

116 | **drones, swarms and becoming-insect: feminist utopias and posthuman politics**

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abstract

Insects and 'the swarm' as metaphors and objects of research have inspired works in the genres of science fiction and horror; social and political theorists; and the development of war-fighting technologies such as 'drone swarms', which function as robot/insect hybrids. Contemporary developments suggest that the future of warfare will not be 'robots' as technological, individualised substitutions for idealised (masculine) warfighters, but warfighters understood as swarms: insect metaphors for non-centrally organised problem-solvers that will become technologies of racialisation. As such, contemporary feminist analysis requires an analysis of the politics of life and death in the insect and the swarm, which, following Braidotti (2002), cannot be assumed to be a mere metaphor or representation of political life, but an animating materialist logic. The swarm is not only a metaphor but also a central mode of biopolitical and necropolitical war, with the 'terrorist' enemy represented as swarm-like as well. In analysing the relations of assemblage and antagonism in the war ontologies of the drone swarm, I seek inspiration from what Hayles (1999, p. 47) describes as a double vision that 'looks simultaneously at the power of simulation and at the materialities that produce it'. I discuss various representations and manifestations of swarms and insect life in science/speculative fiction, from various presentations of the 'Borg' in *Star Trek* (1987–1994, 1995–2001, 1996), *Alien* (1979) and *The Fly* (1958, 1986) to more positive representations of the 'becoming-insect' as possible feminist utopia in Gilman's *Herland* (2015 [1915]) and Tiptree's *Houston, Houston, Do You Read?* (1989 [1976]). Posthuman warfare also contains the possibilities of both appropriating and rewriting antagonisms of masculine and feminine in the embodiment of the subject of war in the swarm. This piece seeks to analyse new ways of feminist theorising of the relations of power and violence in the embodiment of war as the swarm.

keywords

insect; queer; swarm; drone

In her 1915 feminist utopian fiction, *Herland*, Charlotte Perkins Gilman (2015 [1915]) imagines an all-female society that has evolved to reproduce without men, as characterised by decidedly insect-like aspects. Narrated by men who stumble upon their community, the story describes women who prove inscrutable to some of the male explorers: a community whose strength is as 'a multitude actuated by a common impulse' (*ibid.*, p. 56). The society these women have created, with the ability to reproduce without men, is a society free from war, violence and poverty. Women-as-insects among whom 'we find [fathers] of less importance, sometimes very little' (*ibid.*, pp. 62–63)—as in Haraway's (1991, p. 151) invocation of 'inessential fathers'—is a theme that runs through this text. One of the men compares the community to an anthill and a beehive because of its cooperative nature and of the way that the young are communally raised. The cooperative nature of the women's utopia is juxtaposed to the competitive, hierarchical, masculine order (ironically by one of their own who came to accept and defend the way of life in *Herland*): 'Ants don't raise their myriads by a struggle do they? Or the Bees?' (Gilman, 2015 [1915], p. 132). What appears as a utopia for the women becomes an unbearable dystopia for the men, who cannot reconcile themselves to a life of equality with women.

James Tiptree Jr.'s *Houston, Houston, Do You Read?* (1989 [1976]) is another classic work of feminist science fiction that presents another narrative of three men encountering an all-female society. However, these men are space explorers who have skipped ahead in time to a post-apocalyptic earth where the survivors are all women, of different races and ethnicities, working communally with little conflict. What appears as a dystopia to the men exists as something else for the survivors of this world—not quite utopia, but a world functioning well enough without sexual conquest or the hierarchical leadership of men. These women, who have reproduced for centuries by cloning, are also represented as 'insect-like': a female astronaut in a spacesuit is 'a silvery spider on a training thread' (*ibid.*, p. 46), while a male survivor likens the women's talk to that of ants or bees, 'twiddling their antennae together every time they meet' (*ibid.*, p. 53). After feeding the men a chemical 'truth-serum' that exposes the men's rapacious and dominating thoughts and plans, the women deem these anachronistic male astronauts too dangerous to integrate into their all-female form of humanity and have them killed.

The trope of woman-as-insect in feminist science fiction makes positive associations between women and insect life. Graham Murphy (2008) details this trope in science fiction works that liken matriarchal utopias to hives, anthills or colonies unconcerned with filiation and patrilineal descent. For Murphy (*ibid.*), 'becoming-insect' is a site for non-heteronormative, utopian configurations; it embraces the multiplicity and indeterminacy the insect represents because of its radical difference. Men in these scenarios often cannot cope, cannot embrace the 'becoming-insect', seeing it as a site of existential threat. This figuration of the insect and of feminist utopia as bearing a resemblance to the social life of insects in 'swarms' is quite at odds with a contemporary materialisation of insect life—of the 'swarm' in particular—as 'drone swarm' technology at the forefront of military technologies.

Contemporary developments in artificial intelligence and warfare suggest that the future of warfare will not be 'robots' as technological, individualised substitutions for idealised (masculine) warfighters, but warfighters understood as *swarms*: insect metaphors for non-centrally organised, self-organising problem-solving. The swarm is not 'merely' a metaphor, but the organisational basis for military tactics. As famously argued by Arquilla and Ronfeldt (2000) in the RAND study *Swarming and the Future of Conflict*, swarming is to be the future of war-fighting tactics in the US. Swarming decentralises

operational forces in a way that values mobility, unique autonomy, and real-time continuous communication (*ibid.*; Kosek, 2010, p. 664). The current trend towards the development of swarming technologies, in which artificially intelligent 'mini drones' communicate with each other to move in random, non-linear ways does not only blur the lines between human and technology in the 'posthuman', but also between the human and animal, and animal and technological. In 2006, the US Defense Advanced Research Projects Agency (better known as DARPA) launched a call for scientists in the US to submit 'innovative proposals to develop technology to create insect-cyborgs' (Anthes, 2013). 'Bio-mimetic' technologies are considered the future of warfare, and the metaphor of the swarm is increasingly displacing the individualised human body as the model of artificial life.

