

Review article**Bug splat:****the art of the drone**

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Drone. Directed by Tonje Hessen Schei. 2014. DVD: £???.??.

Good kill. Directed by Andrew Niccol. 2014. DVD: £???.??.

Hyenas of the battlefield, machines in the garden. By Lisa Barnard. London: GOST. 2014.
£35.00. ISBN 97809574272.

Grounded. By George Brant. London: Oberon. 2013. £9.99. ISBN 9781783190393. Available
as an e-book.

5,000 feet is the best. By Omer Fast. Berlin: Sternberg. 2012. £14.50. ISBN 9783943365146.

Let him not quit his belief that a popgun is a popgun, though the ancient and
honourable of the earth affirm it to be the crack of doom.

Ralph Waldo Emerson¹

Whatever happens we have got
the Maxim Gun and they have not.

Hillaire Belloc²

For a time I would feel I belonged still to a world of straightforward facts; but the
feeling would not last long. Something would turn up to scare it away. Once, I
remember, we came upon a man-of-war anchored off the coast. There wasn't even a
shed there, and she was shelling the bush. It appears the French had one of their wars

going on thereabouts. Her ensign dropped limp like a rag; the muzzles of the long eight-inch guns stuck out all over the low hull; the greasy, slimy swell swung her up lazily and let her down, swaying her thin masts. In the empty immensity of earth, sky, and water, there she was, incomprehensible, firing into a continent. Pop, would go one of the eight-inch guns; a small flame would dart and vanish, a little white smoke would disappear, a tiny projectile would give a feeble screech – and nothing happened. Nothing could happen. There was a touch of insanity in the proceeding, a sense of lugubrious drollery in the sight; and it was not dissipated by somebody on board assuring me earnestly there was a camp of natives – he called them enemies! – hidden out of sight somewhere.

Joseph Conrad³

Drone videos have a lot to answer for. There is a revealing exchange in Laura Poitras's film about the whistle-blower Edward Snowden, *Citizenfour*, when he tells of discovering that the apparatchiks of the intelligence community watch drone videos on their desktops. The recounting is matter-of-fact – 'that really hardened me', he says, coolly – but the distaste is palpable. From behind the camera, Poitras is shocked into a rare interjection. 'In real time?' 'Yes,' confirms Snowden. 'In real time.'⁴

If there is a suggestion here of playing video games, or using pornography, such unsavoury associations are deeply embedded in the nature and culture of drone warfare. Live action is the name of the game. The drone strike is the ultimate snuff movie. The plot is as simple and satisfying as the original single reelers of the silent era, to which it bears some high-tech resemblance: the bad guys get their comeuppance, every time. The thrill is at once virtual and visceral, aesthetic and anaesthetic. Better still, it can be replayed. In George Brant's award-

winning play, *Grounded*, a monologue set out like poetry on the page, 'The Pilot' finds herself wondering:

Are those?

I didn't notice that last time

Flying through the air

Body parts

Those must be body parts

Huh

Body parts

Guilty body parts⁵

The first-generation drone to be employed in the global war on terror was christened the Predator. Its successor is the Reaper. (Is the Biblical reference deliberate? In the circumstances, it is surely a provocation. Call it one-eyed.)⁶ According to the counter-insurgency expert David Kilcullen – a declared sceptic about the strategic efficacy of drone warfare – 'Predator porn' circulates everywhere among the military in Iraq and other theatres, as a kind of relief, or release, and a semi-licit boost to morale. Significantly, he notes that it may be the only time that the soldiers ever see the enemy.⁷ As yet, comparatively few drone videos have been publicly released – that is, actual strikes. As in porn movies, 'the money shot' is the thing. However, the authorities are not above putting out the occasional trailer. In 2005 the USAF released a few clips from Iraq, archived by CNN. The broadcaster's Image Source logs are instructive. 'Samarra – High Value Target house. Army called in a Predator to hit this house after a HVT ran into it. Air Force did not know who the target was or

if the person had been killed by the strike.’⁸ And in 2010 even the modest MoD posted on YouTube a ‘good kill’ – a British kill – in Helmand province, Afghanistan, a video archived by the National Archives. The MoD’s narrative is a cautionary tale, more carefully specified and more compelling:

