're 17, because by then they will have decided that they're going to college, or to a trade school, or they'll already have a job that they're planning to stay in. You have to get to them before they've made those decisions. (Colonel Casey Wardynski, creator and director of *America's Army*, cited in Mead 2009) These candid comments remind us that video games are political spaces fizzing with military agendas. But they are *more* than this. War video games allow millions of users from around the world to transition into a space of pasteurized terror. They are virtual worlds built with the ideological scaffolding of the military entertainment complex that splay the lines between civilian and soldier across a cultural mosaic of consent, participation, and less frequently resistance. The Winnicottian interplay between self and war both coalesce during video game play, and the consequences are vital for recruitment and

legitimation. For example, 30 percent of 16–24 year olds had a more positive impression of the U.S. Army after playing *America's Army* (Edery and Mollick 2009: 141). From drones hovering in Pakistan to drones hovering in *Modern Warfare 2*, the way that war is known is increasingly playful. In this sense, video games are instrumental to furthering our understandings of the prosaic geographies of warfare.

Such understandings should focus on the ethnographies of the players themselves, as well as the intimate spaces they play (e.g. Valentine and Holloway 2002). This is important because of the dynamic nature of video games. For example, underneath the cinematic trailer for *Modern Warfare 2* on YouTube, there are 15,000 various comments about the video game

([http://www.youtube.com/comment\\_servlet?all\\_comments&v=TIFSSpYdPuc&page=1](http://www.youtube.com/comment_servlet?all_comments&v=TIFSSpYdPuc&page=1)).

From the offensive to the trivial, such virtual chatter reveals a lot about the interplay between user and game space. Understanding these differences is crucial for furthering knowledge about video games as military technologies. For example, compare the following two comments: (1) '... in 6 more hours the greatest game of all time shall come out. [S]o today we shall fight the terrorists till we rise into heaven'; (2) 'Yeah hooray Americans are the heroes as usual, when in reality they're getting everyone killed'. Such jumbled personalities all transition into the same game space. Moreover, what kind of interactions do players from countries such as Iraq and Afghanistan have online? How do they feel and interpret war games? Exactly how virtual participation

fuses with everyday lives (and vice versa) is clearly an important research question for appreciating the prosaic quality of militarism, and one that geography is poised to answer.

In short, war video games are transitional spaces that matter to the politics of modern warfare and colonialism. Tucked away under televisions in millions of homes, they are banal technologies that distribute carefully crafted military aesthetics. Understanding play as a political practice locked within a violent imperial topos, rather than existing 'in-itself', is the central message of this paper. The psychoanalytic concept of transitional space provided the methodology for constructing this argument, while simultaneously refusing to universalize the experience of all those playing war.

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## References

- Aarseth, E. (2003) Playing research: methodological approaches to game analysis, <<http://www.spilforskning.dk/gameapproaches/GameApproaches2.pdf>> (accessed 7 November 2009).
- Aitken, S. C. and Herman, T. (1997) Gender, power and crib geography: transitional spaces and potential places, *Gender, Place & Culture* 4: 63–88.
- Allen, R. (2009) The Army rolls through Indianapolis: fieldwork at the virtual army experience, *Transformative Works and Cultures* <<http://dx.doi.org/10.3983/twc.2009.0080>> (accessed 7 November 2009).
- America's Army. (2009) Frequently asked questions, <<http://www.americasarmy.com/aa/support/faqs.php?t=9>> (accessed 7 November 2009).
- American Civil Liberties Union (ACLU). (2008) Soldiers of misfortune: abusive U.S. military recruitment and failure to protect child soldiers, <[http://www.aclu.org/pdfs/humanrights/crc\\_report\\_20080513.pdf](http://www.aclu.org/pdfs/humanrights/crc_report_20080513.pdf)> (accessed 7<sup>th</sup> November 2009)
- Ash, J. (2009) Emerging spatialities of the screen: video games and the reconfiguration of spatial awareness, *Environment and Planning A* 41: 2105–2124.
- Atkins, B. (2006) What are we really looking at? The future-orientation of video game play, *Games and Culture* 1: 127–140.
- Baudrillard, J. (1994) *Simulacra and Simulation*. Ann Arbor: University of Michigan Press.
- Berger, P. (2008) There and back again: reuse, signifiers and consistency in created game spaces, in Jahn-Sudmann, A. and Stockmann, R. (eds.) 2008. *Computer Games as a Sociocultural Phenomenon: Games Without Frontiers War Without Tears*. New York: Palgrave Macmillan, pp. 47–55.
- Bingley, A. (2003) In here and out there: sensations between self and landscape, *Social and Cultural Geography* 4: 329–345.
- Boellstorff, T. (2006) A ludicrous discipline? Ethnography and game studies, *Games and Culture* 1: 29–35.

Breger, C. (2008) Digital digs, or Lara Croft replaying Indiana Jones: archaeological tropes and “colonial loops” in new media narrative, *Aether* 2: 41–60.

Caillois, R. (1979) *Man, Play, Games*. New York: Schocken Books.

Cain, J. P. (2008) Another Bricolage in the Wall: Deleuze and Teenage Alienation, in Jahn-Sudmann, A. and Stockmann, R. (eds.) 2008. *Computer Games as a Sociocultural Phenomenon: Games Without Frontiers War Without Tears*. New York: Palgrave Macmillan, pp. 56–65.

Callard, F. (2003) The taming of psychoanalysis in geography, *Social and Cultural Geography* 4: 295–312.

Consalvo, M. (2009) There is no magic circle, *Games and Culture* 4: 408–417.

Core, M., Traum, D., Lane, H., Swartout, W., Gratch, J., van Lent, M., and Marsella, S. (2006) Teaching negotiation skills through practice and reflection with virtual humans, *SIMULATION* 82: 685–701.

Crampton, J. (2004) *The Political Mapping of Cyberspace*. Chicago: University of Chicago Press.

Debord, G. (1994) *The Society of the Spectacle*. New York: Zone Books.

Deleuze, G. (1993) *The Fold: Leibniz and the Baroque*. Minneapolis: University of Minnesota Press.

Der Derian, J. (2001) *Virtuous War: Mapping the Military-Industrial-Media-Entertainment Network*. Boulder: Westview Press.

Dillon, B. A. (2008) Signifying the west: colonialist design in Age of Empires III: The WarChiefs. *Eludamos: Journal for Computer Game Culture* 2: 129–144.

Dittmer, J. (2005) Captain America’s empire: reflections on identity, popular culture, and post-9/11 geopolitics, *Annals of the Association of American Geographers* 95: 626–643.

Dodge, M. and Kitchin, R. (2005) Code and the transduction of space, *Annals of the Association of American Geographers* 95: 162–180.

Dodge, M. and Kitchin, R. (2009) Software, objects, and home space, *Environment and Planning A* 41: 1344–1365.

Edery, D. and Mollick, E. (2009) *Changing the Game: How Video Games are Transforming the Future of Business*. New Jersey: Pearson Education.

Ehrmann, J. (1969) Homo ludens revisited, *Yale French Studies* 41: 38–57.

Eskelinen, M. (2004). Towards computer game studies, <<http://www.electronicbookreview.com/thread/firstperson/anticolonial>> (accessed 7 November).

Flusty, S., Dittmer, J., Gilbert, E. and Kuus, M. (2008) Interventions in banal neoimperialism. *Political Geography* 27: 617–629.

Frasca, G. (1999) Ludology meets narratology: similitude and differences between (video)games and narrative, <<http://www.ludology.org/articles/ludology.htm>> (accessed 7 November 2009).

Giddings, S. A. (2009) Events and collusions: a glossary for the microethnography of video game play, *Games and Culture* 4: 144–157.

Gieselmann, H. (2007) Ordinary gamers – the vanishing violence in war games and its influence on male gamers, *Eludamos: Journal for Computer Game Culture* 1, <<http://www.eludamos.org/index.php/eludamos/article/view/9/20>> (accessed 7 November 2009).

Gratch, J. and Marsella, S. (2004) Towards a validated model of the human influence of emotion on human performance, <<http://ict.usc.edu/files/publications/gratch-towards-asc.pdf>> (accessed 7<sup>th</sup> November 2009).

Gregory, D. (2004) *The Colonial Present: Afghanistan, Palestine, and Iraq*. Malden, MA: Blackwell.

Gregory, D. (2008) The rush to the intimate: counterinsurgency and the cultural turn in late modern war, *Radical philosophy* 150: 8–23.

Halter, E. (2006) *From Sun Tzu to Xbox: War and video Games*. New York: Thunder's Mouth Press.



- Hardt, M. and Negri, A. (2004) *Multitude: War and Democracy in the Age of Empire*. New York: The Penguin Press.
- Haynes, C. (2006) Armageddon army: playing god, god mode mods, and the rhetorical task of ludology, *Games and Culture* 1: 86–96.
- Hayot, E. and Wesp, E. (2009) Towards a critical aesthetic of virtual-world geographies. *Game Studies* 9, <[http://gamestudies.org/0901/articles/hayot\\_wesp\\_space](http://gamestudies.org/0901/articles/hayot_wesp_space)> (accessed 7 November 2009).
- Herz, J. C. (1997) *Joystick Nation*. New York: Little, Brown, and Co.
- Herz, J. C., and Macedonia, M. R. (2002) Computer games and the military: two views, *Defense Horizons* 11, <<http://www.ndu.edu/inss/DefHor/DH11/DH11.htm>> (accessed 7 November 2009).
- Höglund, J. (2008) Electronic empire: orientalism revisited in the military shooter, *Game Studies* 8, <<http://gamestudies.org/0801/articles/hoeglund>> (accessed 7 November 2009).
- Huizinga, J. (1950) *Homo Ludens: A Study of the Play Element in Culture*. New York: Roy Publishers.
- Institute for Creative Technologies (ICT). (2004) Interaction on emotions, <<http://ict.usc.edu/files/publications/ICT-TR-02.2004.pdf>> (accessed 7 November 2009).
- Institute for Creative Technologies (ICT). (2009a) About ICT, <<http://ict.usc.edu/about>> [accessed 7 November 2009].
- Institute for Creative Technologies (ICT). (2009b) Cultural awareness, <[http://ict.usc.edu/impact/cultural\\_awareness](http://ict.usc.edu/impact/cultural_awareness)> (accessed 7 November 2009).
- Katz, C. (2007) Banal terrorism: spatial fetishism and everyday insecurity, in Gregory, D. and Pred, A. (eds.) *Violent Geographies: Fear, Terror, and Political Violence*. New York: Routledge, pp. 349–361.
- Kingsbury, P. (2003) Psychoanalysis, a gay spatial science? *Social and Cultural Geography* 4: 347–367.
- Kingsbury, P. (2007) The extimacy of space, *Social and Cultural Geography* 8: 235–258.

Kingsbury, P. (2008) Did somebody say jouissance? On Slavoj Žižek, consumption, and nationalism, *Emotion, Space and Society* 1: 48–55.

Kingsbury, P. (2010) Unearthing Nietzsche's bomb: nuance, explosiveness, aesthetics, *ACME: An International E-Journal for Critical Geographies* 9: 47–61.

Kingsbury, P. and Jones III, J. P. (2009) Walter Benjamin's Dionysian adventures on Google Earth, *Geoforum* 40: 502–513

Klimmt, C., Schmid, H., Nosper, A., Hartmann, T., and Vorderer, P. (2008) "Moral management": dealing with moral concerns to maintain enjoyment of violent video games, in Jahn-Sudmann, A. and Stockmann, R. (eds.) 2008. *Computer Games as a Sociocultural Phenomenon: Games Without Frontiers War Without Tears*. New York: Palgrave Macmillan, pp. 108–118.

Krzywinska, T. (2006) Blood scythes, festivals, quests, and backstories: world creation and rhetorics of myth in World of Warcraft, *Games and Culture* 1: 383–396.

Leonard, D. (2004) Unsettling the military entertainment complex: video Games and a pedagogy of peace, *SIMILE: Studies In Media & Information Literacy Education*, 4: 1–8.

Lowood, H. (2008). Impotence and Agency: Computer Games as a Post-9/11 Battlefield, in Jahn-Sudmann, A. and Stockmann, R. (eds.) *Computer Games as a Sociocultural Phenomenon: Games Without Frontiers War Without Tears*. New York: Palgrave Macmillan, pp. 78–86.

Macedonia, M.R. (2002) in Herz, J. C. and Macedonia, M. R. (2002) Computer games and the military: two views, *Defense Horizons* 11, <<http://www.ndu.edu/inss/DefHor/DH11/DH11.htm>> (accessed 7 November 2009).

Malaby, T. M. and Burke, T. (2009) The short and happy life of interdisciplinarity in game studies, *Games and Culture* 4: 323–330.

Malaby, T. M. (2007) Beyond play, *Games and Culture* 2: 95–113.

Mead, C. (2009) America's Army invades our classrooms, *Rethinking Schools* 23, <[http://www.rethinkingschools.org/archive/23\\_04/army234.shtml](http://www.rethinkingschools.org/archive/23_04/army234.shtml)> (accessed 14 November 2009).

Morie, J., Iyer, K., Valanejad, K., Sadek, R., Miraglia, D., and Milam, D. (2002) Emotionally evocative environments for training, <<http://www.3dmilam.com/ictvr.htm>> (accessed 7 November 2009).

Morie, J. and Williams, J. (2003) The gestalt of virtual environments, <<http://ict.usc.edu/files/publications/GestaltA.pdf>> (accessed 7 November 2009).

Morie, J.F. (2009) Re-entry: online virtual worlds as a healing space for veterans, <<http://ict.usc.edu/files/publications/Morie-2009-2SPIE-FINAL.pdf>> (accessed 7 November 2009).

Nast, H. (2000) Mapping the “unconscious”: racism and the oedipal family, *Annals of the Association of American Geographers* 90: 215–255.

Nunes, M. (2006) *Cyberspaces of Everyday Life (Electronic Mediations)*. Minneapolis: University of Minnesota Press.

Ouellette, M. A. (2008) “I hope you never see another day like this”: pedagogy & allegory in “post 9/11” video games, *Game Studies* 8, <[http://gamestudies.org/0801/articles/ouellette\\_m](http://gamestudies.org/0801/articles/ouellette_m)> (accessed 7 November 2009).

Painter, J. (2006) Prosaic geographies of stateness, *Political Geography* 25: 752–774.

Pile, S. (1996) *The Body and the City: Psychoanalysis, Space and Subjectivity*. London: Routledge.