I have elsewhere argued that precision warfare in general, and drone warfare more specifically, blurs lines between human and technology in warfare in the form of posthuman bodies (Wilcox, 2015, 2017). The posthuman, as explored by feminist theorists, such as Donna Haraway (1991, 1997), N. Katherine Hayles (1999, 2005) and Rosi Braidotti (2002, 2013), is a process of formation and reformation that reworks and undermines essentialist notions of culture and nature, biology, and technology. Cybernetics and artificial intelligence, I have argued, were developed as means to win wars, but they end up redefining and reorganising the boundaries of the human body in and through both imbrication in technology and in relation to other (killable) bodies. The challenge that the cyborg or posthuman body poses is not the addition of new technological advances to an already-existing human body, but of a body that is always already formed through norms and relations to others, whether these others are human, technological or animal. Rather than a figuration of peaceful communal living, the 'swarm' as a posthuman figuration that defies technological/animal/human categorisation appears to be a relatively new site for the development of (political) technologies of warfare. As a figuration that shapes the conduct of war and political violence, it demands new conceptualisations of the relationship between war and gender, which displace the overarching critique of masculinism for a more troubled and troubling posthuman and queer notion of the operation of gender in war.

While the swarm's ability to coordinate without central command could suggest a 'feminised' way of approaching war (for example, see Manjikian, 2014), I would suggest a queer reading of the posthuman drone swarm in Weber's (2016) terms, following Sedgwick (1993), in which 'queer' means a failures to signify gender monolithically (see also Daggett, 2015). As such, I argue that the drone swarm has a deeply ambiguous relationship between signifiers of masculinity and femininity. My queer reading of the drone swarm is also influenced by the ways in which forms of animal and otherwise non-human life have played a key role in queer theorising in recent years. The monstrous, abjected non-human and more-than-human have been sites of appropriation for queer and trans theorising, such as Susan Stryker's (1994; although see Stryker, 2015) trans-theory invocation of Frankenstein, Halberstam's (2011) inspiration by animated animals, and Chen's (2012) exploration of animality, race and queerness, among others.

Furthermore, the drone swarm is also its own component of a queer, necropolitical assemblage, in which the 'feminine' imaginary of insectoid life and the swarm becomes a core component of weaponised technologies. The figuration of the swarm thus exemplifies a 'queer necropolitics' (Haritaworn, Kuntsman and Posocco, 2014), which builds upon the work of Puar (2007), Reddy (2011) and others to analyse gendered, national and racial formations that operate under logics of sexuality to produce differential worlds of life and death. Here, understanding 'queer' as 'assemblage' and as a term detached from gay

or lesbian identity, calls attention both to the formation of a 'terrorist' subject as queer and as a method of being 'attuned to movements, intensities, emotions, energies, affectivities and textures as they inhabit events, spatialities and corporealities' (Puar, 2007, p. 215). Puar's appropriation of the Deleuzian term 'assemblage' (Deleuze and Guattari, 2003 [1987]) for her invocation of 'queer assemblages', is put into productive tension with models of intersectionality, which presume that the constituent elements in identity models, such as gender, class, race and sexuality can be disassembled. Such methods seek to shed light upon the 'queerness' already present in the world in terms of exclusions/inclusions, brutalities and differing regimes of living and dying (Haritaworn, Kuntsman and Posocco, 2014); at the same time, they also seek to broaden queer analyses to include ongoing engagements with shifting identifications, desires, affects and emotions shaping global politics. The politics of the swarm can be considered a kind of 'murderous inclusion' or a kind of 'queer necropolitics'. The figurations of insect and swarm no longer only represent a line of flight outside of the masculinist politics of control; they are also currently being appropriated for a necropolitics of surveillance and warfare.

In investigating the 'swarm' in its contemporary manifestations, I follow Haraway's (1997) conception of the figuration. Figurations are semiotic tropes combining knowledge, practice and power that shape the maps of our world and how we understand relations in the world. 'Figurations are performative images that can be inhabited' (*ibid.*, p. 11). Figurations, in Cynthia Weber's (2016, p. 28) recent summary, 'emerge out of discursive and material semiotic assemblages that condense diffuse imaginaries about the world into specific form or images that bring specific worlds into being'. Importantly, 'figures must involve at least some kind of displacement that can trouble identifications and certainties' (Haraway, 1997, p. 11). Figurations are thus 'living maps' in Braidotti's terms (2002, p. 2), and are not totalities but subject to revision and reconfiguration.