In this video we see footage from a Reaper from 39 Squadron [RAF] which, acting on intelligence from ground call signs, was tasked to over-fly and observe enemy activity reported as IED [Improvised Explosive Device] emplacement. The Reaper observes two enemy forces in a field who move between a tree-line and a field to emplace an IED. The video shows clearly one of the enemy forces playing out some command wire and smoothing dirt over it. The Reaper releases one Hellfire missile and the insurgent is killed. UK forces later destroyed the emplaced IED.⁹

The drone is both hunter-gatherer and enforcer. In the first instance, it is an instrument of surveillance, with all that implies about discipline and punishment. In this guise it is a little like a new form of air control or imperial policing, as practised by the RAF in the 1920s, in some of the same regions. The civilizing mission is rather attenuated, but tribal pacification is a continuing theme.¹⁰ Allowing for the advance in technology, the delivery of punishment is remarkably unchanged. The term used then was ‘Frightfulness’. The Air Staff drew up a memorandum on ‘Forms of Frightfulness’, exemplary violence intended to undermine morale by ‘making life a burden’, maiming livestock, destroying property, and cowing the natives into submission, or at least quiescence. Frightfulness was terror bombing by another name.¹¹

Frightfulness is no longer part of vocabulary, though the thinking is much the same. Other F-words have taken its place. The mantra of drone operations is Find, Fix, Finish (F3), or in somewhat more sophisticated form, Find, Fix, Finish, Exploit and Analyze (F3EA). Given the drone's much-vaunted 'surgical strike' capability, simply to specify the prior problem of finding the target is to expose the casuistry of so much of the commentary on this peculiarly seductive popgun. Curiously enough, mass surveillance is critical to targeted killing. 'We kill people based on metadata,' as a former director of the CIA and the NSA has slyly said.¹² Snowden's disclosures have also served to reveal the symbiosis of surveillance and compliance, integral to the conduct of drone warfare. We now know that the NSA hoovers up the metadata of 55 million mobile phone users in Pakistan and feeds it into a machine-learning algorithm, which identifies likely couriers taking messages between likely terrorists, if not the presumptive terrorists themselves. The algorithm is fed the mobile metadata on a small number of 'known terrorists'. It then sifts through the metadata of the rest to try to identify patterns that match those of the training set. Thus the so-called 'signature strike' – as apparently on the high value yet anonymous target in Samarra in 2005 – based on the target's electronic signature, identified by 'selectors' such as phone numbers or email addresses. Targeting according to metadata is bound to be an inexact science, however, because the intelligence so derived is inherently unreliable. (And also because the intelligence fed in, on known terrorists, for example, is irremediably impoverished: a case study in sowing and reaping.)

The poverty of the intelligence and the fallibility of the model are well recognized in the trade. 'It's stunning the number of instances when selectors are misattributed to certain people,' admits another insider. 'And it isn't until several months or years later that you all of sudden realize that the entire time you thought you were going after this really hot target, you wind

up realizing that it was his mother's phone the whole time.'¹³ The NSA's data, methods, and analysis are subject to swingeing criticism by the director of research at the Human Rights Data Analysis Group, among others, who has described the training and testing of the model as 'ridiculously optimistic', and the outputs as 'scientifically unsound'.¹⁴ The consequences are severe. Fixing and finishing are predicated on finding. In ways that are still not well understood, when it comes to intelligence, the seeing-eye drone is flying blind. This disability is a primary cause of the ruinous outcome: the routine killing of innocent people, otherwise known as collateral damage.