Power, M. (2007) Digitized virtuosity: video war games and post-9/11 cyber-deterrence, *Security Dialogue* 38: 271–288.

Raessens, J. (2006) Playful identities, or the ludification of culture, *Games and Culture* 1: 52–57.

Rentfrow, D. (2008) S(t)imulating war: from early films to military games, in Jahn-Sudmann, A. and Stockmann, R. (eds.) *Computer Games as a Sociocultural Phenomenon: Games Without Frontiers War Without Tears*. New York: Palgrave Macmillan, pp 87–96.

Riedl, M. and Stern, A. (2006) Believable agents and intelligent scenario direction for social and cultural leadership training, <<http://ict.usc.edu/files/publications/Riedl%20%20Stern%20Believable.pdf>> (accessed 7 November 2009).

Rose, G. (1996) As if the mirrors bled: masculine dwelling, masculine theory and feminist masquerade, in Duncan, N. (ed.) *BodySpace: Destabilizing Geographies of Gender and Sexuality*. London: Routledge, pp. 56–74.

Said, E. W. (1978) *Orientalism*. New York: Pantheon Books.

Schiesel, S. (2005) On maneuvers with the army's game squad, <<http://www.nytimes.com/2005/02/17/technology/circuits/17army.html>> (accessed 7 November 2009).

Schwartz, L. (2006) Fantasy, realism, and the other in recent video games, *Space and Culture* 9: 313–325.

Shaw, I. G. R. and Warf, B. (2009) Worlds of affect: virtual geographies of video games, *Environment and Planning A* 41: 1332–1343.

Sibley, D. (1995) *Geographies of Exclusion: Society and Difference in the West*. London: Routledge.

Sisler, V. (2008) Digital Arabs: representation in video games, *European Journal of Cultural Studies* 11: 203–219.

Stahl, R. (2006) Have you played the war on terror? *Critical Studies in Media Communication* 23: 112–130.

Steinkuehler, C. (2006) The mangle of play, *Games and Culture* 1: 199–213.

Sutton-Smith, B. (1997) *The Ambiguity of Play*. Cambridge: Harvard University Press.

Swartout, W., Gratch, J., Hill, R., Hovy, E., Marsella, S., Rickel, J., and Traum, D. (2004) Toward virtual humans, <<http://ict.usc.edu/files/publications/FS104SwartoutW.pdf>> (accessed 7 November 2009).

Thrift, N. (2003) Closer to the machine? Intelligent environments, new forms of possession and the rise of the supertoy, *Cultural Geographies* 10: 389–407.

Tortell, R., Luigi, D., Dozois, A., Bouchard, S., Morie, J., and Ilan, D. (2007) The effects of scent and game play experience on memory of a virtual environment, <<http://ict.usc.edu/files/publications/ScentGameplayFinal.pdf>> (accessed 7 November 2009).

- U.S. Air Force. (2009) MQ-1 Predator factsheet, <<http://www.af.mil/information/factsheets/factsheet.asp?fsID=122>> (accessed 18 January 2010).
- Valentine, G. and Holloway, S. (2002) Cyberkids? Exploring children's identities and social networks in on-line and off-line worlds, *Annals of the Association of American Geographers* 92: 302–319.
- Wilton, R. (2003) Locating physical disability in Freudian and Lacanian psychoanalysis: problems and prospects, *Social and Cultural Geography* 4: 369–389.
- Winnicott, D. (1971) *Playing and Reality*. London: Tavistock Publications.
- Woodward, R. (2005) From military geography to militarism's geographies: disciplinary engagements with the geographies of militarism and military activities, *Progress in Human Geography* 29: 718–740.
- Yee, N. (2006) The labor of fun: how video games blur the boundaries of work and play, *Games and Culture* 1: 68–71.
- Zhan, L. (2004). The potential of America's Army the video game as civilian-military public sphere, Master's Thesis, MIT.
- Žižek, S. (2002) *Welcome to the Desert of the Real*. London; New York: Verso.

## **Appendix B: The Unbearable Humanness of Drone Warfare in FATA, Pakistan**

Reprinted from: Ian Graham Ronald Shaw and Majed Akhter, *The Unbearable Humanness of Drone Warfare in FATA, Pakistan* (forthcoming in *Antipode*)

This paper provides a critical analysis of how and why U.S.-led drone warfare is conducted in the Federally Administered Tribal Areas (FATA) of Pakistan. First, we provide detailed statistics on the scale and funding of U.S. drone operations, noting a rapid acceleration of its adoption by the military. This is then bundled within an overarching narrative of the logic of ‘targeting’. Second, we study a legal document called the ‘Frontier Crimes Regulation’ of 1901 that defines the relationship of FATA to the rest of Pakistan as an ‘exceptional’ place. In the third section, we argue that the drone is a political actor with a fetishized existence, and this enables it to violate sovereign Pakistani territory. In this sense, the continued violence waged by robots in Pakistan’s tribal areas is a result of the deadly interaction between law and technology. The paper concludes by noting the proliferation of drones in everyday life.

### **Introduction**

Humankind had a 5,000-year monopoly on the fighting of war. That monopoly has ended. Peter Singer, 2010: online.

In a 1915 dissertation on the concept of unmanned flight, Nikola Tesla described an armed, pilotless aircraft capable of defending the United States of America. Four years later Elmer Sperry, creator of the gyroscope and autopilot technology, used an unmanned aircraft to sink a captured German battleship. But it was only after 1985 that pilotless planes were widely used by the military, with the Department of Defense rolling out the ‘Pioneer’ aircraft. Used in over 300 combat missions during Operation Desert Storm in 1991, this robot patrolled Iraqi deserts, hunting for SCUD missiles. Two decades later at the 2010 White House Correspondents Dinner, U.S. President Barack Obama

joked about the 'Predator' drone in his speech: '[The] Jonas Brothers are here, they're out there somewhere. Sasha and Malia are huge fans, but boys, don't get any ideas. Two words for you: Predator drones. You will never see it coming. You think I'm joking?' This quip is more than just an offensive aberration, it suggests that drone warfare is now thoroughly enmeshed in U.S. military and public discourse – and it is here to stay.

Obama's ostensible reversal of Bush's legally dubious policies of 'enhanced interrogation' and Guantánamo detention is offset by an intensification of an equally dubious drone program (Ofek 2010). Following President George W. Bush, Obama has dramatically increased the deployment of drones, both officially and through clandestine CIA operations. In 2009 there were over 50 of these controversial strikes in Pakistan's Federally Administered Tribal Areas (FATA), compared with 45 during the entire administration of Bush (Bergen and Tiedemann 2010). The CIA's use of drones in Pakistani territory (operated from Langley, Virginia) to assassinate Al-Qaeda militants is wildly unpopular, with only 9% of Pakistanis supporting it (Al Jazeera 2009). And this is hardly surprising. Despite the official rhetoric of clinical kills and surgical strikes, civilian casualties are heavy, and the suffering is far messier than the digital imagery from the sky presents. Death counts are always disputed, but the New America Foundation website (updated regularly) states that since 2004 there have been 205 drone attacks in Pakistan responsible for between 1,294 and 1,989 deaths, of which between 983 and 1,453 were described as 'militants' by the press

[<http://counterterrorism.newamerica.net/drones>]. In 2010, 91 percent of these strikes were in North Waziristan. Despite this ramped up activity in the region, 'the U.S. drone strikes don't seem to have had any great effect on the Taliban's ability to mount operations in Pakistan...' (Berger and Tiedemann 2010:5).

Given that Pakistan is an ally of the U.S.-led 'war on terror', the mounting toll of civilian deaths continues to strain a rather contradictory relationship with Washington. The Pakistani government both privately supports and publically condemns the drone attacks. It is this split between Pakistan-as-frontline state and Pakistan-as-sovereign nation that scars the embattled region of FATA; a region that has long held geopolitical significance. In this sense, we can situate the drone program in the well-worn circuit of Western hegemony and empire (Agnew 2003; Watson 2010), fed by the brutal dialectic of capitalism and imperialism (Harvey 2005, Roberts et al 2003). Indeed, little has changed in the geo-legal logics operating in tribal areas along the Afghanistan-Pakistan border from the British Empire to the postcolonial state of Pakistan. What are similar in each case are the processes that render this territory as exceptional (Agamben 1998, 2005). Similar to the extant work of geographers that have dealt with sovereignty and spaces of exception (Elden 2009; Gregory 2004, 2006, 2007, 2010; Ramadan 2009; Reid-Henry 2007), we argue for the significance of the law in rendering people and places vulnerable to violent intervention. However, the story of FATA is different because of the political work that the drone *itself* carries out in relation to the law.



In what follows, we offer a critical explanation of how and why drone warfare is conducted in FATA, Pakistan. This analysis is driven by: (1) Investigating the Unmanned Aerial Vehicle (UAV) or drone. We provide detailed statistics on the scale and funding of U.S. drone operations. This is situated within an overarching narrative of the logics of 'targeting'. (2) We study the Frontier Crimes Regulations (FCR) of 1901. The FCR is the political-legal instrument that defines the relationship of FATA to central state authority as an 'exceptional' place. (3) The paper then argues that the drone is a technology fetishized by the U.S. military, which insists on its autonomous and nonhuman status while simultaneously disavowing its human entanglements. (4) We then flesh out the link between territory and law, consulting the extant work of geographers.

### **The Coming Drone Army**

The drone dominates strategic U.S. military thought and practice. In 2008, armed drones flew over Iraq and Afghanistan for 135,000 hours (equivalent to 15 years of flight) and dropped 187 missiles and bombs (Mockenhaupt 2009). The U.S. military plans to triple its inventory of high-altitude armed and unarmed drones by 2020. In 2009 the U.S. purchased more unmanned than manned aircraft - and as General Petraeus, formerly head of the U.S. Central Command puts it, 'We can't get enough drones' (quoted in Capaccio 2010), with CIA Director Leon Panetta adding that unmanned aerial vehicles are 'the only game in town' (quoted in Capaccio 2010). The military currently has close

to 7,000 unmanned aircraft, with 39 combat-air patrols flying over Iraq and Afghanistan constantly, expected to rise to 50 a day over the next two years and 65 a day by 2013. The cost for this increase is \$29 billion by 2020 – a growth of three percent that outpaces the total proposed defense budget of one percent. As Table 1 illustrates, The Department of Defense (DOD) requested about \$6.1 billion in fiscal year 2010 for new unmanned aircraft systems (UAS). This means big business for defense contractors such as *General Atomics Aeronautical Systems, Inc* in San Diego.

**Figure 1: MQ-1B Predator (Source: U.S. Air Force 2009)**



By far the most popular unmanned aircraft used by the military is the Predator (see Figure 1), which first made the headlines in 2001 after its baptismal ‘kill’ in Afghanistan. The Air Force flies 140 of these medium-altitude drones (see Table 2). Costing \$4 million each, or \$20 million for the entire system (consisting of four aircraft, a ground station, a satellite link and a maintenance crew), the Predator is used for armed reconnaissance and surveillance. It has a wingspan of 55 feet, a length of 27 feet, and weighs 1,130 pounds (it is powered by a snowmobile engine). It carries two laser-guided AGM-114 Hellfire missiles, can fly up to 25,000 feet, and is piloted by three personnel: a pilot, a sensor operator, and a mission intelligence coordinator (U.S. Air Force 2009).

In fiscal year 2009 constant dollars in millions	2007	2008	2009	2010	Total
Research, development, test and evaluation	\$1,778.9	\$1,668.3	\$2,016.4	\$2,519.6	\$7,983.1
Procurement	2,014.4	2,968.3	3,372.2	3,596.8	\$12,138.7
<b>Total</b>	\$3,980.3	\$4,636.6	\$5,388.6	\$6,116.4	\$20,121.8

*Source: GAO analysis of funding requests for UAS included in the President's fiscal year 2009 and fiscal year 2010 budget requests. (United States Government Accountability Office 2010)*

Military Service	System	Number of Aircraft
Air Force	Predator	140
	Global Hawk	17
	Reaper	35
	<b>Total</b>	<b>192</b>
Army	Shadow	288
	Extended Range Multi-Purpose	4

	Fire Scout	32
	Hunter	22
	Warrior	18
	<b>Total</b>	<b>364</b>
Navy	Fire Scout	7
	Global Hawk Maritime Demonstration	2
	Reaper	4
	Unmanned Combat Air System	2
	<b>Total</b>	<b>15</b>
Marine Corps	Shadow	28
	<b>Total</b>	<b>28</b>
<i>Source: GAO analysis of DOD data, 2010. (United States Government Accountability Office 2010)</i>		

Predators (and the larger Reaper aircraft) are usually flown from the Western U.S. Most of the operators' work is mundane and involves digesting hundreds of hours of video feed (Pitzke 2010). At Creech Air Force Base, Nevada, would-be pilots fly training missions over faux desert villages and old rusted tanks. Demand for these fully-trained pilots is currently outstripping supply, which is why the Air Force is training 'Betas' that learn *only* to fly Predators. The school's director, Lieutenant Colonel Geoff Barnes, remarks on the similarity between flying drones and playing video games: 'I'm not saying that if you can play games, you can do this, or that this is just a game. What we do here is a very serious business ... But when you're looking at a skill set for what it takes to be able to work in a two-dimensional area, gaming helped me to make the transition' (quoted in Mockenhaupt 2009). Yet despite this aesthetic similarity, there is evidence to suggest that drone pilots are developing Post-Traumatic Stress Disorder (PTSD) at faster rates than soldiers engaging in battle (Jamail 2010).

Indeed, the open secret is that drones are always messier and fleshier than advertized, and not just because they are prone to inaccuracy. In 2009 Iraqi insurgents used a \$26 software program to intercept live feed from U.S. Predator drones (Gorman et al. 2009). Then in 2010, back at Creech Air Force Base in Nevada, a rogue cat got inside one of the drone pilot stations and fried the electronics (Weinberger 2010). This feline insurgent is a comedic reminder of the precarious nature of drone warfare, waged in a geographic gap of 5,000 miles between pilot and plane. Yet even with these underlying contingencies and technological slippages, drones are becoming increasingly popular across the globe. The Israeli Air Force recently unveiled massive 'Etian' drones (about the size of Boeing 737 passenger jets) that are able to stay in the air for about a day and reach the Gulf (BBC News 2010). Perhaps in response, Iran's Revolutionary Guard stated it would develop its own domestic drone program for deployment later in 2011 (Associated Foreign Press 2010). Pakistan has also repeatedly asked for U.S. to transfer drone technology. Each time, the country has been refused. The proliferation of drones is thus potentially set to reconfigure people, states, and territory: violently and intimately, exceptionally and mundanely. Such a faith in these technologies is underwritten by a celebration—indeed a *fetishization*—of their ability to accurately target. But where does this targeting zeitgeist arise from, and why does it matter?