In considering the 'swarm' as a figuration, I take seriously Haraway's (1991, p. 169) perspective in which myths and stories about cyborgs, insects and women are 'sociobiological stories [that] depend on a high-tech view of the body as a biotic component or cybernetic communications system', and for which 'sex, sexuality and reproduction are central actors in high-tech myth systems structuring our imaginations of personal and social responsibility'. Such an analysis would require more than a critical feminist reading of the ways in which sex, gender, sexuality and reproduction are imagined in cultural products such as literature and film. Feminist science fiction can become a 'cyborg story' of recasting 'myths' and technologies in subversive ways, as neither cyborgs nor swarms are determined by their origins. At the same time, insects and their collective life—including the figuration of the 'swarm'—are not only a set of myths or representations, but a form of materialisation, most prominently in military technologies and their practices in necropolitical forms of death-dealing. In thinking through science fiction, feminist and otherwise, I want to follow Haraway (*ibid.*, p. 164) in understanding that 'myth and tool mutually constitute each other', or what N. Katherine Hayles (1999, p. 47, emphasis in original) describes as a double vision that 'looks *simultaneously* at the power of simulation and at the materialities that produce it' in order to 'better understand the implication of articulating posthuman constructions together with embodied actualities'. Privileging neither nature nor culture in their ongoing mutual becomings, I want to develop further the project of relating feminist readings of science fiction to feminist materialist analyses of becoming-insect, not in the service of utopian projects but rather to point towards heterotopic worlds of difference and multiplicity that are up to the task of theorising the dystopian necropolitical worlds embodied by swarming drones.

In the following exploration of the figuration of the swarm, particularly its insectoid manifestations, I begin by discussing its linkages to femininity and 'becoming-woman' and to racialised forms of life deemed killable. Next, I turn to the ways in which the figuration of the swarm is inspiring a new generation of military weaponry that serve as 'technologies of racial distinctions' (Allinson, 2015). In light of this appropriation of imagery and material forms associated with femininity and certain forms of feminist politics, I describe the figuration of the swarm as deeply ambivalent in terms of its politics of gender, race and sexuality. I then turn to ways in which insect and swarm imagery are being reimagined in ways that transcend the contemporary militaristic politics of the swarm.

insects and 'becoming-woman'

In her influential book *The Monstrous-Feminine* (1993), Barbara Creed argues that there is a relationship between 'becoming-insect' and 'becoming-woman', with insects representing monstrous feminine bodies that pose a threat to the masculine order.¹ Creed identifies the 'monstrous feminine' as a gothic trope and staple of the horror genre. The monstrous-feminine is typified by the alien m/other in Ridley Scott's *Alien* trilogy (1979, 1986, 1992), especially in terms of the fluid 'gooiness' described by Julia Kristeva (1982) as *abject*: that which refuses to conform to bodily boundaries, that which is expelled in order to create the illusion of the bordered boundary (see also Wilcox, 2015, pp. 80–103). More than a century ago, Belgian playwright Maurice Maeterlinck (quoted in Shaviro, 1995, p. 54) described the 'insect uncanny', that fascination and horror of the insect: 'The insect brings with him something that does not seem to belong to the customs, the morale, the psychology of our globe. One would say that it comes from another planet, more monstrous, more dynamic, more insensate, more atrocious, more infernal than ours'. Insect life is *abject*: 'it is primordially ambivalent: it arouses both disgust and desire, at once demanding and repelling our intimate contact ... insect life is an alien presence that we can neither assimilate nor expel' (*ibid.*, p. 47). The insect (or more broadly, the 'bug', which refers to insects and creatures technically classified as arachnids, such as spiders) suggests the limits of human control over the environment: 'Bugs are the stumbling block that reveal the fatal flaws of our fantasies of seamlessness and conformity. They carry within them the image of a world that exceeds our control and therefore they promise destruction' (*The New Inquiry*, 2016). The insect body poses the threat of radical otherness in biological terms and of 'being' in the world. No wonder that 'alien' societies are often represented in insect form, as are racialised populations conceived of as outside of the order of the 'human' and perceived as threatening the dominant racial order. The horror of insects, and relatedly of the swarm, is also of female reproduction outside of patriarchal control: that fathers are 'inessential' (Haraway, 1991, p. 151). In particular, the praying mantis is associated with femininity, female sexuality and the fantasy of the vagina dentate: a *femme fatale* writ small (Grosz, 1995).²

In the genre of science fiction, insects, swarms and hives represent a continual source of terror, whether against female sexuality and reproduction or Communist hordes threatening individualism (Jackson and Nexon, 2003). Wars are frequently fought against insect-like interstellar aliens, as in Robert A. Heinlein's

¹This is especially true in the post-nuclear world; for Aristotle, Spencer and others, insects have played a more diverse role as metaphor and inspiration for communal life. See Braidotti (2002, p. 148), Parikka (2010) and Rodgers (2008) for more examples.

²The image of female praying mantises as sexual cannibals appears to be driven in large part by the projection of human gender stereotypes on animals, as well as manipulated laboratory conditions. Thanks to an anonymous review for this insight. See *Entomology Today* (2013).

Starship Troopers (1959) and Orson Scott Card's *Ender's Game* (1985), and with the Borg on various *Star Trek* incarnations (1987–1994, 1995–2001, 1996). The alien-mother of Ridley Scott's *Alien* is insect-like. Woman as becoming-insect is a fearful spectre in many works of science fiction; it is often portrayed negatively as a warning against tampering with uncontrollable forces of nature and represented by the threat of reproduction uncontrolled by masculine sovereign power. Kurt Neumann's 1958 cult classic, *The Fly* (1958), and *Star Trek*'s 'Borg' are two examples of insect life linked with the threat of 'becoming-woman' that also exemplify the way in which 'insects signal a high degree of imbrication of the organic with the technological' (Braidotti, 2002, p. 152). As Braidotti (*ibid.*, p. 277) notes, 'insects are only the most evident metaphorical process conflating a number of irreconcilable terms such as life/nonlife, biology/technology, human/machine'.³