The recourse to targeted killing under these conditions might be called the curse of the drone. It is widely observed, overtly in Afghanistan and Iraq, covertly in Pakistan, Somalia, and Yemen. CIA drone strikes are monitored by the Bureau of Investigative Journalism. Drones have been striking Pakistan ever since 2004. As at 1 April 2016, the tally is as follows:

Total strikes: 423

Obama strikes: 372

Total killed: 2,497-3,999

Civilians killed: 423-965

Children killed: 172-207

Injured: 1,161-1,744

'Obama strikes' are the latest in the new normal: the spanking new normal. Under the benighted George W. Bush, the characteristic engagement of the war on terror was the creative interrogation. The bare life of the detainee came to define the Western way in warfare. Under the enlightened Barack Obama, it is the surgical strike. The grim Reaper is the

weapon of choice. Staring down or shooting up the natives in faraway countries, the drone appears as omnipotent as it is convenient – at once thunderbolt and tool of terror-management. This well-tempered weapon system seems to possess supernatural powers, like the ability to ‘slow down’ war, in the words of one pilot, and to press (or express) the advantage of asymmetry to the highest degree. The lure of drone warfare is that it entails no immediate risk to the drone warrior.

It's not fair

Not really

We should make an announcement:

Attention People of the Grey Desert

Everything is Witnessed

The Moment You Step Outside You are Under Suspicion

That would be fair¹⁵

Small wonder that the President has embraced it, *faute de mieux*, in the whirligig of the war on terror, from which he has been unable to extricate himself or his fellow Americans. As Steve Coll has remarked, ‘the President’s commitment to what his Administration calls “surgical strikes” against terrorists and guerrillas has come to define his approach to war and counter-terrorism.’¹⁶ The commitment is nothing if not keenly felt. The President refuses to shirk the moral responsibility. Week in and week out, the kill list carries his personal imprimatur. ‘Turns out I’m really good at killing people,’ he is said to have remarked wryly to his aides. ‘Didn’t know that was going to be a strong suit of mine.’¹⁷

This conjuncture has given rise to an outpouring of artworks of every kind and condition, sufficient to stimulate loose talk of 'drone art' or even 'drone aesthetics'.¹⁸ Instant art, like instant history, often lacks depth. Perhaps it is only to be expected that some of the work (and the talk) seems a little half-baked.¹⁹ Still there are beacons of hope. One of the most powerful and effective interventions has come from the writer Teju Cole, in the unlikely form of the tweet. In 'Seven short stories about drones' (2013) he appropriates or rewrites the opening lines of seven well-known books:

Mrs Dalloway said she would buy the flowers herself. Pity. A signature strike levelled the florist.

Call me Ishmael. I was a young man of military age. I was immolated at my wedding. My parents are inconsolable.

Stately, plump Buck Mulligan came from the stair head bearing a bowl of lather. A bomb whistled in. Blood on the walls. Fire from heaven.

I am an invisible man. My name is unknown. My loves are a mystery. But an unmanned aerial vehicle from a secret location has come for me.

Someone must have slandered Josef K., for one morning, without having done anything truly wrong, he was killed by a Predator drone.

Okonkwo was well known throughout the nine villages and even beyond. His torso was found, not his head.

Mother died today. The programme saves American lives.²⁰

These little gems are surgical strikes of their own. They caused a considerable stir online; one can imagine them displayed to good effect in a gallery, or for that matter in a public space. In a follow-up piece, 'A reader's war', Cole reflected more spaciouly on the painful contradiction embodied by his President and Commander-in-Chief: 'an elegant and literate man with a cosmopolitan sense of the world', a man who names among his favourite books Toni Morrison's *Song of Solomon*, Marilynne Robinson's *Gilead*, and Herman Melville's *Moby-Dick*, the reader-in-chief who is also arbiter-in-chief, the keeper of the kill list, the dealer in sentences of death.

That contradiction – the tragedy of Barack Obama – is not new. Fifty years ago it was given voice by George Steiner, in comparable terms:

We come after. We know now that a man can read Goethe or Rilke in the evening, that he can play Bach and Schubert, and go to his day's work at Auschwitz in the morning. To say that he has read them without understanding or that his ear is gross, is cant. In what way does this knowledge bear on literature and society, on the hope ... that culture is a humanizing force, that the energies of spirit are transferable to those of conduct? Moreover, it is not only the case that the established media of civilization – the universities, the arts, the book world – failed to offer adequate resistance to political bestiality, they often rose to welcome it and to give it ceremony and apologia. Why?²¹