## Targeting

Representation, a social practice and strategy through which meanings are constituted and communicated, is unavoidable when dealing with militarism and military activities. Armed Forces, and defence institutions, take great care in producing and promoting specific portrayals of themselves and their activities in order to legitimize and justify their activities in places, spaces, environments and landscapes. (Woodward 2005:729)

In this section, we argue that the ramping up of drone deployments is justified by a distinctive targeting logic. As Paul Virrilo (1989) has long argued, there is never war without representation, which is to say, the deadly materiality of war is always coiled within a discursive system (see also Shaw 2010). In this sense, the drone performs a well-rehearsed imaginative geography (Bialasiewicz et al 2007; Gregory 2004) that is underwritten by targeted kills across neat isometric grids and algorithmic calculations (Amoore 2009), far removed from the brutal Real (Jones and Clarke 2006), and in a peculiar relation with the visceral imagery of previous wars (Tuathail 2003). The official 'definition' of a targeted kill is not agreed upon under international law. Yet as a recent UN report on targeted killing reveals, it can be thought of as follows:

A targeted killing is the intentional, premeditated and deliberate use of lethal force, by States or their agents acting under colour of law, or by an organized armed group in armed conflict, against a specific individual who is not in the physical custody of the perpetrator. In recent years, a few States have adopted policies, either openly or implicitly, of using targeted killings, including in the territories of other States. Such policies have been justified both as a legitimate response to "terrorist" threats and as a necessary response to the challenges of "asymmetric warfare." In the legitimate struggle against terrorism, too many criminal acts have been re-characterized so as to justify addressing them within the framework of the law of armed conflict. New technologies, and especially unarmed combat aerial vehicles or "drones", have been added into this mix, by making it easier to kill targets, with fewer risks to the targeting State (Alston 2010:3).

The means and methods of killing vary, and include sniper fire, shooting at close range, missiles from helicopters, gunships, drones, the use of car bombs, and poison (Alston 2010:4)

The drone is heralded by the U.S. military as the apex of a targeting logic – accurate, efficient, and deadly. This logic traces a distinct genesis. In 1938 Martin Heidegger wrote of the ‘age of the world picture’, in a classic essay on the split between subject and object. For him, today’s world is conceived, grasped, and conquered as a picture – and what it means ‘to be’ is for the first time defined as the objectiveness of representing. In this modern age of humanism, a subjective ‘worldview’ arises for the first time – humans appear as Cartesian subjects and the world as a calculated picture, engineered by science and technology. Ray Chow (2006) extends this metaphysical analysis to contend that the world has further been produced as a ‘target’. In the wake of the atomic event of Hiroshima, the entire globe is rendered as a grid of targets to be destroyed as soon as it can be made visible. Indeed, to see *is* to destroy.

Vision is thus crucial to an ocularcentric Western society (Rose 2001), and always-already entangled within military culture. The ability to gaze from ‘nowhere’ and yet represent ‘everywhere’ is what Haraway (1988) labels the ‘god-trick’. She argues that the eyes have been perfected by the logics of military, capitalist, and colonial supremacy; one that is fundamentally located within a nexus of disembodiment: ‘...the vantage point of the cyclopiian, self-satiated eye of the master subject. The Western eye has

fundamentally being a wandering eye. Vision is apparently without limit, the 'ordinary primate' can now see underwater, at night, through walls, into biological cells, onto distant galaxies: an 'unregulated gluttony' that prides itself on its 'objectivity' (1988:586).

This disembodied visual logic is perfected in the doctrine of airpower, the dominant theme of U.S. national defense post World War II. Kaplan (2006a) names this a 'cosmic view' that both unifies and separates 'targets' from above. The sky is the space in which technology masters the world. It is clean, disembodied, and a place where nobody dies (that just happens on the ground). Do we not see here a colonial logic of 'us' in the sky, versus 'them' on the ground (Amoore 2009; Gregory 2010)? The drone is capable of *performing* (Bialasiewicz et al 2007) this logic, through a vertical indifference to territory and sovereignty. This digital-orbital view of the world, a dream of targets that dismisses ambiguity, reinforces the same old god-trick of a view of somewhere from nowhere, and (re)produces the subjects of U.S. Empire (Kaplan 2006b). This is not to say that the sky is a space of pure deterritorialization (Deleuze and Guattari 1987). Since the mid-twentieth century the atmosphere has become increasingly nationalized, particularly after the Cold War (Kaplan 2006b, Williams 2010). The 'Revolution in Military Affairs' (RMA) was a set of tactics put forward by the U.S. military for securing the future of warfare (Kaplan 2009). They include information communications, space technology, satellites, drones, nano-robotics, all pivoting around the idea of 'network-centric warfare'. As Macdonald



(2007) argues, this is precisely the reason that 'outer space' needs to be investigated by critical geography, given that social life tied to the celestial, and space-based subjectivities are increasingly normalized.

Orbital logics thus spill into the everyday, as does the pervasive influence of targeting in U.S. culture. From the use of GIS sciences that spatialize, calculate, and fix Cartesian wanderings—without a necessary appeal to the uniqueness of place or its crumpled ontologies—to the vicarious gazing and gaming of a far-away war (Shaw 2010; Wark 2007), targeting is now woven into the fabric of mundane life. GIS and GPS programs are no longer alien technologies used by armies and government agencies, but shared everyday practices. As such, the drone is not an aberration – but the apex of an expanding targeting zeitgeist. In this age, 'to be' is to be locked within the cool certainty of a crosshair.

Yet despite the drones mounting importance to global warfare, we find its use in FATA, Pakistan of particular significance. Its covert CIA deployments are both publically condemned and privately supported by the Pakistani government as the U.S. consistently breaches its national sovereignty. As retired Pakistani general Talat Masood asks, one assumes rhetorically, 'How can you be an ally and at the same time be *targeted*?' (quoted in Schmitt and Drew 2009, our emphasis). Not only is this territorial contradiction worth highlighting, but so too is the fetishized status of the drone itself as

it relates to contemporary geopolitics. But first, we sketch the history of FATA, a region riddled with historical and legal complexities.

## **FATA**

FATA is divided into seven tribal agencies spanning 27,244 square kilometers and, according to the last census in 1998, is home to 3.1 million people. FATA, especially the agencies of North and South Waziristan, has been subjected to drone bombardment since 2004, with the intensity of attacks only increasing under the Obama administration. Amnesty International (2010) reports 51 strikes in 2009, compared to only 34 in 2008, and total casualties from drone attacks in 2009 was 511, compared to 263 in 2008. The interlinked legal and military history of this region is rarely given adequate attention, with 'analysis' usually relying on a characterization of the inhabitants, the Pakhtuns, as 'rugged' and 'intractable' (Nawaz 2009). At least since the British engagement with the region, roughly a century and a half ago, the legal and constitutional status of the region in relation to state power has been co-determined with its geopolitical role.

**Figure 2: Federally Administered Tribal Areas** (Source: Wikimedia Commons [http://commons.wikimedia.org/wiki/File:Map\\_of\\_FATA\\_in\\_Pakistan.PNG?uselang=en-gb](http://commons.wikimedia.org/wiki/File:Map_of_FATA_in_Pakistan.PNG?uselang=en-gb))



The tribal regions that today comprise Afghanistan, FATA, and the region formerly known as the NWFP of Pakistan have, as far back as the 14<sup>th</sup> century, been constructed as a ‘special cases’ that could not be governed according to normal rules. British engagement with the region began in 1849, after the annexation of Punjab. The current legal and geopolitical position of FATA can only be understood from its colonial past as a ‘frontier’ region for the British Raj, understood at the time as a ‘wide tract of border country, hinterlands, or a buffer state,’ (Spain 1977:27). Buffer states can be interpreted as classic territorial exceptions – states by virtue of not being other states. A buffer state was

supposed to ensure that two giants did not rub shoulders. Afghanistan's birth as a buffer state between the expanding powers of Russia and Britain was ushered in by the Durand Line Agreement of 1893 and the Pamir Boundary Agreement of 1895. The former was an agreement between an Afghan King and the British recognizing what Pakistan today claims is the international boundary with Afghanistan. The latter was an agreement between the British and the Russians that demarcated Afghanistan's northern border.

The British followed a 'three-fold frontier' strategy, which applied their state power and law in gradients over the frontier (Embree 1977). The first frontier was on the outskirts of the geographic edges of directly administered territory – in the case of the northwest frontier, in the environs of Peshawar and the settled areas. Afghanistan, an ostensibly sovereign state, was the third frontier. It is the second frontier, where the British ruled the Pakhtun tribes indirectly, where we locate the colonial legacy of FATA. The Pakhtuns were theoretically to retain a measure of autonomy over their own affairs, but control was exercised through subsidies provided to selected tribal leaders from the British. The British state thus extended its control, but not its rule. This peculiar political space, forged in the furnace of the geopolitical 'Great Game' between Britain and Russia, required a correspondingly peculiar legal order – the Frontier Crimes Regulations (FCR) of 1901.

The FCR were crafted by Lord Curzon to create some semblance of codified law to govern the tribal area. The act gives the federal government the right to appoint a 'Political Agent' (PA) for each of the agencies in FATA. The PA is invested with considerable magisterial, administrative, revenue, executive and development powers in the agencies. They have the authority to decide any matter, civil or criminal, or refer it to a *jirga*, or assembly of tribal men (which the PA, of course, convenes). There is no judicial review or accountability of any decision made by the PA. Other powers given to the PA under the FCR under specific circumstances are: preemptory imprisonment, expulsion of individuals and groups, destruction of buildings, imprisonment of children, collective punishment, strict regulation of housing, economic blockades, and even execution (Amnesty International 2010; Mahmud 2010; Spain 1977; Tanguay-Renad 2002). Upon independence in 1947, Pakistan adopted the FCR, and continued the policy of excepting FATA from the normal rule of law. The FCR and the constitutional status of FATA have not gone unchallenged, and two cases in particular cemented the geographical exception of FATA. In Chaudri Manzoor Elahi vs. Federation of Pakistan (1975), the Supreme Court ruled that FATA as an area was beyond the jurisdiction of any superior court – and therefore there was no one for the people of FATA to appeal to for their rights as citizens of Pakistan. And in Government of NWFP vs. Muhammad Irshad (1995), it was ruled that the President's word is indeed law in tribal areas. However, dissenting opinions were registered in both rulings and 'the issue has yet to be fully

settled and the constitutional position of FATA inhabitants remains ambiguous and unfavorable,' (Tanguay-Renad 2002:554).

Article 247 of the Constitution of Pakistan (1973) spells out the exception clearly. The most telling clauses are listed below:

*247.3) No Act of Parliament shall apply to any Federally Administered Tribal Area or to any part thereof, unless the President so directs.*

*247.5) Notwithstanding anything contained in the Constitution, the President may, with respect to any matter, make regulations for the peace and good Government of a Federally Administered Tribal Area or any part thereof.*

*247.6) Neither the Supreme Court nor a High Court shall exercise any jurisdiction under the Constitution in relation to a Tribal Area, unless Parliament by law otherwise provides.*

It is 247.3 that produces FATA as a space of political-geographical exception by declaring it out of bounds from any act declared by Parliament. In lethal parallel, 247.6 produces FATA as a legal-geographic exception, by declaring the area out of the jurisdiction of the Supreme Court. And the 'cherry on top' is 247.5, which makes FATA subject to the judgment of one person, the President. As we saw above, the President exercises authority in the region through the legal architecture of the FCR and Political Agents.

Recent constitutional and political developments in Pakistan, in the wake of the tumultuous Lawyer's Movement of 2007, offered some hope that a progressive government would bring significant constitutional changes with respect to the status of

FATA (Khan 2009). The legal fraternity of Pakistan took to the streets in the name of the supremacy of law and the constitution, and eventually toppled the military regime of General Pervez Musharraf, America's staunchest international ally in the war on terror. In the heady days of early 2008, after the populist Pakistan People's Party (PPP) swept dramatically to power, the Prime Minister promised that the 'obsolete' FCR would be abolished and FATA brought into a normalized federal relationship with the rest of the country. The following year cosmetic changes to the FCR were ushered in by the President (Ali 2009).

The much-vaunted historical 18<sup>th</sup> amendment to the Pakistani Constitution, the culminating politico-legislative act of the new democratic government, was passed by Parliament in April 2010. It was conspicuously silent about any change in FATA's constitutional position (National Assembly 2010). Although the amendment makes concessions of power from the center to the provinces, there is no mention of any amendment to Article 247. As Amnesty International despairingly notes '[d]espite numerous recent promises by Pakistan's government to reform the FCR and improve the legal situation of the people of FATA...governed by this law, as of May 2010, the FCR continued to relegate millions of people in northwest Pakistan to second-class legal status,' (2010:26).

Perhaps, upon reflection, the Pakistani government came to the same conclusion as British political strategist Dr. Coatman did almost 80 years ago – this place, and these people, must be excepted from state and society for the purposes of war:

*There are many good reasons why we should not [extend constitutional reforms], and the first reason is the one I mentioned to you at the beginning of my address—namely, the position of the North-West Frontier and its importance from the point of view of defence and foreign relations. And on the Frontier even the ordinary process of government, the police and the building of roads, cannot be looked upon in quite the same way as in other parts of India, because, after all, the North-West Frontier Province is the terrain in which our armies might have to operate in case of war. We cannot play fast and loose with that territory. (Coatman 1931:342)*

The history of FATA reveals a region that has served military and state power. This was the case a century ago when the FCR were first drafted and the British Empire spanned the globe, and it is the case now, with the FCR still alive and drones raining terror down on the people of FATA. The fact that drone warfare has not extended beyond FATA and into Baluchistan, another borderland Province of Pakistan also rumored to harbor terrorist networks, speaks volumes of the role of legal geography in war. Indeed, despite remarks from the Obama administration expanding the scale of war beyond excepted areas like FATA during his campaign, these have not materialized. This is because the legal-historical geography of the terrain acts in concert with the object itself to produce drone warfare in FATA: it is not simply a matter of drones operating over an undifferentiated enemy landscape. Rather, uneven geo-legalities of war, state, and exception make drone warfare a reality in certain spaces and not others.