Neumann's *The Fly* offers a classic example of the insect as an abject form of humanity. In the 1958 film, a scientist invents a machine to solve a logistical problem: to move items from one place to another with electricity. Here, life is a problem: living creatures cannot go through the machines without being 'reprogrammed' in a devastating way. Testing the process on himself, the scientist accidentally splices himself with a fly. His head and arm become 'fly-like' and the fly has a miniature head of a man. After his wife is unable to capture the smaller fly, the mostly-scientist feels himself 'becoming-insect' in terms of losing his intellect, typing to his wife that his 'brain thinks strange things now' and that he 'feel[s] my will going already'. Fearing his loss of reason and agency, he attacks his wife—famously viewing her image in multiplicity in kaleidoscopic vision—before enlisting her help in killing himself. Ultimately, this killing is accepted as legitimate when the detective investigating the scientist's death kills the human-headed fly begging for help as he/it lays trapped in a spider's web. To assuage the wife's guilt, the scientist/fly's brother argues that if killing one is acceptable, so is killing the other. Neither is human; thus, neither death counts as murder. Becoming-insect is an effect of uncontrollable scientific discovery of the nuclear age, tying the patriarchal scientist's inability to master the reproduction of life with the fear of the feminine multitude and loss of the omnipotent, unitary masculine reason of the sovereign Enlightenment subject. Becoming-insect blurs the line between the sovereign One and the insect multitude, a thought so frightening that such figures become '*homines sacri*' (Agamben, 1998), whose deaths do not count as murders.

Examples of swarms that are less self-organising and resemble a sovereign leader of a collective include the feminine 'queen' of the 'buggers' (note the reference to queer sexuality) later known as the Formics (as in the ant family, *Formicidae*) in *Ender's Game*, and the hive queen of the Borg from various *Star Trek* incarnations, most notably *Star Trek: Voyager* (1995–2001). In *Star Trek: The Next Generation* (1987–1994), we are presented with the Borg as the ultimate other to liberal individualism: a multitude of voices speaking as one with threats of assimilation and annihilation. This is a vision of the horde with no individuality and no central control. Later, the Borg are revealed to be cyborgs, different individuals assimilated into the Borg collective by means of technological prostheses that not only give them superhuman strength and capabilities, but also allow them to adapt and learn from the experiences of other units in the Borg. The Borg Queen is somewhat ambiguous. In *Star Trek: First Contact* (1996), she is represented as embodying the collective consciousness of the hive; however, in *Voyager* she is clearly a

³Although for Braidotti (2002, p. 149), the insect is situated closer to the 'posthuman' and the technological than with the actual animal kingdom.

leader, imperiously giving orders, even acting against the will of the collective—a *femme fatale*. There is also a utopia here in the 'dream world' of Unimatrix Zero, a place free from the hive mind where Borg can visit while regenerating. A device attached to all Borg as part of their assimilation makes it possible for them to enter this haven. In Unimatrix Zero, Borg can adopt their pre-assimilation appearance as similar members of a species sans the many technological prostheses that otherwise define and keep these cyborgs connected to the hive. These Borg 'drones' have no memory of Unimatrix Zero until the Voyager crew introduces a 'nanovirus' to enable 'drones' to keep their memories of Unimatrix Zero, which leads to the Borg Queen retaliating in such a way that Borg 'drones' become independent outside of Unimatrix Zero and the Queen herself. Utopia exists within the cybernetic space, which is imaged as outside of the very space that makes it possible in the first place; yet this utopia is imaged in a liberal humanist vein of non-prosthetic, naturally-given individuality that is taken as the subject of agency and emancipation. In the Borg Queen, we are presented with a vision of the female insect-like cyborg, of which Jack Halberstam (1991, p. 440) writes, 'The female cyborg ... exploits a traditionally masculine fear of the deceptiveness of appearances and calls into question the boundaries of human, animal, and machine precisely where they are most vulnerable—at the site of the female body'. Halberstam links the fear of autonomous technology and its association with sophisticated weaponry to the gendering of technology as feminine, represented as demonic threats and as harbingers of chaos and destruction. Fear of autonomous machines is linked to an equation of artificiality with a loss of an essential self. 'The machine itself was seen to threaten the hegemony of white male authority because it could as easily be used against a government as for it; autonomy was indeed its terrifying potential' (*ibid.*, p. 439). The cyborg-insect hive of the Borg recalls the threat of female power and female reproduction uncontrolled by men. This mode of social organisation is considered so existentially threatening to humanity itself that it is represented as outside its boundaries. While still understood to be outside of the boundaries of humanity, the figuration of the insectoid swarm is contemporarily being appropriated in the services of racialised productions of spaces of life and death.