Obama himself has joined the argument. As if to enact the problem, he conducted an erudite public conversation with Marilynne Robinson, possibly his favourite author, touching on faith and fear, hearth and hope, the engaged citizen and the examined life. The transcript was published in the *New York Review of Books*. Abraham Lincoln might have done something similar with Walt Whitman; no recent President or Prime Minister could have come close. Robinson is a considerable figure: a story-teller, a moral philosopher, a preacher and teacher in the Emersonian tradition. Obama seemed to be her ideal reader – tactful, graceful, sentient, self-aware, and well-versed in her work. He spoke feelingly of art and empathy:

When I think about how I understand my role as a citizen, setting aside being President, and the most important set of understandings that I bring to that position of citizen, the most important stuff I've learned I think I've learned from novels. It has to do with empathy. It has to do with being comfortable with the notion that the world is complex and full of greys, and you have to strive for that and work for that. And the notion that it's possible to connect with some[one] else even though they're very different from you.²²

Empathy is the point at issue.

Teju Cole for his part identifies what he calls an 'empathy gap'. Asked about the genesis of his drone stories, he replied: 'I had been thinking so intensively about the global war on terror, especially the heavy silence that has surrounded the use of drones to assassinate people outside this country. I just realized that what we're facing here is an empathy gap. And this was just another way to generate conversation about something that nobody wanted to look at.'²³

Once upon a time there was a 'missile gap' (a fiction). Now there is an empathy gap. When General Michael Hayden delivered himself of his sound-bite about killing people based on metadata, he added the rider, 'but that's not what we do with this metadata', meaning that we do not set out to kill our own citizens on the basis of their metadata. We set out to kill foreigners, whoever they are, wherever they may be, if only we could find them. Hayden meant to be reassuring; but the outturn is far from reassuring. Leaving aside the excruciating ethical, legal and constitutional questions raised by the targeted killing of a known terrorist who is also an American citizen – as for example the troublesome case of Anwar al-Awlaki, killed by a drone strike in Yemen on 30 September 2011 – the larger issue of the empathy gap arises precisely in the untold stories, the case histories of the numberless, the nameless, and the faceless.²⁴

In addition to monitoring the drone strikes, the Bureau of Investigative Journalism pursues a project it calls 'Naming the Dead', that is, putting names and faces to the victims. Of the total killed in Afghanistan (in round numbers, between 2,500 and 4,000 people), 730 have been identified, many of them after the fact, sometimes long after. More often than not, therefore, the CIA do not know who they are targeting, let alone who they are killing. Their leaked documents record hundreds of the dead, without irony, as 'other'. Known terrorists and high value targets come and go, in vanishingly small numbers. 'Personality strikes' are like lottery winnings. The rest is the drudgery of the metadata: pattern recognition, selectors, signatures. Most of the time, then, 'targeting' is a question of contingency, little more than a euphemism. It means targeting 'military-age males' doing something suspicious – anything at all – or merely straying on to the screen. 'Believe me,' says a former CIA officer, 'no tall man with a

beard is safe anywhere in Southwest Asia.²⁵ That is not so much a boast as a statement of the problem.

Jeep

There's a jeep

Who drives a jeep in the desert?

The guilty

The guilty do²⁶

Remote killing, of unidentified persons, of indeterminate status, in secret, is a recipe for an empathy gap that is all but institutionalized. This is a chronic case. Arrestingly, it is mitigated by the response of some of those most intimately involved – the drone operators themselves. Four former operators recently wrote a hard-hitting open letter to the President arguing that the drone programme, like Guantánamo Bay, is ‘a fundamental recruiting tool for terrorists’; testifying to their horror at the ‘systematic loss of innocent life’; confessing to feelings of guilt for their part in it; and owning up to PTSD, and more, ‘cut loose by the same government we gave so much to’.²⁷ Their testimony is a far cry from the stereotype of the drone pilot as ‘bored witness’ (or witless).²⁸ They are not alone. Together with other activists, the USAF four appear in Tonje Hessen Schei’s documentary, *Drone*, a good primer on the arguments now raging in Washington and Waziristan. It closes with a memorable image of Waziri boys using catapults to sling stones at the drones flying serenely overhead. Goliath remains unscathed, so far, but for how long?