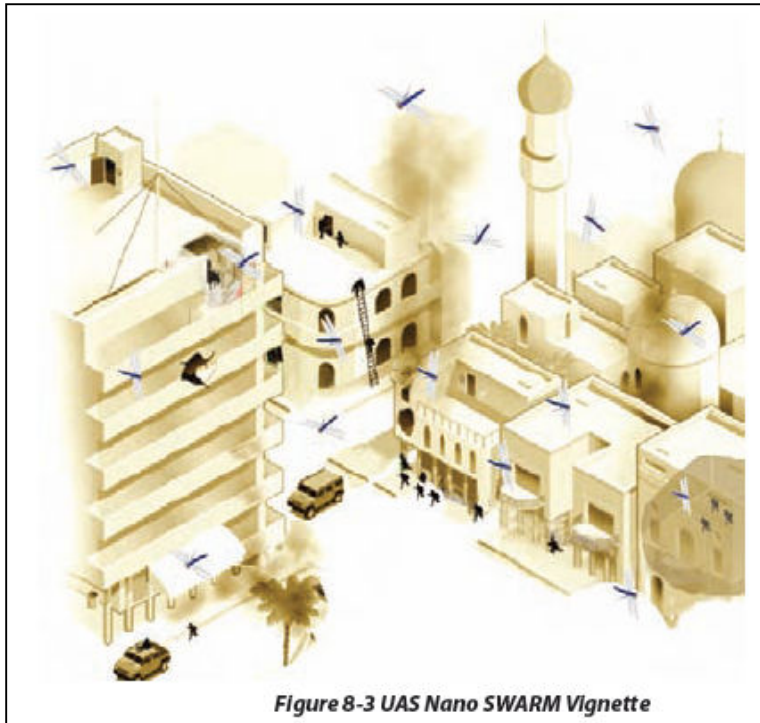
## Exceptional Technology, Exceptional Territory

### *Exceptional Technology*

The U.S. Army's (2010) 'Unmanned Aircraft Systems Roadmap 2010-2035' celebrates the rapidly accelerating autonomy of drones. As the roadmap states, the 'Introduction and proliferation of UAS and other robotic systems represent significant changes to Army culture' (U.S. Army 2010:72). Autonomous unmanned aerial systems are projected as the future of military practice and culture. This automation reaches its apex with the SWARM capability, or 'smart warfighting array of reconfigurable modules'. Under this tactic, the Army envisions tiny drones that can interact with each other in marauding swarms – much like a team of robotic insects. These tiny drones are called 'Nanos', and are 'capable of conducting surveillance for an extended timeframe by lying dormant to conserve power or perch on power lines to draw needed energy' (U.S. Army 2010:58). As the report explains:

By 2025, Nanos will collaborate with one another to create swarms of Nanos that can cover large outdoor and indoor areas. The swarms will have a level of *autonomy and self-awareness* that will allow them to shift formations in order to maximize coverage and cover down on dead spots. Nanos will possess the ability to fly, crawl, adjust their positions, and navigate increasingly confined spaces. (U.S. Army 2010:65 emphasis added)

**Figure 3: The Coming SWARM** (Source: U.S. Army Roadmap for UAS 2010-2035:65)



In terms of their ability to target, future drones will be highly sophisticated. Keeping in tune with the science fiction overture: ‘Future sensors will provide the capability to track specific individuals, recognized through automatic target recognition capabilities, including if they are carrying weapons or other equipment. They also will be able to distinguish between males, females, and children, as well as different types of animals’ (p.90). The drone performs the logic of targeting, enacting a better-than-human efficiency ethic.

This deliberate engineering of autonomy has significant political consequences.

Consider, for example, that when a Predator drone crashed in Pakistan in September

2008 (an object manufactured by *General Atomics* of the U.S.), and photos of its burned—but still identifiable—wreckage were broadcast across Pakistani television, Chairman of the Joint Chiefs of Staff Admiral Michael Mullen was forced to comment. His reply: ‘It wasn’t a U.S. UAV’. Such barefaced denial reveals much about the drone. Of course the drone was U.S. manufactured and U.S. controlled. But because there was no human flesh in the pieces of the drone’s wreckage, the accountability of the U.S. military was suspended, and a brazen denial enacted (‘there was no pilot!’).

In this sense, the drone is fundamentally a *fetishized* object. And we mean this in the Marxist sense of the concept – the object’s human relations are *mystified and masked* - as the drone presents itself to the world as an autonomous agent, isolated from the imperial and military apparatus behind it. Marx used the concept of the fetish in numerous ways to describe the exchange of commodities:

A commodity is therefore a mysterious thing, simply because in it the social character of men’s labour appears to them as an objective character stamped upon the product of that labour; because the relation of the producers to the sum total of their own labour is presented to them as a social relation, existing not between themselves, but between the products of their labour (Marx 1991:28)

The commodity fetish is a two-fold phenomenon: the commodity transcends the labour that produced it and appears as a separate and objectifiable ‘thing’, and consequently, its social origins are masked as its value appears contained in the ‘thing-itself’. Power and autonomy are presumed to exist within commodities themselves, rather than within

their productive relations. Marx thus argues that the commodity is reified with an almost supernatural and quasi-religious status: 'Its analysis shows that it is, in reality, a very queer thing, abounding in metaphysical subtleties and theological niceties' (Marx 1991:26). This fetishization extends from commodities into the cultural circuit more generally, as the work of cultural theorists Jameson, Adorno, Benjamin, Baudrillard, and Debord have differently illustrated.

The primary relationship evoked in most discussions of drone warfare is between a drone and its battlefield of objectified targets, rather than the relationship between the team of technicians operating the drone as agents of American empire and the unsuspecting bodies surveilled and slaughtered on the ground in neo-colonial Pakistan. In other words, drone warfare is thought of as a relationship between things, rather than between people. And the supernatural element is never far away. As Colonel Theodore Osowski of the U.S. Air Force reveals in his Biblical allegory on drones: 'It's kind of like having God overhead. And lightning comes down in the form of a Hellfire' (quoted in Mockenhaupt 2009). It is therefore *through* fetishization that drones bomb sovereign Pakistani territory without the legal and territorial consequences of ground war. Far from 'sitting there', the drone performs the military logic of a 'war without the war' to its extreme, which is to say, a war without bodies, a war of machines, and a war of discrete and surgical strikes from the sky.

A critical geography must therefore intervene to dismantle the production and maintenance of the drone fetish; a project allied to the work of feminist geographies and geopolitics that reinsert a disavowed corporeality (England 2003, 2006; Fluri 2009; Hyndman 2001, 2007; Massey 1994; Nicely 2009; Sharp 2007). Indeed, much of the military discourse is molded by the iron cast of paternalism: a feminized FATA ‘rescued’ by masculine U.S. forces – without mention of the human pain and suffering.

Objects, commodities, and technologies have always mattered to the unfolding stories of our lives (Kloppenborg 1988; Latour 1993, 2005; Mintz 1985; Schivelbusch 1987; Robbins 2007; White 1996; Winner 1977), as have their hybrid couplings (Haraway 1991; Whatmore 2006). The key point is that although the drone is capable of reconfiguring political and legal life, it does so through a network. As Latour (2005:56) writes: ‘An ‘actor’ in the hyphenated expression actor-network is not the source of an action but the moving target of a vast array of entities swarming around it’ (Latour 2005:56). In other words, the autonomy and exceptional status of the drone is always-already a *production*. The Obama administration’s touting of the drone as the ‘magical solution’ to the war-on-terror is a fetishization that occludes its unbearable humanness.

Unmasking the fetish that surrounds drone warfare is critical to our project. But as we have learnt from our research into the FCR and Pakistani constitution, we need more

than this to explain its bloody usage in FATA, Pakistan – a region that ‘invites’ a technology able to utilize historical territorial contradictions.

### *Exceptional Territory*

There are two interrelated approaches to capture the spatial complexities of FATA, Pakistan. First, the region falls under Agamben’s (1998, 2005) definition of a ‘state of exception’ – where the juridical protections of law are suspended and the sovereign is able to subject the territory to unmitigated violence and torture (e.g. Gregory 2004, 2006, 2007, 2010; Ramadan 2009). Such a reading is one that illustrates the processes through which the Pakistani government turns a ‘blind eye’ to the CIA’s bombing campaign, leaving hundreds of civilians dead in its legal shadow. Second, after Elden (2009) we can consider the state of Pakistan itself as being rendered contingent. That is, given the failings of the Pakistani government to control its territory in the face of real and perceived terrorist networks, its own sovereignty is no longer guaranteed – and in the interest of maintaining territorial integrity – international intervention is pursued.

Agamben’s (1998) state of exception is a lawless space, precisely because the sovereign has mandated that it be so, and by ‘withdrawing’, the sovereign is able to enact an excess of law. The logic of sovereignty for Agamben is thus a logic founded on the very collision between an excess of law and a lack of law. This process is always already spatial, both domestically and internationally. Speaking to the former, Braun and

McCarthy (2005:808) write: 'If Guantanamo Bay revealed a democracy that was fully able and willing to use its power to cast noncitizens outside political life—a fact troubling to many but certainly not all Americans—Katrina revealed that the potential for abandoned being is present and often realized in the spaces of the nation itself, in its cities, streets, sewers, markets, housing, and hospitals'. Spaces of exception also exist around the globe, in black sites and war prisons that span an invisible geography. As Gregory (2007:226) surmises:

The very language of 'extraordinary rendition,' 'ghost prisoners,' and 'black sites' implies something out of the ordinary, spectral, a twilight zone: a serial space of the exception. But this performative spacing works *through* the law to annul the law; it is not a 'state' of exception than can be counterposed to a rule-governed world of 'normal' politics and power. It is, at bottom, a process of *juridical* othering that involves three overlapping mechanisms: the creation of special rules that withdraw legal protections...; the calculated outsourcing of war crimes to regimes known to practice torture; and the exploitation of extra-territorial sites where prisoners are detained and tortured at the pleasure of sovereign power.

If Gregory's Agamben-fuelled critique points to a networked geography of exceptional sites, a legal-lethal space where 'politico-juridical instruments [are used] to exempt categories of people from the responsibilities or the protections of the law' (Gregory 2010:177), then Elden's analytic encompasses entire states. Arguing against deterritorialized political visions, his analytic pivots on the status of territory: 'Yet while we should certainly rethink and examine, and be open to an analysis of the new, we must not forget that the war has thus far been fought with a very conventional sense of territory in mind—territory that has been targeted, bombed, and invaded' (Elden

2009:XX). By giving a detailed and empirically rich account of the U.N.'s progressive move towards intervention, Elden writes: '...a state that fails to exercise one of the standard definitions of sovereignty—effective political control of the “monopoly of legitimate physical violence” within its territory—finds that its sovereignty more generally is held to be “contingent”' (2009:162). FATA is emblematic of this process, with the failure of the Pakistani government to control its own territory rendering the FATA region vulnerable to outside intervention—in this case—the attacks of U.S. drone army.

A word of caution is necessary here. We are not saying that Pakistan *deserves* to be violently invaded because it fails to enact control of FATA. Nor are we saying that FATA's 'exceptional' status *justifies* 'exceptional' violence. We have narrated the geo-legal history of FATA by invoking Agamben's 'state of exception' not to exonerate imperial belligerence and 'blame the victim', but rather to disrupt chauvinistic portrayals of invaded peripheries as passive and listless when confronted with the active military might of the metropole. The Pakistani state, following its imperial predecessors, has actively created FATA as an exceptional region: an aberration that exists outside of the state's constitutional laws. This process of judicial abandonment, an old colonial performance, has created a volatile landscape that in turn produces conditions conducive for international intervention. But the necessary twist here is that the intervention is *itself* exceptional in the form of the Predator drone, an object with a



fetishized metaphysical status. Taken together, drone and FCR act in concert to produce the space for war in FATA, Pakistan – a topology of technology and law.

The legal space that drones operate in is thus located in the deadly residue of drone and document. The on-going silence of the CIA with respect to its drone operations in Pakistan is raising international and national criticism. Recent Congressional hearings in the U.S. have debated this, with much of the discussion centered on what counts as a legitimate ‘target’ for assassination and ‘self-defense’. Indeed, the CIA’s drone strikes are controversial precisely because they exist in a shadowy vacuum of accountability. As the UN Special Rapporteur (on extrajudicial, summary or arbitrary executions) Phillip Alston puts it, ‘Transparency is required by both [international humanitarian law] and human rights law. A lack of disclosure gives States a virtual and impermissible license to kill’ (Alston 2010). This led a prominent law professor to suggest that drone pilots could be liable for war crimes (Hodge 2010). Currently, U.S. drone attacks are justified following 9/11, an event that led Congress to grant the President the ability to use all necessary force against persons he determines planned, authorized, committed, or aided the attacks of 9/11 (‘The Authorization for Use of Military Force Against Terrorists’, Public Law 107-40). In addition to domestic law, the U.S. relies on international law in the guise of Article 51 of the UN Charter:

A targeted killing conducted by one State in the territory of a second State does not violate the second State's sovereignty if either (a) the second State consents, or (b) the first, targeting, State has a right under international law to use force in self-defence under Article 51 of the UN Charter, because (i) the second State is responsible for an armed attack against the first State, or (ii) the second State is unwilling or unable to stop armed attacks against the first State launched from its territory. International law permits the use of lethal force in self-defence in response to an "armed attack" as long as that force is necessary and proportionate. (Alston 2010: 12)

Both the CIA and Pakistani government remain tight-lipped on the drone program, allowing it to persist in deadly silence, and continually undoing FATA's territorial integrity. This is opposed to Alston's (2010: 27) recommendation that 'If a State commits a targeted killing in the territory of another State, the second State should publicly indicate whether it gave consent, and on what basis'. U.S. State Department Legal Advisor Harold Koh has defended the drone program, arguing the attacks against suspected al-Qaeda and Taliban targets are bundled into the nation's legitimate right to self-defense: 'Koh also asserted that in targeting suspected militants via drone strikes the United States was adhering to basic international humanitarian law rules regarding distinction and proportionality. These rules, meant to protect civilians from harm, do not protect civilians absolutely' (Mariner 2010). The status of 'civilian' is therefore worryingly undermined by the drone. As one professor and legal scholar at George Washington University, puts it:

...instead of apologizing each time the wrong individual is targeted or collateral damage is caused, we should stress that *the issue would be largely resolved in short order if the abusive civilians would stop their abusive practices and fight—if they must—according to established rules of war. They cannot have it both ways...* (Etzioni 2010:67)

There is therefore much at stake in drone warfare, including the status of those civilians under the constant watch of the Predator; human beings that are so often translated into statistical and targeted calculations. In this sense, our argument is that the U.S.-led attacks in FATA result from the interactions between: (1) the drone itself (2) the legal history of Pakistan's northwest, enshrined in FCR of 1901. Both of these objects act in concert to produce an exceptional and contingent space. In this sense, territory is itself a shifting *outcome* of wider political processes. Never does it sit there, and never does it sit still.