swarms of war

The swarm as a figuration is currently undergoing a material transformation. Over the past few decades, it has become a transformative model underpinning military, technological and tactical innovation. As mentioned previously, the swarm is defined by self-organising capabilities that are non-linear and depend upon the adaptive coordination of individual bodies not necessarily commanded by a sovereign source. Swarming tactics have been part of the repertoire of war fighting for centuries, if not longer. However, what distinguishes emerging military manifestations of the swarm from earlier ones, is their composition as configurations of humans, technological artefacts and various artificial intelligence capacities. The development of these swarm assemblages is driven in part by the perception of a changing threat environment for the US and other advanced industrial states—of threats that stem not only from conventional state military forces or nuclear weapons but also from more mobile and unpredictable elements. As they are more adaptable and fluid, based on biological models rather than on the static model of a network (Scharre, 2014), swarms are seen as an evolved stage of networked warfare. The idea behind the drive to harness the material capabilities of the swarm is that bees, ants

and such are not individually intelligent, but can exhibit much more complex behaviour collectively. In laboratories and bases, the US, UK and other militaries are developing what the US military has called 'SWARM capability', or 'Smart Warfighting Array of Reconfigurable Modules'. A key advantage this swarm intelligence is thought to enable is the ability for an entire swarm to be controlled or directed by a single operator rather than a vast network. The ability to adapt and communicate in real time, beyond the ability of humans to process and respond, is also seen as an advantage of swarm intelligence. The vision of the drone itself, in its most famous manifestation as 'Predator' or 'Reaper', can be seen as a kind of insect vision; the multiple lenses in the drone swarm are able to provide greater 'situational awareness' and monitor the environment from many different angles (see Chamayou, 2015, p. 38).

Another foreseen advantage of the technological swarm is that it will not be affected by losses and casualties in the same way that human combatants are (Hambling, 2015, p. 183). In its LOCUST programme, the US Navy is working to develop low-cost swarming drone technology that would enable the formation flight of thirty drones without having to be individually controlled (*ibid.*, pp. 189–190). To develop these capacities, many different kinds of 'microdrones' are being developed (see also Bumiller and Shanker, 2011; Thielman, 2015). Inspired by nature's ability to create small-scale flying machines, these many kinds of 'insect cyborgs' are primarily being developed to provide surveillance: they are to be mobile 'bugs'. Scientist Vijay Kumar at the University of Pennsylvania, for example, studies insects to learn principles upon which ants divide labour to perform different tasks, in order to some day apply these principles to program a fleet of aerial robots to interact with each other towards a common goal (Conner, 2014). Rosi Braidotti (2013, p. 124) describes a 'techno-beastuary' of military developments, such as 5 kg 'Sand Fleas' that can leap through windows or off of 30-metre ledges while stabilising and filming; six-legged robo-cockroaches that can climb walls; and the DelFly, a dragonfly-shaped surveillance drone with a camera weighing only a few grams. Some 'insect-cyborgs' are not technological reproductions of insect life, but modifications of insects themselves: the 'Beetle Commander' is a wired-up flower beetle controlled by signals sent to its brain via a backpack containing a radio receiver, battery and custom-built signal board connected to electrodes in the Beetle's brain (Anthes, 2013).⁴ The UK government's Ministry of Defence has also recently announced a funding competition for the development of technologies that would enable a single operator to control drone swarms consisting of over twenty components (Innovate London, 2016). The US is adapting its popular F-16 fighter jet, to allow a pilot to operate unmanned vehicles alongside it, as well as to deploy a swarm of drones (Axe, 2016). The capacities of insect life and the relations of the swarm are clearly no longer only a source of threat and danger, but a means by which that perceived threat is contained.

The swarm as represented in a figuration linking it to 'becoming-woman' poses a threat to the political ontology of the 'body politics', and thus to political order. The biological swarm, the technological network and the political multitude are variations of an ambivalent negotiation of a political body that bears a similarly ambivalent relationship with sovereignty (Thacker, 2004a, 2004b). The agency of the swarm is unclear; according to studies of animal behaviour going back to the nineteenth century (Thacker, 2004a), it emerges out of interactions between individuals, in response to environmental constraints, and within groups. But now multiplicity is also used on behalf of sovereign power and necropower. While Hardt and Negri (2003, pp. 91–92) celebrate the swarm as a network of a multitude of different creative agents solving problems without centralised control, the mere existence of a network

⁴Similar 'RoboRoaches' can be bought and trained as a hobby (Anthes, 2013).

does not necessarily make it more democratic. As Galloway and Thacker (2007) have argued, some swarms are compatible with centralised control; that is, swarms may be controlled or directed, or a swarm can be used for the purpose of control itself (see also Coeckelbergh, 2011). The swarm occupies an ambiguous categorisation between the 'many' and the 'one' in terms of individual independence and collective coordination. This figure of the 'swarm' has much in common with Lauro and Embry's (2008) articulation of the 'zombie', in its indeterminate status between living and dead and in its posthuman consciousness that obliterates the distinction between subject and object.

The inspiration and development of 'drone swarms' is reminiscent of the creation of the feminine automaton: a machine created in a feminine body designed to do men's bidding, such as in *Metropolis* (1927) or *Ex Machina* (2015). A key critique of automated drones guided by artificial intelligence, including drone swarms, is the potential or anticipated loss of human control over technologies of death. Part of the fear here, in alleged loss of humanity in warfare, is better theorised as the loss of an ideal of humanity associated with a certain form of masculinity: namely, the possessive liberal individual, whose agency is secured in a conscious mind (Hayles, 2005, p. 177, 1999). In her work *My Mother Was a Computer* (2005), N. Katherine Hayles notes the persistence of gendered representations of artificial intelligence, in which a male creator exacts his will through the use of female automata (female bodies controlled by another agent) against other men. This cultural trope is being realised in the creation of 'drone swarms': mechanical creations made to mimic insect and other forms of swarming life in the service of militaristic ends. More to the point, it seeks to harness the feminised power of the swarm for its own ends.