Much of the drone art to date focuses on the predicament of the drone pilot or operator. These individuals are an interesting study. Existentially, they have a lot to put up with. Their status

is moot. The drone pilot is not a pilot in the traditional sense; not even a ‘chauffeur’, in the derogatory term used by British soldiers in the 1920s. The drone pilot wears a flying suit, only to spend a twelve-hour shift in a windowless trailer on Creech Air Force Base in the Nevada desert, near Las Vegas. She then drives home. ‘Blew away six Taliban in Pakistan today,’ says the pilot in Andrew Niccol’s *Good Kill*. ‘Now going home to a barbecue.’ If the mass of men live lives of quiet desperation, as Thoreau observed, then the drone pilot is surely a case in point. These commuter executioners live lives of surreal mundanity, punctured by push-button ‘bug splat’ (in the argot).²⁹ Unsurprisingly, some of them cannot cope.

It would be a different book

The Odyssey

If Odysseus came home every day

Every single day

A very different book³⁰

One such is the monologist in *Grounded*, who loses the ability to compartmentalize or disassociate, and starts to confuse her drone life with her own life.³¹ Another is the veteran in *Good Kill* (Ethan Hawke, square-jawed and blank-eyed), who wants nothing more than to be a real pilot again. His wife is the sultry January Jones, who loves him and eventually leaves him, driven away by the blankness, the barely suppressed violence, and the self-harm. *Good Kill* is a fine dramatization of the pressure cooker of the trailer and the dubious ethics of the drone. Military personnel are credibly shown to be honourable people, on the whole, wrestling with their duty; damaged, perhaps, but human, all too human. The (unseen) villains of the piece are the CIA, known to the pilot’s sardonic commanding officer as ‘Christians in Action’. They introduce themselves over the phone as ‘Langley’ (shorthand for CIA headquarters). Langley

persistently and callously up the ante. They have an elastic conception of collateral damage; they are especially keen on the 'double tap' (a second strike on the same spot, targeting the first responders; sometimes even a third strike, on the funeral). One of the drone operators is heard to utter the words 'war crime'. Soon enough, she resigns. She is talented and principled; she has sense and sensibility. She makes a quixotic play for Ethan Hawke, then quits the scene. The pilot is on his own. But he is not finished yet. He initiates a solo strike on a serial rapist, before walking out of the trailer life to find his wife, or himself, in Reno.

Omer Fast's video installation, *5,000 feet is the best*, features an extended interview with a former drone pilot, overlaid with images from drone surveillance and drone strikes, intercut with quotidian banality ('Would you like your room cleaned now, sir?') and the sordid transactions of night time Las Vegas. Fast's work is many-layered; it repays repeated viewing. The interview is riveting.

So we call it in and then we're given all the clearances that are necessary – all the approvals and everything else. And then we did something called 'The Light of God'. The Marines like to call it 'The Light of God'. It's our laser targeting marker. We just send down a beam of laser and when the troops put on their night vision goggles they'll just see this light that looks like it's coming from Heaven. Poof! Right on the spot. Coming out of nowhere from the sky. It's quite beautiful. And usually we have outside observers that come into the GCS [Ground Control Station] at this point. Just to kind of watch and to monitor the situation. And the people who sit in the main building, they have projected images up on the wall of the camera feeds that are coming out. Like everything up to the Pentagon can see what we're doing on this feed. And we fired off a Hellfire missile and got the target. I mean, it didn't quite stand in to

me, 'Hey! I just killed someone!' My first time. It was within my first year there. It didn't quite impact. You know, it was later through a couple more missions that the dreams started.³²

Lisa Barnard's book of photographs, *Hyenas of the Battlefield, Machines in the Garden*, is as rich and strange as its title suggests. Billed as an investigation of the unholy alliance between the military, the entertainment industry and technology, it takes its cue from Fredric Jameson's celebrated dictum that 'the underside of culture is blood, torture, death and war'.³³ Here, the hyenas of the battlefield are the bloodthirsty corporations; the machines in the garden are the drones, and more broadly the technological apparatus of what has been called 'virtueless war'.³⁴ Barnard has made a deep study of the subject. Her black-and-white still lifes of Hellfire missile shards are as breathtaking as her 'too thin, too blue' aerial photographs of the mountains of Waziristan, fixing the locations of the drone strikes.