### **Conclusion**

By the end of 2010, there will have been over 2000 drone attacks in the sovereign nation of Pakistan; one of the United States' staunchest allies in the global 'war on terror'. We have tried to explain this contradictory situation through the interactions between drone and law. In the first case, the ostensible 'nonhumanness' and autonomy of the drone is fetishized to perform an exception. In the second, the legal history of FATA demonstrates how the law can render entire regions vulnerable to colonial and imperial violence. Our paper is aimed at showing how technology, territory, and law are not disparate, but interactive objects in today's paradoxical Pakistan. Our conclusion is therefore as follows: drone warfare in Pakistan is *unbearably human*: from the fetishized drones to the legal history of FATA, both are social foundations to a war presented to the world as robotic

and surgical. The deployment of futuristic, semi-autonomous drones in Pakistan is allied with long-standing, juridical-territorial practices that produce a space of exception – where those subject to the violence wrought by the coming robot army have little or no recourse, nationally or internationally.

The deadly situation in FATA has illustrated how the U.S. uses the Predator to perform an exception in a far-away sovereign nation. But these exceptional tools are fast becoming *everyday* tools. The U.S. has a history of transferring military technology to the domestic sphere. Since 2006, three Predator drones have been used to monitor the Arizona-Mexico border by the Border Patrol (Lavandera 2010). The police in the U.S. and U.K. are keen to use these robots in the sky to monitor criminals on the ground. In true Orwellian fashion, these drones will be deployed ‘...for routine monitoring of motorists, protesters, agricultural thieves and illegal dumping’ (United Press International 2010). Perhaps the most bizarre creation is the ‘mosquito’, a controversial U.K. drone that emits a high-frequency sound to disperse ‘suspicious people under 20’. At political rallies in Washington and New York, mechanical-like ‘dragonflies’ have been spotted spying on protestors – and these robobugs are reminders of the slow march of the drone army in cities and towns across the world, where everyone will soon be watched, targeted, and tracked. But just how long before these drones start acting together in autonomous, self-aware, self-healing, self-recharging SWARMS? And how long before they are equipped with ‘non-lethal’ weaponry to subdue the public? Such questions are no

longer in the realm of alarmist fantasy. 'The difference between science fiction and science is timing' (Colonel Christopher B. Carlisle, quoted in U.S. Army 2010:4).

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### **References**

Agamben G (1998) *Homo Sacer: Sovereign Power and Bare Life*. Stanford: Stanford University Press

Agamben G (2005) *State of Exception*. Chicago: University of Chicago Press

Agnew J (2003) American hegemony into American empire? Lessons from the invasion of Iraq. *Antipode* 35(5):871–885

Ali Z (2009) Fata reforms: Govt follows in the footsteps of predecessors. <http://www.dawn.com/wps/wcm/connect/dawn-content-library/dawn/news/pakistan/provinces/04-govt-follows-footsteps-predecessors-qs-06> Accessed August 2010

Al Jazeera (2009) Pakistan: State of the nation. <http://english.aljazeera.net/focus/2009/08/2009888238994769.html> Accessed May 2010

Alston P (2010) UNHRC: Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions: Study on targeted killings. <http://www2.ohchr.org/english/bodies/hrcouncil/docs/14session/A.HRC.14.24.Add6.pdf> Accessed August 2010

Amnesty International (2010) 'As if hell fell on me': The Human Rights Crisis in Northwest Pakistan. London: Amnesty International Publications

Amoore L (2009) Algorithmic war: Everyday geographies of the war on terror. *Antipode* 41(1):49–69

Associated Foreign Press (2010) Iran Guards to deploy 'bomber drone' by next March. [http://news.yahoo.com/s/afp/20100424/wl\\_mideast\\_afp/iranmilitarydrones\\_20100424100757](http://news.yahoo.com/s/afp/20100424/wl_mideast_afp/iranmilitarydrones_20100424100757) Accessed May 2010

BBC News (2010) Israel unveils new drone that can fly to Gulf. [http://news.bbc.co.uk/2/hi/middle\\_east/8527268.stm](http://news.bbc.co.uk/2/hi/middle_east/8527268.stm) Accessed May 2010

Belczyk J (2010) House subcommittee examines legality of unmanned drone strikes. *Jurist*. <http://jurist.law.pitt.edu/paperchase/2010/04/house-subcommittee-examines-legality-of.php> Accessed May 2010

Bergen, T. and Tiedemann, K. 2010. The Year of the Drone: An Analysis of U.S. Drone Strikes in Pakistan, 2004-2010. New America Foundation. <http://counterterrorism.newamerica.net/sites/newamerica.net/files/policydocs/bergentiedemann2.pdf> accessed December 2010.

Bialasiewicz L, Campbell D, Elden S, Graham S, Jeffrey A, and Williams A (2007) Performing security: The imaginative geographies of current US strategy. *Political Geography* 26:404–422

Braun B and McCarthy J (2005) Katrina and state abandonment. *Environment and Planning D: Society and Space* 23(6):802–809

Capaccio T (2010) Pentagon to Increase Stock of High-Altitude Drones. *Bloomberg Businessweek*. <http://www.businessweek.com/news/2010-02-05/pentagon-to-increase-stock-of-high-altitude-drones-update1-.html> Accessed May 2010.

Chaudri Manzoor Elahi vs. Federation of Pakistan (1975). PLD 66 Supreme Court of Pakistan.

Chow R (2006) *The Age of the World Target: Self-Referentiality in War, Theory, and Comparative Work*. Durham: Duke University Press

Coatman J (1931) The North-West frontier province and trans-border country under the new constitution. *Journal of the Royal Central Asian Society* 18(3): 335–348

Constitution of Pakistan (1973) <http://www.unhcr.org/refworld/docid/47558c422.html>  
Accessed August 2010

Deleuze G and Guattari F (1987) *A Thousand Plateaus*. Minneapolis: The University of Minnesota Press

Elden S (2009) *Terror and Territory: The Spatial Extent of Sovereignty*. Minneapolis: University of Minnesota Press

Embree A (1977) Pakistan's imperial legacy. In A Embree (ed) *Pakistan's Western Borderlands: The Transformation of a Political Order*. (pp 24-41). New Delhi: Vikas Publishing House

England K (2003) Towards a feminist political geography? *Political Geography* 22(6):611–616

England K (2006) Producing feminist geographies: Theory, methodologies and research strategies. In S Aitkin and G Valentine (eds) *Approaches to Human Geography* (pp 286-297). London and Thousand Oaks, CA: Sage

Etzioni A (2010) Unmanned Aircraft Systems: The Moral and Legal Case. *JFQ*, Issue 57, 2nd Quarter:66-71

Fluri J L (2009) Geopolitics of gender and violence 'from below'. *Political Geography* 28:259–265

Government of NWFP vs. Muhammad Irshad (1995). PLD 281 Supreme Court of Pakistan.

Gregory D (2004). *The Colonial Present: Afghanistan, Palestine, and Iraq*. Malden, Massachusetts: Blackwell

Gregory D (2006) The black flag: Guantánamo Bay and the space of exception. *Geografiska Annaler B* 89:405–427

Gregory D (2007) Vanishing points: Law, violence, and exception in the global war prison. In D Gregory and A Pred (eds) *Violent Geographies Fear, Terror, and Political Violence* (pp 205-236). New York: Routledge

Gregory, D. 2010. War and peace. *Transactions of the Institute of British Geographers* 35(2):154–186

- Gorman S, Dreazen Y J, and Cole A (2009) Insurgents hack U.S. drones. *The Wall Street Journal*. <http://online.wsj.com/article/SB126102247889095011.html> Accessed May 2010.
- Harvey D (2005) *The New Imperialism*. Oxford: Oxford University
- Haraway D J (1988) Situated knowledges: The science question in feminism and the privilege of partial perspective. *Feminist Studies* 14(3):575–599
- Haraway D J (1991) *Simians, Cyborgs, and Women: The Re-Invention of Nature*. London: Free Association
- Heidegger M (1938) *The Age of the World Picture*.  
[http://www3.dbu.edu/Naugle/pdf/world\\_picture.pdf](http://www3.dbu.edu/Naugle/pdf/world_picture.pdf) Accessed July 2010
- Hodge N (2010) The legal case for robot war gets complicated. *Wired.com*  
<http://www.wired.com/dangerroom/2010/04/the-legal-case-for-robot-war-gets-complicated/#ixzz0muqDHVCj> Accessed May 2010
- Hyndman J (2001) Towards a feminist geopolitics. *The Canadian Geographer* 45(2):210–222
- Hyndman J (2007) Feminist geopolitics revisited: Body counts in Iraq. *The Professional Geographer* 59(1):35–46
- Jamail D (2010) The US military: A mindset of barbarism, part 2. *Truthout*.  
<http://www.truthout.org/the-us-military-a-mindset-barbarism-part-256724> Accessed May 2010
- Jones S H and Clarke D B (2006) Waging terror: The geopolitics of the real. *Political Geography* 25:298–314
- Kaplan C (2006a) Mobility and war: The cosmic view of U.S. air power. *Environment and Planning: A* 38: 395–407
- Kaplan C (2006b) Precision targets: GPS and the militarization of consumer identity. *American Quarterly* 58(3):693–713
- Kaplan C (2009) Everything is connected: Aerial perspectives, the revolution in military affairs. <http://www.hastac.org/informationyear/ET/BreakoutSessions/7/Kaplan> Accessed May 2010



Khan H (2009) *Constitutional and Political History of Pakistan* (2nd edn). Oxford: Oxford University Press

Kloppenborg J (1988) *First the Seed: The Political Economy of Plant Biotechnology*. Cambridge: Cambridge University Press

Latour B (1993). *We Have Never Been Modern*. New York: Harvester Wheatsheaf

Latour B (2005) *Reassembling the Social: An Introduction to Actor-Network-Theory*. Oxford: Oxford University Press

Lavandera E (2010) Drones silently patrol U.S. borders. CNN.  
<http://www.cnn.com/2010/US/03/12/border.drones/index.html> Accessed May 2010

Mahmud T (2010). Colonial cartographies and postcolonial borders: The unending war in and around Afghanistan. *Brooklyn Journal of International Law* 20(1) Seattle University School of Law Research Paper No. 10-11. Available at SSRN:  
<http://ssrn.com/abstract=1596835>

Mariner J (2010) The legality of drone warfare. Counterpunch.  
<http://www.counterpunch.org/mariner04282010.html> Accessed May 2010

Marx K (1991). *Capital: Volume 1: A Critique of Political Economy*. London: Penguin

Massey D (1994). *Space, Place, and Gender*. Minneapolis: University of Minnesota Press

McDonald F (2007) Anti-Astropolitik - outer space and the orbit of geography. *Progress in Human Geography* 31(5):592–615.

Mintz S (1985) *Sweetness and Power: The Place of Sugar in Modern History*. New York: Viking Penguin

Mockenhaupt B (2009) We've seen the future, and it's unmanned. Esquire Magazine.  
<http://www.esquire.com/features/unmanned-aircraft-1109> Accessed May 2010.

National Assembly of Pakistan (2010)  
[http://www.na.gov.pk/passed\\_bill/passed\\_bill\\_2010/constitution\\_eighteenth\\_amendment\\_act2010\\_080410.pdf](http://www.na.gov.pk/passed_bill/passed_bill_2010/constitution_eighteenth_amendment_act2010_080410.pdf) Accessed July 2010

Nawaz S (2009) Fata – a most dangerous place: Meeting the challenges of militancy and terror in the Federally Administered Tribal Areas of Pakistan. Washington D.C.: Center for Strategic and International Studies.

Nicely E P (2009) Placing blame or blaming place? Embodiment, place and materiality in critical geopolitics. *Political Geography* 28(1): 19–22

Ofek H (2010) The tortured logic of Obama's drone war. *The New Atlantis* 27:25–44

Pitzke M (2010) How drone pilots wage war. Spiegel Online.  
<http://www.spiegel.de/international/world/0,1518,682420,00.html> Accessed May 2010

Ramadan A (2009) Destroying Nahr el-Bared: Sovereignty and uricide in the space of exception. *Political Geography* 28: 153–163

Reid-Henry S (2007) Exceptional Sovereignty? Guantanamo Bay and the Re-Colonial Present. *Antipode* 39(4): 627-648

Robbins P (2007) *Lawn People: How Grasses, Weeds, and Chemicals Make Us Who We Are*. Philadelphia: Temple University Press

Roberts S, Secor, A and Sparke M (2003) Neoliberal Geopolitics. *Antipode* 35(5): 886–897.

Rose G (2001) *Visual Methodologies: An Introduction to the Interpretation of Visual Materials*. London; Thousand Oaks, CA: Sage

Schivelbusch W (1987) *The Railway Journey: The Industrialization and Perception of Time and Space*. Berkeley: University of California Press

Schmitt E and Drew C (Apr 7, 2009). More drone attacks in Pakistan planned. The New York Times. A15

Sharp J (2007) Geography and gender: finding feminist political geographies. *Progress In Human Geography* 31: 381–387

Shaw I G R (2010) Playing war. *Social and Cultural Geography*, 11(8): 789–803

Singer P W (2010) War of the machines. *Scientific American*, 203: 1

Spain J (1977). Political problems of a borderland. In A Embree (ed) *Pakistan's Western Borderlands: The Transformation of a Political Order*. (pp 1-24). New Delhi: Vikas Publishing House

St. Fleur, Y (2009) Aerial belligerency within a humanitarian rhetoric: Exploring the theorizing of the law of war/terrorizing of civilians' rights nexus. *Chinese Journal of International Law* 8(2):347–373

Tanguay-Renaud F (2002) Post-colonial pluralism, human rights and the administration of criminal justice in the Federally Administered Tribal Areas of Pakistan. *Singapore Journal of International and Comparative Law* 6:541–596

Tuathail G (2003) "Just out looking for a fight": American affect and the invasion of Iraq. *Antipode* 35(5): 856–870

United Press International (2010) Spy drones will monitor U.K. citizens. [http://www.upi.com/Top\\_News/International/2010/01/23/Spy-drones-will-monitor-UK-citizens/UPI-31351264292495/](http://www.upi.com/Top_News/International/2010/01/23/Spy-drones-will-monitor-UK-citizens/UPI-31351264292495/) Accessed May 2010

United States Army (2010) U.S. Army unmanned aircraft systems roadmap 2010-2035. U.S. Army UAS Center of Excellence. <http://www.rucker.army.mil/usaace/uas/US%20Army%20UAS%20RoadMap%202010%202035.pdf> Accessed May 2010

United States Air Force (2009) MQ-1 Predator Factsheet. <http://www.af.mil/information/factsheets/factsheet.asp?id=122> Accessed May 2010

United States Government Accountability Office (2010) Unmanned Aircraft Systems: Comprehensive Planning and a Results-Oriented Training Strategy Are Needed to Support Growing Inventories. <http://www.gao.gov/new.items/d10331.pdf> Accessed May 2010

Wark M (2007) *Gamer Theory*. London; Cambridge, MA: Harvard University Press.