As such, the swarm is now not only a metaphor but also a central mode of biopolitical and *necropolitical* life. Michel Foucault's (2007 [1978], pp. 21–22) biopolitical analysis of the emergence of different modalities of power revolves around a relationship with certain non-human forms of life/death in the form of disease-causing microbes and viruses—from the sovereign exclusion of infected bodies of leprosy, to the discipline and surveillance of the plague, to the regulation of different kinds of circulations of people and non-human objects in the 'milieu'. Our contemporary biopolitical analysis requires an analysis of the politics of life and death in the insect and the swarm, which, following Braidotti (2002), cannot be assumed to be a mere metaphor or representation for political life, but an animating materialist logic. The issue of the swarm that defies categorisation between the one and the many, of which sovereignty depends, is a central problem for political organisation. As Eugene Thacker (2011, p. 154, emphasis in original) writes, 'In the "problem of multiplicities" presented to the body politic concept by plague, pestilence, and epidemic, multiplicity is never separate from, and is always inculcated within, the problem of sovereignty ... *it is multiplicity that plagues the body politic*'.

Much of the debate about drone warfare has focussed on the prospect of 'killer robots' being deployed and of the lack of human control over the sovereign power of killing. Defenders of the use of artificial intelligence and automated targeting point to their benefits, such as the removal of emotion and human error that can result in increased deaths of civilians (among others, see Strawser, 2010; Byman, 2013; Lewis, 2013). Regardless of the merits of such arguments, the drone and increasingly drone swarm tactics constitute the terrain of war and the subjects who both wage and suffer from war. Eyal Weizman (2011) notes that the swarm plays a key role in the tactics of Israeli ground forces. Achille Mbembe (2003, p. 40, emphasis in the original) writes, 'in our contemporary world, weapons are deployed in the interest of

maximum destruction of persons and the creation of *death-worlds*, new and unique forms of social existence in which vast populations are subjected to conditions of life conferring upon them the status of *living dead*'. Mbembe's thesis amends Foucault's biopolitical concept and formulates contemporary politics as not only biopolitical but also *necropolitical*. The lines between war and politics are blurred as they are in biopolitics; however, according to Mbembe, power does not only 'make life live' but also creates certain categories of the 'living dead' as those always-already dead, and thus subject to massacre.

In nineteenth- and early twentieth-century social evolutionary theory, studies of insects played a key role in naturalising racial and colonial hierarchies. Such work often read colonialism and slavery as present in insect 'societies' and classified certain insect societies as more or less like humans. 'The social construction of insect sociality was premised on colonial views of what defined civilization as the "highest" and all others as "lower" in the social scale' (Rodgers, 2008, p. 139). While 'drone' as a colloquialism comes from its ethological use as a term signifying zombie-like non-cognition, the place of the insect between life and death takes on new meaning in contemporary global violence. The militarised techno-swarms created on behalf of a project of biopolitical warfare with the ability to fight war without risk of death to human subjects on one side, also create entire populations who 'li[v]e under drones', in which the 'buzzing' sound of drone is a source of anxiety and fear. One member of a community in Pakistan affected by drones described the effect of hearing them buzzing overhead as spreading a 'wave of terror' over the community: 'Children, grown-up people, women, they are terrified ... they scream in terror' (International Human Rights and Conflict Resolution Clinic and Global Justice Clinic, 2012). As an apparatus that decides whose life is worthy of living and who is to be put to death, Allinson (2015, p. 120) describes the drone as 'a technology of racial distinction'. Its development and usage are part of a reconstitution of the theater of war as a frontier zone of American empire, a process that has, in Feldman's (2011, p. 329) words, 'contorted the temporality of warfare through notions of preemption and endurance, recalibrated Orientalist imagined geography through far more porous concepts of proximity that challenge received notions of state territoriality and national borders, and fixated on the mystique of "precision targeting" in highly ambiguous structures of race and space'. The description of people killed by drones as 'bug splats' in military slang further signifies the dehumanisation and abjection of those killed by drones, whether targeted or accidentally killed.⁵

In these instances, figurations of the swarm are used as instruments of sovereign power to kill and manage other populations figured as inhuman 'swarms'. The threat of terrorism is figured as the threat of the multitude, of the swarm, of the concerted action of that which does not necessarily have a single head. US (former) Coordinator for Counterterrorism Cofer Black (2003) claimed 'the threat of international terrorism *knows no boundaries*'. The threat of terrorism is often represented as boundless and formless. The purported formlessness of such loosely connected organisations is partly due to the transnational organisation of various 'terrorist groups'; combined with their tendency to make use of territories beyond the reach of the administrative power of various states,

⁵For examples of the military slang 'bug splat', see Hastings (2012). The 'bug splat' phrase was also dramatised by an art project called *Not a Bug Splat*, enacted in Northern Pakistan to show a large-scale image of a child with the intention that it is big enough for drone operators to view; see *NotABugSplat, <https://notabugsplat.com/> [last accessed 30 March 2017].

this means that the contemporary figure of the 'terrorist' is dangerous in part because of his (or increasingly, her) lack of subjectification within the terms of state power and state identity. While marked by difference in this way, 'terrorist' figurations are also able to hide this difference. The terrorist, like the communist or homosexual, could be anybody—hiding in a 'sleeper cell' or blending in with the population with various forms of deception, such as shaving their beard. Al-Qaeda in particular has been conceptualised as a network—or, more specifically, as individuals who become radicalised—acting in the name of Al-Qaeda with no other formal affiliation. It is a collective that acts without a hierarchy. In this sense, the 'enemy' is represented in insect ways as well. In the shift to war technologies and tactics inspired by insect swarms, we may be seeing a final admission that traditional modes of warfare are not always able to control non-hierarchical, feminine/queer and networked spaces.⁶