The missile shards were recovered thanks to the intrepid photojournalist Noor Behram, who has been documenting the sites of drone strikes across Waziristan since 2007. Behram's photographs are not for the faint-hearted. 'They show us more than we can bear,' Susie Linfield once wrote of the exemplary James Nachtwey. 'But not more than we need to see.'³⁵ In truth, if we are to bridge the empathy gap, we need to see far more. We need to see the work of the Pakistani artists' cooperative who made a larger-than-life-size portrait of a child, and laid it out on the ground, a project well described by its makers as a giant art installation targeting Predator drone operators. Its title is *Not a bug splat*.³⁶ We need to see accounts of lives lived under the drone, full lives, rich in authentic detail, such as the *sound* of the drone, and its name in Pashtu: *bangana* (buzzing wasp).³⁷ And we need to see the names and faces of the quick and the dead. As the great Polish poet Zbigniew Herbert reminds us,

in these matters
accuracy is necessary
one can't get it wrong
even in a single case
in spite of everything
we are our brothers' keepers
ignorance about those who are lost
undermines the reality of the world³⁸

The attention paid to the drone operator is admirable, as far as it goes. It has unquestionably served to demystify drone operations, and in a certain sense to humanize drone warfare. The drone is pitiless. The operator is not. Drone art has already taught us important lessons. And yet in the final analysis, the focus on the operator is essentially self-regarding, and occasionally self-serving. It may shed light on 'others', but it returns, obsessively, to us.

Democracy is founded upon visibility. To see the drone – to see it plain – it will be necessary to capture it, and contemplate it, from different points of view; paradoxically, from even further than the eye can see, as the ultra-long-distance photography of Trevor Paglen goes to show.³⁹ As things stand, we are in thrall to the drone's-eye-view. Our vision is drone vision. We tend to see the world from above, from afar, in our own time, in the comfort of our own ground control station. This is a lofty view, a panoptic view; in some quarters, perhaps, it aspires to the view from the panopticon. It is also a blinkered view. Indeed, it is a kind of illusion – an illusion of omnipotence. It issues in the bug splat.

Art works against such hubris. By making visible the invisible, slowly, slowly, it brings home some truths. The drone is neither panopticon nor panacea. At the present rate, strikes are self-defeating. Targeted killing forecloses F3EA. A popgun is a popgun, as every native knows.