Watson A (2010) US hegemony and the Obama administration: Towards a new world order? *Antipode* 42(2): 242–247

Weinberger S (2010) In cat vs. drone, cat wins. AOL News. <http://www.aolnews.com/world/article/in-cat-vs-drone-cat-wins/19450090> Accessed May 2010

Whatmore S (2006) Materialist returns: Practising cultural geography in and for a more-than-human world. *Cultural Geographies* 13(4):600–609

White R (1996) *The Organic Machine: The Remaking of the Columbia River*. New York: Farrar, Straus and Giroux.

Williams A J (2010) A crisis in aerial sovereignty? Considering the implications of recent military violations of national airspace. *Area* 42(1): 51–59.

Winner L (1977) *Autonomous Technology: Technics-out-of-control as a Theme in Political Thought*. Cambridge: MIT Press

Woodward R (2005) From military geography to militarism's geographies: Disciplinary engagements with the geographies of militarism and military activities. *Progress in Human Geography* 29:718–740.

Virilio P (1989) *War and Cinema: The Logistics of Perception*. London: Verso

## Appendix C: Predators in the Sky: Investigating Military Drones

*Under review at Environment and Planning D: Society and Space*

This paper argues that unmanned military robots called ‘drones’ are reconfiguring the metaphysics of warfare, and in doing so, are reshaping the conditions between state, space, and people. The paper begins by reviewing the economics of the robotic industry, noting their rapid proliferation and procurement by the Department of Defense. Second, the paper takes stock of a selection of military ‘roadmaps’ outlining the future of warfare, all of which point towards an increased level of technological autonomy. Third, the ‘object-oriented philosophy’ of Graham Harman is used to describe how drones reduce the complexity of objects and worlds to metaphysical ‘caricatures’. The politics of this paper is therefore rooted in a sustained analysis of the violent realities produced by military drones.

### Introduction

Isaac Asimov’s science-fiction book *I, Robot* (1950) contained ‘The Three Laws of Robotics’ designed to protect humans from their metallic creations. They were as follows: (1) ‘A robot may not injure a human being or, through inaction, allow a human being to come to harm’. (2) ‘A robot must obey orders given to it by human beings except where such orders would conflict with the First Law’. (3) ‘A robot must protect its own existence as long as such protection does not conflict with the First or Second Law’. Fifty years later, Asimov’s fiction has become fact. As their names make clear, robots called ‘Predators’, ‘Reapers’, and ‘Hunters’—integral to the U.S. military machine—are built to violate Asimov’s First and Second Laws. And as their number, intelligence, and lethality multiply; so too are the geographies of war reconfigured.

A robot, simply put, is an artificial agent capable of sensing and interacting with the world, and is controlled either by person or computer program. And on the ground, in the air, and underwater, robots are roaming the world like never before: disarming roadside bombs in Afghanistan, dropping bombs in Pakistan, and gliding undetected in ocean harbors. But it wasn't always like this. The original 2003 U.S.-led invasion of Iraq had *zero* robots. By the close of 2004, this number was still only 150. Yet in 2005 it was 2,400 and by the end of 2008 the figure had leapt to a staggering 12,000 (Singer, 2009, page 32). Indeed, over the course of 'Operation Enduring Freedom' and 'Operation Iraqi Freedom', U.S.-led forces have used unmanned ground vehicles for over 30,000 missions, with flying drones notching half a million hours in the sky (Department of Defense 2009, page XIII). Today there are some 32 nations developing hundreds of unmanned drones in a multi-billion dollar industry.

One of the most popular of these unmanned drones is the 'Predator' (see Figure 1). Costing \$4 million, the robot is manufactured by General Atomics Aeronautical Systems, and carries two laser-guided 'AGM-114 Hellfire' missiles under its wings. Predators have gained notoriety in Pakistan, where they are regularly used by the CIA to carry out aerial bombings on suspected Al-Qaeda and Taliban targets. These legally dubious strikes have claimed the lives of close to 2,000 people - a quarter of which were civilian (Berger and Tiedemann 2010). But the future of military robots points to an increasingly

*autonomous* destiny. Consider, for example, one recently published U.S. Army blueprint. Tellingly, the paper contains a strategic scenario in which miniature robots called ‘Nanos’ will work together in a marauding cloud:

By 2025, Nanos will collaborate with one another to create swarms of Nanos that can cover large outdoor and indoor areas. The swarms will have a level of autonomy and self-awareness that will allow them to shift formations in order to maximize coverage and cover down on dead spots. Nanos will possess the ability to fly, crawl, adjust their positions, and navigate increasingly confined spaces. (U.S. Army, 2010, page 65)

Autonomous and intelligent drones are perhaps only a step or two away from realization. But military robots are *already* autonomous, in the sense that they themselves act upon the world, opening up certain possibilities while simultaneously closing others down. Accordingly, autonomy can be thought of both technologically (i.e. robots making decisions alone) and philosophically (i.e. objects transforming other objects in the world). As such, this paper not only adds to the list of ‘objects’ to be taken seriously by critical geographers, but argues that objects—in this case drones—are thoroughly *metaphysical*, capable of slicing and dicing bits of reality to produce the world in their own image. The contention is that these deadly technologies are shifting the very conditions of how people, state, and space are constellated.

**Figure 1: MQ-1B Predator** (Source: U.S. Air Force Online Factsheet 2010)



The structure of the paper is as follows. In the first section, I introduce the colorful cast of robots used by the military, and note the underlying economics at stake. The second section gets to grips with ‘autonomy’, by reviewing key U.S. military documents that outline the future of robotic warfare, which is then discussed through the work of Langdon Winner. Third, I put the ‘object-oriented philosophy’ of Graham Harman (2002, 2005) to work, and argue that the drone is a metaphysical object – one that reduces humans and their complex geographies to digital caricatures. The conclusion pulls all of this together to argue that the military logic of the battlefield is fast becoming the general spatial condition for the interaction between people and state.



## Meet the Robots

The concept of mechanical beings stretches throughout history, from Greek and Egyptian mythology to Leonardo Da Vinci's fantastical 'helicopter'. But it was only in the 20<sup>th</sup> century that technology began to catch up with imagination. In World War II the Germans were first to use a remotely piloted plane, a miniature radio-guided bomb called the 'FX-1400'. But robots were never quite the superstars of twentieth century military zeitgeist, with a muted presence in both the Cold War and Gulf War. So what changed? Commercially, the first industrial robot was the 'T3', created in 1973 by General Motors for the mass production of automobiles. And by 2010, commercial robots had an intimate presence in homes throughout the world. For example, the 'Roomba' is a small disc-shaped robot made by the American company iRobot, and has annual sales of over 2.5 million. Costing a few hundred dollars, it is an autonomous robot designed to vacuum homes without any user intervention. Indeed, by 2017, the market for personal robotics is set to earn \$17 billion (Baburajan, 2010).

The shift to unmanned military robots and technologies in the U.S. was driven by Senator John Warner, the former Chairman of the Senate Armed Services Committee. The reasons he gave for their development were both obvious—to reduce U.S. casualties—and not so obvious: to galvanize the recruitment of young people by using 'cool' technology (Singer, 2009, 58). Specifically, in Section 220 of the *Floyd D. Spence*

*National Defense Act for Fiscal Year 2001* (Public Law 106-398), Congress mandated to the Department of Defense that: (a) by 2010, one third of the aircraft used in combat should be unmanned; (b) by 2015 one third of ground vehicles should be unmanned (Department of Defense, 2009b, page 5).

To accommodate this mandate, the Department of Defense requested \$6 billion for the development of unmanned aerial systems (USGAO, 2010). Growth in demand for new military technology has become a windfall for private-sector defense contractors. At iRobot, in the same labs responsible for giving the world cleaner carpets, the PackBot was born, one of the company's biggest successes – and responsible for driving the \$298 million revenue it made in 2009. The PackBot is a flat and rugged device with an extendable and manipulable 'arm' that has a camera attached to it. The robot is stationed in Afghanistan and Iraq and is used by the military for bomb disposal, checkpoints, and 'route clearance' (iRobot, 2010). Another big robot contractor is Foster-Miller, which was bought by QinetiQ for \$163 million in 2004. Foster-Miller creates the popular TALON combat robots, which can be mounted with anything from machine guns to grenade launchers. Both of these companies represent a fraction of the \$600 billion the U.S. spends on defense annually (Stockholm International Peace Research Institute, 2010).

As well as ground-based robots such as the PackBot and TALON, unmanned aerial systems are heavily deployed throughout the Middle-East. The military currently has close to 7,000 unmanned aircraft, with 39 combat-air patrols flying over Iraq and Afghanistan constantly, a number expected to rise to 65 a day by 2013. The most numerous of these drones is the 'Raven' (made by AeroVironment), a three-foot long, hand-launched miniature plane. The Army has close to 1,000 of these 'flying cameras' that are able to operate for distances of up to 10km (Shachtman, 2005). If the Raven is favored by the U.S. Army, then the Predator is the Air Force's *cause célèbre*. Having made their debut in the Balkans, the Air Force operates 140 of these 27 foot, 1,130 pound drones, which are piloted thousands of miles away in the Western United States. The Air Force operates three Predator squadrons and three Air National Guard predator squadrons, with the combined fleet reaching 170,000 flight hours in July 2006 (Department of Defense, 2009, 63).

Other robots in deployment and development seem to have taken inspiration from science-fiction. The 'Wasp' is a minute, 11 inch drone used for front-line reconnaissance; the prototype 'Battlefield Extraction-Assist Robot' (BEAR) is an agile (and human-looking) 'medical bot' that will lift and carry a casualty out of harm's way; out on the ocean, unmanned ships such as the SEAFOX have already been delivered to the Navy, accompanied by a variety of submarine drones (not forgetting the mine-sniffing RoboLobsters). And finally, the still classified X-41 is an unmanned plane for use

in outer-space. Such proliferation of military robotics means the Army alone will train more than 2,100 UAS operators by 2012, an 800 percent increase over 2003 (U.S. Army, 2010, page 1). It has also led to the start-up of groups like the 'International Committee for Robot Arms Control', a 'website for those who are concerned about the pressing dangers that military robots pose to peace and international security and to civilians in war' (<http://www.icrac.co.cc/>).

This past section has only hinted at the range of unmanned technologies that the military has developed and is currently researching. Once the preserve of science-fiction, robots are now displacing human soldiers on the battlefield. But while humans are physically extracting themselves from the frontlines, their role in producing autonomous robots remains as real as ever. What requires more discussion are the military tropes and technologies that drive these objects towards an autonomous future.

### **Towards Autonomy**

Autonomy is a slippery concept with a multitude of meanings. This paper takes hold of three overlapping definitions. First, there is the U.S. military's use of autonomy to describe robots that can think and act for themselves. Second, there is Langdon Winner's (1977) idea of autonomy as the production of social order through

technological means. Finally, there is the metaphysical autonomy signaled by the work of Graham Harman (2002, 2005). In what follows, I pass through each of these definitions – and at every step of the way – the aim is to show the inherently political quality of drones themselves. I want to show how and why these objects matter.

The U.S. military and Department of Defense regularly produces ‘roadmaps’ that provide glimpses into the brains behind the proliferation of unmanned systems. In this section, I flag some of the key points contained in these documents. The reason for doing so is to draw attention to the exponential development of U.S. robotics – a development that deserves philosophical attention. By demonstrating their increased autonomy, I hope to shift attention to the specifically political nature of these objects. The selected roadmaps are as follows: *Unmanned Aircraft Systems Roadmap, 2005-2030* (Department of Defense, 2005), *Unmanned Systems Roadmap, 2007-2032* (Department of Defense, 2007), *United States Air Force Unmanned Aircraft Systems Flight Plan 2009-2047* (U.S. Air Force, 2009), *Unmanned Systems Integrated Roadmap, 2009-2034* (Department of Defense, 2009), and finally *U.S. Army roadmap for Unmanned Aircraft Systems 2010-2035* (U.S. Army, 2010).

The shared aims of these documents is to identify the opportunities that unmanned technologies offer, as well as the organizational changes needed to transition towards a hybrid military of human and robots. In nearly all cases, the adoption of unmanned

technologies is justified by “The ability to operate in high-threat environments without putting warfighters at risk is not only safer but potentially more effective than the use of current manned systems” (Department of Defense, 2007, page I). The result has been “...unmanned systems transformed from being primarily remote-operated, single-mission platforms into increasingly autonomous, multi-mission systems. The fielding of increasingly sophisticated reconnaissance, targeting, and weapons delivery technology has not only allowed unmanned systems to participate in shortening the “sensor to shooter” kill chain, but it has also allowed them to complete the chain by delivering precision weapons on target” (Department of Defense, 2009, page XIII).

Unmanned systems are useful because they do the ‘dirty and dangerous’ jobs, as well carry out surveillance from the skies and seas. But why is there the drive towards autonomy? First, machines can react faster and more accurately than human soldiers. As the U.S. Air Force puts it: “Future UAS able to perceive the situation and act independently with limited or little human input will greatly shorten decision time. This Perceive-Act line is critical to countering growing adversary UAS threats that seek automation capabilities” (U.S. Air Force, 2009, page 16). Second, it saves the military money if a single operator can oversee multiple autonomous drones at once, rather than a more costly 1:1 ratio. In the words of the Department of Defense (2009, page 32), autonomy is able to “...decrease the operator workload with the goal of a single operator controlling multiple USVs [unmanned surface vehicle], and the need to

conduct missions over the horizon which may be beyond the range of the communications systems". And finally, autonomy allows drones to continue working if they lose communication with their pilot, thus reducing their 'vulnerability' to environmental radio interference.