The figuration of the 'swarm' has also been applied to refugee and migrant populations, most famously by former UK Prime Minister David Cameron (see *BBC News*, 2015); rhetorically figured as swarms, refugees threaten to overwhelm like a plague of locusts. Even without using the specific language of the swarm, refugees have been depicted as reproducing uncontrollably and, in turn, threatening to overwhelm, disturb order and defy boundaries. This is a common figuration of the masses, multitudes, rioters, etc., which falls back onto the monstrous as threatening other. Yet, unlike these feminine creations, the entire purpose of the techno-swarm is that they are not controlled or controllable by man: 'Swarms may not be predictable to the enemy, but neither are they exactly controllable or predictable for the side using them, which can lead to unexpected results ... a swarm takes action in its own' (Singer, 2009, p. 110). The unpredictability of the swarm is at once its greatest promise and its peril.

ambivalence of the swarm

Insect life and the swarm remain deeply ambivalent figurations. As noted in the feminist works of utopian and speculative fiction discussed earlier in this text, the insect and particularly the collective insect life of the swarm have been claimed by some feminists as a positive mode of being to emulate, in distinction to the characterisation of women-as-insect as alien monster. However, Jinathana Haritaworn (2015) has recently questioned the celebratory nature of queer scholarship taking up monstrosity, animality and morbidity as objects of regeneration and nostalgia, particularly when 'queer' intersects with racialisation and the necropolitical. The current wave of militarising the swarm suggests the need for a similarly cautious approach when teasing out the implications of insect/swarm figurations. The symbolic ambiguity of the drone swarm can starkly be observed in the 2017 application of drone swarms flying in formation to create the image of an American flag at that most patriotic of US sporting events, the Super Bowl. This was carried out at the end of a performance by Lady Gaga, known for her legions of queer fans (affectionately called 'Little Monsters') and queer-friendly anthems such as 'Born this way' (2011) (see Figure 1).

⁶Thanks to Gina Heathcote for this point.

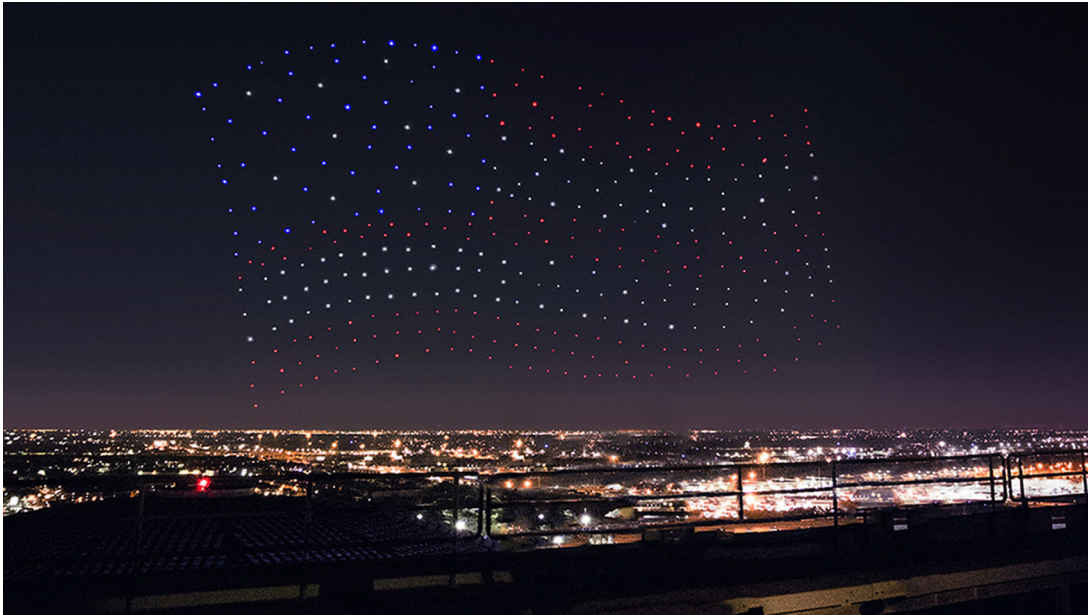


Figure 1 A swarm of drones flies in formation to form an American flag at the 2017 Super Bowl
Source: Intel Corporation

To facilitate interrogation of the ways in which the figuration of the insect or swarm becomes ambivalent in light of the militaristic 'drone swarm,' we can consider the limitations of evolutionary modes of reproduction. Gilman's (2015 [1915]) utopian story of female equality and peacefulness portrays insect life as a positive model of society that becomes subject to the unfair prejudice and incomprehension of male (and, importantly, imperial and capitalist) superiority. Whether insect life presents a utopian or dystopian model depends on one's gendered subjectivity, but it is clearly presented both as an ideal and one that is possible in the absence of men. However, *Herland* is limited for thinking about our contemporary technological worlds, in which life is folded into 'code' as means of reproduction and communications. *Herland's* mode of reproduction is largely Darwinistic rather than involving the reassembly of code (see also Haraway, 1991, 1997). Also, as in Perkins' political works, the utopian elements of the society rely on social evolutionary theory based on contemporary ethology to insist on the superiority of female-led societies (as does Tiptree's story of insect-like women reproducing by cloning in *Houston, Houston, Do You Read?*). This cannot speak to the posthuman condition of the drone-swarm assemblage that incorporates what Hayles (2006, p. 160) refers to as the 'cognisphere', or the 'distributed cultural cognitions embodied both in people and their technologies'. In other words, models of reproduction that rely upon Darwinistic or sexual reproduction are incompatible with the ways in which technologies of both reproduction and death-dealing are based on code and increasingly artificial intelligence. The figuration of the cyborg is germinal but insufficient for theorising the complexities of the posthuman figuration of the 'swarm', which characterises the human/animal/technological matrix of swarming drones, and the distributed cognitive capacities on which it depends.