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- ¹ Ralph Waldo Emerson, 'The American scholar' [1837], in *The essential writings of Ralph Waldo Emerson* (New York: Modern Library, 2000), p. 53.
- ² Hillaire Belloc, 'The modern traveller' [1898], in *Complete verse* (London: Pimlico, 1991), p. 184.
- ³ Joseph Conrad, 'Heart of darkness' [1902], in *Heart of darkness and other tales* (Oxford: World's Classics, 2002), pp. 114-15.
- ⁴ On Poitras, Snowden, and *Citizenfour*, see Alex Danchev, *On good and evil and the grey zone* (Edinburgh: Edinburgh University Press, 2016), ch. 5; and Laura Poitras *et al.*, *Astro noise* (Cambridge, MA: Harvard University Press, 2016).
- ⁵ George Brant, *Grounded* (London: Oberon, 2013), p. 44.
- ⁶ 'Be not deceived; God is not mocked; for whatsoever a man soweth, that shall he also reap.' Galatians, chapter 6, verse 7.
- ⁷ Chris Woods, *Sudden justice* (London: Hurst, 2015), pp. 86-7. For Kilcullen's dissenting view on drones, see his influential opinion piece, written with Andrew Exum, 'Death from above, outrage down below', *New York Times*, 16 May 2009. The semi-licit circulation of Predator porn is reminiscent of the semi-licit circulation of the notorious images of torture and abuse at Abu Ghraib. See Alex Danchev, *On art and war and terror* (Edinburgh: Edinburgh University Press, 2011), ch. 9.
- ⁸ CNN ImageSource log, in Woods, *Sudden justice*, p. 87.
- ⁹ 'RAF Reaper strikes insurgent IED team', 25 Nov. 2010, in the UK Government Web Archive. This video clip is touted as 'the first ever release of the RAF Reaper in action'.
- ¹⁰ A former drone pilot has remarked aptly that operating a drone is almost like playing the computer game Civilization. See Matt J. Martin, with Charles W. Sasser, *Predator* (New York: Zenith, 2010).
- ¹¹ See Charles Townshend, 'Civilization and "Frightfulness": air control in the Middle East between the wars', in Chris Wrigley, ed., *Warfare, diplomacy and politics* (London: Hamish Hamilton, 1986), pp. 142-62.
- ¹² General Michael Hayden, at the Johns Hopkins Foreign Affairs Symposium on 'The Price of Privacy', 7 April 2014. See David Cole, 'We kill people based on metadata', *NYRdaily*, 10 May 2014, at <http://nyrbooks.com>, accessed 2 April 2016.
- ¹³ Jeremy Scahill, 'The Assassination Complex', part 1 of 'The Drone Papers', in *The Intercept*, 15 Oct. 2015, at <https://theintercept.com>, accessed 3 April 2016. 'The Drone Papers' are based on a trove of secret documents on US drone operations in 2011-13, leaked by another whistle-blower, who remains anonymous. The quotation is from the whistle-blower.
- ¹⁴ Christian Grothoff and J. M. Porup, 'The NSA's SKYNET program may be killing thousands of innocent people', *Ars Technica*, 16 Feb. 2016, at <http://arstechnica.co.uk>, accessed 4 April 2016. According to recently released documents from the Snowden archive, it appears that GCHQ use similar machine-learning methods. See Cory Doctorow, 'Exclusive: Snowden intelligence docs reveal UK spooks' malware checklist', *BoingBoing*, 2 Feb. 2016, at <http://boingboing.net>; and the analysis by George Danezis, 'A technical reading of the "HIMR Data Mining Research Problem Book"', *Conspicuous Chatter*, 3 Feb. 2016, at <http://conspicuouschatter.wordpress.com>, accessed 4 April 2016.
- ¹⁵ Brant, *Grounded*, pp. 45-6.
- ¹⁶ Steve Coll, 'The unblinking stare', *New Yorker*, 24 Nov. 2014. See also his 'Remote control', *New Yorker*, 6 May 2013. The fullest study to date is Scott Shane, *Objective Troy: a terrorist, a president and the rise of the drone* (New York: Bantam, 2015), philosophically appraised in Thomas Nagel, 'Really good at killing', *London Review of Books*, 3 March 2016.
- ¹⁷ Mark Halperin and John Heilemann, *Double Down* (London: Heinemann, 2013), p. 55.