The Department of Defense (2009) lists a number of autonomous scenarios for the near and far future, including autonomous patient extracting from the battlefield, automated aircraft refueling, autonomous targeting, and even autonomous undersea mine-laying. These developments point to a modular and decentralized military war machine, where decisions are increasingly made by sophisticated robots. And this is where the science-fiction overture really starts hitting its high notes. The military envisions drones being able to 'swarm' together, fully cooperate, and even heal for themselves. Take the following quotes, all of which celebrate an autonomous future of interacting robots:

Future UA will evolve from being robots operated at a distance to independent robots, able to self-actualize to perform a given task. (Department of Defense, 2005, page 52)

As autonomy and automation merge, UAS will be able to swarm (one pilot directing the actions of many multi-mission aircraft) creating a focused, relentless, and scaled attack. (U.S. Air Force, 2009, page 16)

The final portfolio step leverages a fully autonomous capability, swarming, and Hypersonic technology to put the enemy off balance by being able to almost instantaneously create effects throughout the battlespace. Technologies to perform auto air refueling, automated maintenance, automatic target engagement, hypersonic flight, and swarming would drive changes across the

DOTMLPF-P spectrum. The end result would be a revolution in the roles of humans in air warfare. (U.S. Air Force, 2009, page 50)

This transition to autonomy relies on improving the linkages between human and machine, with a movement towards a techno-biological symbiosis:

Autonomy and robustness are improved by networking manned and unmanned systems into a more tightly coupled combat system that will improve our knowledge of the battlespace, enhance our targeting speed and accuracy, increase survivability, and allow greater mission flexibility. (Department of Defense, 2007, page 34)

Eventually, UA pilots will be wired so that the electrical signals they send to their muscles will translate into instantaneous control inputs to the UA. To paraphrase a popular saying, the future UA pilot will transition from seeing the plane to being the plane. (Department of Defense, 2005, page 52)

But this symbiosis also requires that robots become ever-more independent and intelligent:

Future UA will evolve from being robots operated at a distance to independent robots, able to self-actualize to perform a given task ... To achieve that level, machine processing will have to match that of the human brain in speed, memory, and quality of algorithms, or thinking patterns. (Department of Defense, 2005, page 52)

This kind of intelligence will allow robots to 'target' ever more accurately, including on-the-fly facial recognition:

Technological advances in artificial intelligence will enable UAS to make and execute complex decisions required in this phase of autonomy, assuming legal and policy decisions authorize these advances ... As the number of types of targets and



environmental factors increase, the complexity and time to complete the targeting increases ... Autonomous targeting systems, to include facial recognition, must be capable of learning and exercising a spectrum of missions useful to the Joint Warfighter. (U.S. Army, 2010, page 65)

And finally, this targeting may lead to the unprecedented scenario in which it is robots making the decision to kill autonomously:

As confidence in system reliability, function, and targeting algorithms grows, more autonomous operations with weapons may be considered. (Department of Defense, 2007, page 54)

Unmanned robots are set to drive the next 'revolution in military affairs', with U.S. personnel taking an increasing backseat (but by no means disappearing). That much is certain. What is not yet certain is the degree to which their autonomy will actually be realized, and much of this hinges on their artificial intelligence. Yet this is only one way of thinking about autonomy, as *self-sufficiency*. This entails that military drones are only autonomous when they can think and act for themselves without human intervention. This technological definition falls short. It implies that objects unable to think and act for themselves are inanimate *tools* to be picked up and put down. But once objects have been created, they do not simply 'sit there'. They open up new conditions of possibility and close others. If the aim of this paper is to see drones as metaphysical, then the intermediary step is found in the science and technology studies of Langdon Winner, who sees the machines and infrastructures of the world as political.

In an important text, Winner (1977, page 277) writes: “Technical systems become severed from the ends originally set for them and, in effect, reprogram themselves and their environments to suit the special conditions of their own operation. The artificial slave gradually subverts the rule of its master”. In this sense, a ‘passive’ definition of objects is inverted. Even remote-controlled drones influence the field of possibility for pilots and the war machine more generally. Winner calls this ‘reverse adaptation’ - the adjustment of human ends to match technological means:

Abstract general ends—health, safety, comfort, nutrition, shelter, mobility, happiness, and so forth—become highly instrument-specific. The desire to move about becomes the desire to possess an automobile; the need to communicate becomes the necessity of having telephone service; the need to eat becomes a need for a refrigerator, stove, and convenient supermarket. Implied here also is the requirement that the *whole chain of techniques and instruments* which satisfied each need is well constructed and maintained. (Winner, 1977, page 234)

Winner’s reverse adaptation points to a society that is not just social or economic, but thoroughly technological.

Every thorough-going history of the building of technological systems points to the same conclusion: Substantial technical innovations involve a reweaving of the fabric of society -- a reshaping of some of the roles, rules, relationships, and institutions that make up our ways of living together. (Winner, 1993, no page number)

And this means that technology is not just the shaping of inanimate matter to form clever machines, useful infrastructures, and deadly robots: all technology is *inherently* political. Objects are not the dumb puppets of everyday life, but are political actors that embody, reflect, and refract power relations and conditions of power.

It is no surprise to learn that technical systems of various kinds are deeply interwoven in the conditions of modern politics. The physical arrangements of industrial production, warfare, communications, and the like have fundamentally changed the exercise of power and the experience of citizenship. (Winner, 1980, page 122)

This is not to say that technology determines power relations, social structures, or violent neo-imperialist misadventures - but that it is *active* in the distribution of power. Winner (1980) gives two types of examples to illustrate this. First, there are technological systems arranged to produce social order. Take, for example, the design of university campuses in the 1960s to inoculate student protests. Second, there are types of technologies that are *inherently* political. The very existence of nuclear bombs, for example, necessitates a non-democratic rule of experts and a hierarchical rule of law. "As long as it exists at all, its lethal properties demand that it be controlled by a centralized, rigidly hierarchical chain of command closed to all influences that might make its workings unpredictable. The internal social system of the bomb must be authoritarian; there is no other way" (Winner, 1980, page 131). And as the next section will argue, the very existence of drones carries its own metaphysical conditions.

In summary then, technology is not autonomous because it is independent of its conditions, but is autonomous precisely *because* it is enmeshed within its conditions – reworking, reshaping, and reconfiguring socio-political life. If philosophers have for too long ignored technology as a worthy topic, it is precisely because they tended to assume objects were neutral tools, rather than centers of force relations. This investigation of robotic drones is now prepared to see autonomy in this important light, and takes us towards what could be called a military metaphysics.

### **Metaphysical Objects**

I will show that objects themselves, far from the insipid physical bilks that one imagines, are already aflame with ambiguity, torn by vibrations and insurgencies equaling those found in the most tortured human moods. (Harman, 2002, page 19)

Objects matter to social and political life, and always have. From the everyday tools we use to get around in the world, to the grand machines that reconfigure entire nations, our existence is thoroughly enmeshed with the inanimate. There is nothing particularly controversial about this assertion, after all, each of us is immersed in a world of objects that either aids or restricts our lives – from the glasses on the end of our noses, to the road signs obeyed unthinkingly. While the question of whether swarms of drones will become fully autonomous and cooperative is a politically important one, the anterior question, and the fundamental one, is how the drone is already changing the ontological coordinates of warfare – and how in turn this encroaches upon the belly of society more

generally. That is not to imply a naïve technological determinism. Rather, it is to imply a metaphysics in which the drone is as autonomous as the military apparatus that controls it. In this sense, it is not the case that the drone is sovereign of its own imperial network, but rather, the conditions that are folded into and out of the object are never reducible to pilots in distant seats.

There are different ways of discussing objects as philosophical forces, all with their own political openings and closings. They can be thought of as co-constitutive of subjects, knotted in a dialectical relay. Speaking to this, Marx (1973, page 92) writes: “Production thus not only creates an object for the subject, but also a subject for the object”. He later extends this to think about the interactions of humans and machines: “The worker’s activity, reduced to a mere abstraction of activity, is determined and regulated on all sides by the movement of the machinery, and not the opposite” (page 693). Latour (1993, 2005) chooses not to place special emphasis on humans, casting them alongside nonhumans as ‘actants’ capable of mediating each other in a *network*, while assemblage theory places its emphasis on relations (DeLanda, 2006). Underneath these topographies are the neo-materialists who view the very stuff of the world as inherently lively and productive (Deleuze and Guattari, 1987; Bennett 2010). In all such cases, a type of ‘flat ontology’ is put forward to collapse the Cartesian distinction between subject and object. In Marx, this manifests itself as a reversal of Hegel’s dialectic; in Latour it manifests itself in the proliferation of hybrids; and in Deleuze the rhizome is

the untranscendable dimension of existence. All these approaches have influenced geographers discussing a 'more-than-human-world' (Braun, 2004; Bakker and Bridge 2006; Robbins, 2004; Robbins and Marks, 2010; Shaw et al. 2010; Whatmore, 2002).

Graham Harman (2002, 2005) takes quite a different approach with his 'object-oriented philosophy'. He develops the metaphysics of Martin Heidegger, specifically his analysis of tools. Heidegger (2010) argued that our everyday usage of tools (such as hammers), causes them to retreat into a non-theoretical background of activity. These objects 'withdraw' from a pure objective presence. Harman (2002) contends that, contrary to Heidegger, this withdrawal also takes place in the inanimate realm, not just between humans and their objects. Inanimate things 'unlock' each other only to a minimal extent, leaving behind an inaccessible surplus: "No object ever unlocks the entirety of a second object, ever translates it completely and literally into its own native tongue" (Harman, 2002, page 223). Harman is thus arguing that objects are metaphysical, not just "... manipulable clods of matter, not philosophical dead weight best left to 'positive science.' Instead, they are more like undiscovered planets, stony or gaseous worlds which ontology is now obliged to colonize with a full array of probes and seismic instruments—most of them not yet invented" (Harman, 2002, page 19). When objects encounter each other, there is an event of connection but also of supreme *disconnection*, which is to say, objects reduce each other to caricatures – they literally 'objectify' each other.

This has extremely important political consequences, beyond those identified in the work of Langdon Winner. It means that objects are constantly struggling to define the very contours of *reality* in a world. The politics emerges directly from this strife, given that it is metaphysically impossible for an object to ever appear completely as ‘itself’: “Hammers or melons or crystals become visible to us only in the ambivalent state of transcendence, and not “in themselves”, which would be impossible in principle” (Harman, 2002, page 93). This struggle over what parts of objects appear and what parts are thrown into shadow is an eminently political one. The drone therefore needs to be thought of in this metaphysical light: stamping out bits and pieces of reality like an incomplete jigsaw. Robots are not simply instruments—extensions of a superior human intentionality—but are *themselves* responsible for constituting their conditions of existence. In Harman’s (2002, page 212) words, “All objects constitute their surroundings retroactively—objects are retroviruses, injecting their own DNA back in this nucleus of everything they encounter”. In the next section, I will speculate upon the political consequences of the drone as a ‘metaphysical retrovirus’.

### **Towards a Military Metaphysics**

If objects do not unlock the ‘totality’ of their being, but only ever connect on a superficial level, it follows that the world is bursting with caricature, parallax, and metaphor. And it follows directly that when things do relate, they do so vicariously –

objects are never completely honest with each other: “When two rocks smash together, what occurs is not some impossible fusion of two substances, but rather a marriage of two caricatures, two limited sets of features siphoned by the rocks from one another...” (Harman, 2005, page 95). What Harman fails to discuss is the explicitly *political* consequences of this object-oriented philosophy. Is it not precisely the case that objects politicize other objects, in the sense of an ontological reduction? Put differently, all objects are in the end alien towards one another. My argument is as follows: the drone reduces all objects it surveys and destroys to its own caricature. Here, I specifically mean ‘drone’ as the flying object used by the military for surveillance and air strikes. In this sense, it matters little whether it is a Predator or Reaper. This is not to say that the unique technologies do not matter, but rather, that unmanned robotics both produce and are produced by similar metaphysical conditions. The political moment is always located in the contingent translations that the drone performs, for example, when humans become insurgents and death becomes digitized. In what follows, I want to speculate on the type of caricatures that the drone performs.

If the analysis that follows is abstract, it is not written in a way to frustrate the reader, but rather, to problematize the straightforward reading of drones as ‘weapons’ divorced from any kind of philosophical quality. It is entirely necessary to show that these robots are harbingers of a violent metaphysical condition.



The drone is an object of military surveillance, central to the 'Global War on Terror', with military practices rapidly becoming 'reversed engineered' around it. Decisions are made quickly over computer interfaces, intelligence is blindingly visual, and spatial logics such as 'kill-boxes' proliferate. The drone becomes the de facto platform for military strategy and decisions, as doctrine gravitates towards the conditions it sanctions. As General Petraeus, head of the U.S. command puts it: "We can't get enough drones" (quoted in Capaccio, 2010, no page). But the surveillance it sanctions is already a metaphysical reduction, since the drone 'sees' a simplified world, contaminated with its own technological logics. Essentially, the drone performs a 'presencing' of the temporal, as gigabytes of visual data are instantly broadcast half-way around the world to pilots in the western United States. In this sense, the world that the drone translates into its own logic is not only permanently present, but is devoid of the complex geographies that texture it. Martin Heidegger (2010) is important on this point. His philosophical concept of 'Dasein' (being-there) details the non-dualistic loop of interaction between human-beings and their worlds, or their everyday 'being-in-the-world'. Dasein is forever thrown in a world that it cares about, dwells within, and encounters with others:

The formal existential totality of the ontological structural whole of Dasein must thus be formulated in the following structure: the being of Dasein means being-ahead-of-oneself-already in (the world) as being-together-with (innerworldly being encountered). This being fills in the significance of the term care... (Heidegger, 2010, page 186)

This being-in-the-world is temporalized by Dasein, as it looks beyond its current situation to its past and future:

We find ourselves delivered to a situation that must be dealt with somehow (past). Yet we are not mere slaves to this situation, since we go to work on our current situation by glimpsing possibilities in it that we can try to actualize (future). Finally, every moment of factual life is a profound tension between what is given to us and how we confront it (present). Life is a kind of unrest, forever torn between two poles of reality. Life is movement, or 'motility'. (Harman 2007, pages 27-28)

The drone translates this multi-dimensional sphere of activity, this bubbling lifeworld that stretches from a murky past to a veiled future, into a frozen ontic surface. But a word of caution on this point – I am not simply restating Heidegger's critique of technology in his famous essay on 'enframing'. In 'The Question Concerning Technology', Heidegger argues that technology expresses an underlying human tendency to calculate the world, put it into boxes, and render nature as a stockpile of raw materials – which then reflects back on to humans, who become the same alienated 'standing reserve' they project upon the globe.