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- ¹⁸ See, e.g., Eugénie Shinkle, 'Drone aesthetics', in Lisa Barnard, *Hyenas of the battlefield, machines in the garden* (London: GOST, 2014), pp. 200-06.
- ¹⁹ See, e.g., Mignon Nixon, 'Louise Lawler: *No Drones*', *October* 147, Winter 2014, pp. 20-37.
- ²⁰ Teju Cole, 'Seven short stories about drones', originally published in *The new inquiry*, 14 Jan. 2013; embodied in 'A reader's war', *New Yorker*, 10 Feb. 2013. The opening lines are from *Mrs Dalloway* (1925) by Virginia Woolf; *Moby-Dick* (1851) by Herman Melville; *Ulysses* (1922) by James Joyce; *Invisible man* (1952) by Ralph Ellison; *The trial* (1925) by Franz Kafka; *Things fall apart* (1958) by Chinua Achebe; and *The outsider* (1942) by Albert Camus.
- ²¹ George Steiner, *Language and Silence* [1967] (Harmondsworth: Penguin, 1979), pp. 15-16.
- ²² 'President Obama and Marilynne Robinson: a conversation – II', *New York Review of Books*, 19 Nov. 2015.
- ²³ Sarah Zhang, 'Teju Cole on the "empathy gap" and tweeting drone strikes', *Mother Jones*, 6 March 2013. The rock band Muse also fasten on the empathy gap in their album *Drones* (2015), described by its composer Matthew Bellamy as 'a modern metaphor for what it is to lose empathy. ... Through modern technology, and obviously through drone warfare in particular, it's possible to do quite horrific things by remote control, without actually feeling any of the consequences, or even feeling responsibility in some way.' Gavin Haynes, 'Muse interview', *NME*, 20 May 2015. The album was originally inspired by Bellamy's reading of Brian Glyn Williams, *Predators* (Dulles, VA: Potomac, 2013). The Drones World Tour is ongoing.
- ²⁴ Awlaki is the focus of Shane, *Objective Troy*, his codename on the kill list.
- ²⁵ Jane Mayer, 'The Predator war', *New Yorker*, 29 Oct. 2009, reprinted in Marjorie Cohn, ed., *Drones and targeted killing* (Northampton, MA: Olive Branch, 2015), p. 73.
- ²⁶ Brant, *Grounded*, p. 45.
- ²⁷ Murtaza Hussain, 'Former drone operators say they were "horrified" by cruelty of assassination programme', *The Intercept*, 19 Nov. 2015; Ed Pilkington, 'Life as a drone operator: "Ever step on ants and never give it another thought?"', *Guardian*, 18 Nov. 2015. The four are highly experienced: Brandon Bryant, Cian Westmoreland, Stephen Lewis, and Michael Haas. Bryant was involved in tracking Awlaki for ten months before he was killed.
- ²⁸ See the intelligent discussion in Lisa Barnard, 'Ensared by the machine, the burdened protagonist', at <http://www.academia.edu>, accessed 4 April 2016. Lisa Barnard is also the photographer of *Hyenas of the battlefield, machines in the garden*, considered below.
- ²⁹ On this usage as military slang (derived from video games), Michael Hastings, 'The rise of the killer drone: how America goes to war in secret', *Rolling Stone*, 16 April 2012; on its leakage into the Administration, and its colouring of official thinking, Micah Zenko, 'Reforming US drone strike policies', Council on Foreign Relations special report no. 65 (2013), at <http://www.icfr.org>, accessed 5 April 2016.
- ³⁰ Brant, *Grounded*, p. 51.
- ³¹ The drone operator turned performer Lynn Hill dwells on these issues in such works as 'Capacity', featured on the CD by Vijay Iyer and Mike Ladd, *Holding it down: the veterans' dreams project* (PI Recordings, 2013).
- ³² Omer Fast, *5,000 feet is the best* (Berlin: Sternberg, 2012), p. 40. There is an exhibition of Fast's video installations at Baltic, Gateshead, until 26 June 2016.
- ³³ Fredric Jameson, *Postmodernism* (Durham, NC: Duke University Press, 1991), p. 5.
- ³⁴ Air Chief Marshal Sir Brian Burridge, in Mayer, 'Predator war', in Cohn, *Drones*, p. 67. Perhaps a play on James Der Derian's *Virtuous war* (2001), which coined the 'military-industrial-media-entertainment-network' (MIMENET). 'Hyena of the battlefield' is a phrase from Bertolt Brecht's *Mother Courage and her children* (1941).

³⁵ Susie Linfield, *The Cruel Radiance* (Chicago: Chicago University Press, 2010), p. 211. For a selection of Noor Behram's work, see Spencer Ackerman, 'Rare photographs show ground zero of the drone war', *Wired*, 12 December 2011. Behram himself appears in *Drone*. He also figures in Coll, 'Unblinking stare'.

³⁶ See notabugsplat.com, accessed 4 April 2016.

³⁷ See, e.g., Stanford Law School and New York Law School, *Living under drones* (2012), at <http://www.livingunderdrones.org>, accessed 4 April 2016.

³⁸ Zbigniew Herbert, 'Mr Cogito on the need for precision', in *The collected poems*, transl. Alissa Valles (London: Atlantic, 2008), p. 408.

³⁹ See, e.g., Niels Van Tomme, ed., *Visibility machines: Harun Farocki and Trevor Paglen* (University of Maryland Baltimore County: Center for Art, Design and Visual Culture, 2015); Interview with Trevor Paglen, 'Negative dialectics in the Google era', in Julian Stallabrass, ed., *Memory of Fire* (Brighton: Photoworks, 2013), pp. 204-17.