The mistake Heidegger makes is to separate enframing as a mode of being from beings themselves. In the same essay he states that 'technology' is not reducible to machines, but is the historical outcome of scientific reasoning. Accordingly, Heidegger's philosophy retreats from the metaphysical strife of objects themselves. But Harman's point is that objects are ontic *and* ontological, based on the types of relations they enter into. That is

to say, objects sketch an ontic caricature from an ontological canvas. This means that a drone doesn't simply express an *a priori* technological nihilism – it is an active participant in caricaturing the world around its own metaphysical DNA. In the case of those human-beings watched by drones in Afghanistan, Iraq, and Pakistan, the totality of their being-in-the-world is denied – as they become hollow infrared surfaces.

The drone thus embodies a metaphysical paradox: its optics can zoom for countless miles, but with each higher resolution, with each level of specificity, the drone gets further away from the complexity of what it sees (see also Chow, 2006; Gregory, 2010; Kaplan, 2006). It is thus falsely intimate; caricaturing all that is visible and forgetting all that is not visible, lifting the so-called 'fog of war' only to refract it, disguise it. The drone is a transcendent watchman, and performs the same 'god-trick' as others have noted (Haraway 1991). It is therefore a disembodied and vertical technology, denying the messy-fleshy violence of on-the-ground life and death. In fact, death is all-too-instantaneous to the drone's phenomenology: the emotion, hurt and pain felt for generations of people is snubbed, known only through a mausoleum of YouTube videos. As Singer (2009, page 318) writes: "The increasing use of robotics may be motivated by saving lives, but by doing so, it does affect the way the public views and perceives war. In turn, it will also affect wars' processes and outcomes, perhaps even transforming that public into the equivalent of sports fans watching war, rather than citizens sharing in its importance".

Up until now, I have used the word ‘translate’ rather loosely to describe the drone’s politicization of objects. Perhaps a better word would be ‘reconfigure’ or ‘redistribute’, since the drone redistributes the field of sensibility in a world – deciding what is seen, heard, said, and felt. Or even more simply, the drone redistributes what is visible and what is not visible. Speaking to this political of ‘visibility’, Ranciere (2004, page 13) writes:

This aesthetics should not be understood as the perverse commandeering of politics by a will to art, by a consideration of the people qua work of art. If the reader is fond of analogy, aesthetics can be understood in a Kantian sense – re-examined perhaps by Foucault – as the system of *a priori* forms determining what presents itself to sense experience. It is a delimitation of spaces and times, of the visible and the invisible, of speech and noise, that simultaneously determines the place and the stakes of politics as a form of experience. Politics revolves around what is seen and what can be said about it, around who has the ability to see and the talent to speak, around the properties of spaces and the possibilities of time.

One may here notice the similarities between Ranciere’s politics and that of Alain Badiou. For the latter, politics is also located in the shifting faultlines of what is included (visible) and what is excluded (invisible). Badiou’s (2009) philosophy specifically details how ‘worlds’ are only ever finite appearances that mask an underlying infinity, and this appearance is regulated by a ‘transcendental logic’ (see Shaw 2010a, 2010b). Ultimately then, the speculation at hand is that drones not only patrol the skies in a world – from Afghanistan to Pakistan – but simultaneously patrol the metaphysical limits of the

appearance in that world. These deadly robots become the *transcendental logic* of a world, configuring the aesthetic conditions of the sensible. Drones tear open a world only to then present it in a closed form, as their own caricature. Military drones are thus responsible for the dual opening and closing of a world, since the world it translates can never present itself in all its cruel complexities.

Of course, drones exist because of the billions of dollars that are pumped into their investment and procurement by the U.S. military. But nonetheless, the drone itself is the artist responsible for a violent caricature. These speculations are not technologically determinist (i.e. 'drone x causes event y'), but should be read as a series of statements that suggest how the drone limits the metaphysical *conditions* within a world – deciding not simply *what* objects appears, but *how* they appear.

The drone's deployment is justified, over and over again, by the idea that it actually 'saves' lives by targeting accurately, but hundreds of dead civilians in the Middle-East suggest otherwise. We should thus refuse the drone's so-called 'accuracy' altogether, inserting instead the metaphysical violence wrought by air strike after air strike, conditioning future generations of shell-shocked people and landscapes. A politics of peace is given philosophical renewal the moment the drone becomes *more* than a military tool – and becomes the dangerous metaphysical force it augurs.

## Conclusion

This paper has discussed unmanned, increasingly autonomous, robots. In the first section it reviewed the economics of the industry, as well as the variety of land, sea, and air-based technologies. This was then followed by a discussion of 'autonomy'. Several military roadmaps were analyzed, in which an autonomous destiny of swarming robots became increasingly apparent. The question of autonomy was reviewed through the work of Langdon Winner, whose theory of 'reverse adaptation' animated and politicized technology itself. As a useful stepping stone, Winner's ideas about autonomy were then extended to thinking about objects as inherently *metaphysical*. The object-oriented philosophy of Graham Harman served as the framework, casting objects themselves as riddled with mystery and strife. Particularly, his notion that objects 'objectify' each other in their relations became the anchoring point of the final section, where I argued that the drone *caricatures* the world it surveys and destroys, reducing people, space, and time into its own self-referential logic. In this sense, the overall arc of the paper has been to argue that military technologies condition the very fabric of the world, and are not de-politicized lumps of matter.

But the argument doesn't have to stop here. If one thing is certain, it is that military objects seldom stay within the military sphere. They leak into everyday life in banal and often violent ways. Drones are already used by Border Patrol to monitor the U.S.-Mexico

border, with their usage inaugurated in 2003, when Immigration and Customs Enforcement used a Predator drone to seize 2,300 pounds of marijuana and arrest 22 'illegal immigrants' (Department of Defense, 2007). The police in the U.S. and the U.K. are similarly keen to use drones "...for routine monitoring of motorists, protesters, agricultural thieves and illegal dumping" (United Press International, 2010). Another drone coming to a city near you is the 'mosquito', a controversial drone that emits a high-frequency sound to disperse 'suspicious youngsters'. And finally, drones that resemble dragonflies have been spotted in the skies of Washington and New York, spying on protesters below.

In this sense, the general practices and metaphysical conditions of the battlefield resonate with the dominant coordinates of the social sphere. What are the consequences for political geographers? The 'state' has been variously called an instrument of the ruling class (Marx, 1848; Miliband 1969), a repressive and ideological apparatus (Althusser, 1971), a form of hegemony (Gramsci, 1971), an 'effect' (Mitchell, 1999), an apparatus of capture (Deleuze and Guattari 1987), a transcendental function (Badiou, 2005, 2010), a form of biopolitics (Foucault, 2008) and sovereignty (Agamben, 1995). But what these authors fail to take into account is the nitty-gritty metaphysics of objects themselves. While certainly not to argue that these thinkers are immaterial, none of them equate material objects *as* the state (not tools, not instruments, but the state itself). Why then, can't the state be imagined as an 'empire of objects'? This would

be the collective distribution, arrangement, and caricature of everyday life by objects themselves. What would be the resultant political openings and closings of such a maneuver? All around us, the state objectifies us – at airports, hospitals, prisons, and schools – reducing us to simulacra of impossible inner kernels. Perhaps these caricatures are not *just* reducible to the conscious decisions of distant rulers, but are alive in the twisted connections of things themselves.

## References

Agamben G, 1995, *Home Sacer: Sovereign Power and Bare Life* (Stanford University Press, Stanford)

Althusser L, 1971, "Ideology and ideological state apparatuses (notes toward an investigation)", in *Lenin and Philosophy and Other Essays* (Monthly Review Press: New York) pp 127 – 186

Baburajan R, 2010, "Personal robotics market to surpass \$19 billion in 2017", <http://robotics.tmcnet.com/topics/robotics/articles/105729-personal-robotics-market-surpass-19-billion-2017.htm>

Badiou A, 2005, *Metapolitics* (Verso, London)

Badiou A, 2009, *Logics of worlds: being and event II* (Continuum, London)

Bakker K, Bridge G, 2006, "Material worlds? Resource geographies and the 'matter of nature'" *Progress in Human Geography* 30 5-27.

Berger P, Tiedemann K, 2010, "The year of the drone: an analysis of U.S. drone strikes in Pakistan, 2004-2010" <http://counterterrorism.newamerica.net/drones>

Braun B, 2004, "Modalities of posthumanism" *Environment and Planning A* 36 1352 – 1355



Capaccio T, 2010, "Pentagon to Increase Stock of High-Altitude Drones"  
<http://www.businessweek.com/news/2010-02-05/pentagon-to-increase-stock-of-high-altitude-drones-update1-.html>

Chow R, 2006. *The Age of the World Target: Self-Referentiality in War, Theory, and Comparative Work* (Duke University Press: Durham)

DeLanda M, 2006, *A New philosophy of society: assemblage theory and social complexity* (Continuum: New York)

Deleuze G, Guattari F, 1987, *A Thousand Plateaus: Capitalism and Schizophrenia* (University of Minnesota Press: Minneapolis)

Department of Defense, 2005, *Unmanned Aircraft Systems Roadmap 2005-2030*

Department of Defense, 2007, *Unmanned Systems Roadmap 2007-2032*

Department of Defense, 2009, *FY2009–2034 Unmanned Systems Integrated Roadmap*

Foucault M, 2008, *The Birth of Biopolitics: Lectures at the College de France, 1978-1979* (Palgrave: New York)

Gramsci A, 1971, *Selections from the Prison Notebooks* (International Publishers: New York)

Gregory D, 2010 "War and peace" *Transactions of the Institute of British Geographers* 35(2) 154 – 186

Haraway D J, 1991, *Simians, Cyborgs, and Women: The Re-Invention of Nature* (Free Association: London)

Harman G, 2002, *Tool-being: Heidegger and the Metaphysics of Objects* (Open Court Publishing: Peru, Illinois)

Harman G, 2005, *Guerilla Metaphysics: Phenomenology and the Carpentry of Things* (Open Court Publishing: Peru, Illinois)

iRobot Corporation, 2010, "iRobot 510 PackBot"  
[http://www.irobot.com/gi/ground/510\\_PackBot](http://www.irobot.com/gi/ground/510_PackBot)

Kaplan C, 2006, "Mobility and war: the cosmic view of U.S. air power" *Environment and Planning A* 38 395 – 407

Latour B, 1993, *We Have Never Been Modern* (Harvester Wheatsheaf: New York)

Latour B, 2005, *Reassembling the Social: An Introduction to Actor-Network-Theory* (Oxford University Press: Oxford)

Marx K, 1848, *The Manifesto of the Communist Party*  
<http://www.marxists.org/archive/marx/works/1848/communist-manifesto/>

Miliband R, 1969, *The State in Capitalist Society* (Weidenfeld & Nicholson: London)

Mitchell T, 1999, "State, Economy, and the State Effect", *State/Culture: State Formation after the Cultural Turn* Ed G. Steinmetz (Cornell University Press: Ithaca) pp 76 – 97

Ranciere J, 2004, *The Politics of Aesthetics: The Distribution of the Sensible* (Continuum: London)

Robbins P, 2004, *Political Ecology: A Critical Introduction* (Blackwell: New York)

Robbins P, Marks B, 2009, "Assemblage Geographies" in *Geographies of Difference* Eds S Smith, S Marston R Pain, J.P. Jones III (Sage Publications: Thousand Oaks)

Shachtman N 2005, 'Attack of the Drones'  
[http://www.wired.com/wired/archive/13.06/drones.html?pg=3&topic=drones&topic\\_s et=](http://www.wired.com/wired/archive/13.06/drones.html?pg=3&topic=drones&topic_s et=)

Shaw I G R, Robbins P, Jones III, J P, 2010, "A bug's life and the spatial ontologies of mosquito management" *Annals of the Association of American Geographers* 100: 373 – 392

Shaw I G R, 2010a, "Sites, truths, and the logics of worlds: Alain Badiou and human Geography" *Transactions of the Institute of Geographers* 35 431 – 442

Shaw I G R, 2010b, "WALL-E's world: animating Badiou's philosophy" *Cultural Geographies* 17 391 – 405

Singer P W, 2009, *Wired for War: The Robotics Revolution and Conflict in the 21st Century* (Penguin Press: New York)

Spellman J, 2008, "Boys with toys' expo hawks security goods"

[http://articles.cnn.com/2008-04-25/tech/security.expo\\_1\\_homeland-security-cyber-security-dhs?\\_s=PM:TECH](http://articles.cnn.com/2008-04-25/tech/security.expo_1_homeland-security-cyber-security-dhs?_s=PM:TECH)

Stockholm International Peace Research Institute, 2010, "Appendix 5A. Military expenditure data, 1999–2008" <http://www.sipri.org/yearbook/2009/05/05A> [Accessed November 10 2010]

United Press International, 2010, 'Spy drones will monitor U.K. citizens'

[http://www.upi.com/Top\\_News/International/2010/01/23/Spy-drones-will-monitor-UK-citizens/UPI-31351264292495/](http://www.upi.com/Top_News/International/2010/01/23/Spy-drones-will-monitor-UK-citizens/UPI-31351264292495/)

United States Government Accountability Office (USGAO), 2010, "Unmanned Aircraft Systems: Comprehensive Planning and a Results-Oriented Training Strategy Are Needed to Support Growing Inventories" <http://www.gao.gov/new.items/d10331.pdf>

United States Army, 2005, *U.S. Army roadmap for Unmanned Aircraft Systems 2010-2035*

United States Air Force, 2005, *Unmanned Aircraft Systems Flight Plan, 2009-2047*

Whatmore S, 2002, *Hybrid Geographies: Natures, Cultures, Spaces* (Sage: London)

Winner L, 1977, *Autonomous Technology: Technics-out-of-control as a Theme in Political Thought* (MIT Press: Cambridge)

Winner L, 1980, "Do artifacts have politics?" *Daedalus* 109(1) 121 – 136

Winner L, 1993, "How technology reweaves the fabric of society" *The Chronicle of Education* 39(48) no pages, online.