This shift can be seen in the contrast between different versions of *The Fly*. David Cronenberg's 1986 remake of *The Fly* (1986) stars Geena Davis as plucky investigative journalist Veronica, in lieu of the 1958 version's accommodating housewife, and Jeff Goldblum as secretive scientist Seth Brundle who turns 'Brundlefly'. Cronenberg's version represents the bodily horror of 'becoming-insect' in different and significant ways to Neumann's version. Goldblum's character does not transform into two separate human/fly hybrids. Instead, in keeping with a contemporary emphasis on the powers and peril of DNA as the 'code' of life, Seth and the fly merge into a single being when a circuit infects Seth through a wound in his back, obtained while having sex with Veronica. Rather than experience an instantaneous break, Seth becomes a monstrous figure caught in a state of transformation—of 'becoming-fly'—which, initially at least, seems to give him 'better than human' powers. In this mode of becoming, traditional reproduction and phallogocentric power become as irrelevant and detachable as the Brundlefly's penis (even if this change was instigated during heterosexual sex). The transformation into the alien, feminine 'other' does not, at least for a time, prove threatening.

For Braidotti (2002, p. 124), this version of *The Fly* represents Deleuze and Guattari's 'becoming-animal' as 'a way of scrambling the master-code of phallogocentrism and loosening its power over the body'. Braidotti's (*ibid.*, p. 169) notion of 'becoming-insect' is about a materialist becoming, outside of the human; however, this does not erase sexual difference, but rather displaces it. In a related fashion, Elizabeth Grosz (1995), inspired by Caillois' theories of insects, theorises sex and the politics of sexual difference as an open mode of becoming situated outside of heteronormative reproductive sex (Parikka, 2010), and which can be described as 'queer' insofar as desire becomes about opening oneself to new encounters, new bodies, new affects.

As the swarm relies on modes of communication and reproduction outside of evolutionary and heteronormative frames, the use of such forms of communication and reproduction in 'swarm' warfare participates in a kind of 'murderous inclusion' (Haritaworn, Kuntsman and Posocco, 2014) and normalisation of queer subjects and bodies. A related development is the increasing ability for women, gay, lesbian, bisexual and transgender people to serve openly in the US military. The increased reliance on drones in the US, and increasingly around the world,⁷ notably signals a change in the relationship between the military and masculinity. This is at least at the forefront of technology and war, with traditional military values associated with masculinity, such as physical strength and courage under fire, becoming less relevant to operational success (for example, see Bayard de Volo, 2016). One source suggests that 17 per cent of those assigned to drone activities at Creech Air Force Base are female, which is greater than the overall percentage of women serving in the US military (Manjikian, 2014). Today, the US military is more inclusive than ever in terms of gender and sexuality; since 2011, with the official repeal of the 'Don't Ask, Don't Tell' policy, it has allowed gays and lesbians to serve openly, and it is also in a contested process of opening up combat positions to women. On 30 June 2016, the US military also overturned its ban on transgender people serving in the military, and it is now required to provide transgender personnel with relevant medical care. In these ways, the military can be said to have shifted from a site of patriarchal values and homophobia to a nominally 'ungendered' site where women can be 'honorary men' (King, 2016), and to a site of homonationalism (Puar, 2007) that situates the US as a site of exceptional sexual tolerance in opposition to representations of Arab/Muslim sexuality as barbaric and

⁷The New America Foundation (2016) lists nineteen countries that have acquired weaponised drone technology, including the US, UK, China, Israel, Pakistan, Iran, Iraq, Nigeria, Somalia and South Africa.

perverse. One example of this form of 'murderous inclusion' can be seen in the *The Daily Beast's* reporting of a female drone pilot, nicknamed 'Sparkle' because of her bedazzled headset. Explaining her decorative choice, Sparkle reproduces the gendered, racialised logic that women need protection from Arab/Muslim men: 'I use it to emasculate the enemy in the afterlife. [...] Considering how they treat their women, I'm OK with rubbing salt in the wound' (Maurer, 2015). Here we see an example of a symbol of femininity—the frivolous and 'sparkly'—put into the service of a racialised necropolitics of high-tech death-dealing against dehumanised others, much in the way that the figuration of the insect/swarm has been. We see the drone swarm as a form of queer necropolitics that incorporates queer bodies and queer modes of signification into assemblages of racialised death-dealing; however, this does not exhaust the possibilities for the politics of the swarm.

futures

Into this worldly figuration of the swarm, where models of insect life are appropriated by the force of militarism into a tool for the sovereign management of other-than-human figurations of the 'swarm', we may stumble upon revisionings of the 'swarm' and insectoid life that affirm their transgressive possibilities through new alliances and assemblages with such figurations.⁸ For example, *Star Trek's* Borg Queen finds a sister of sorts in black female musical icon Beyoncé. With her most enthusiastic fans known as the 'Beyhive' and herself as 'Queen B', Beyoncé embraces some of these insectoid metaphors and appropriates their imagery for a matriarchal black feminist collective.⁹ Beyoncé's performance at the 2017 Grammy awards also embraced maternal-goddess imagery at the head of a group of black women and children: wearing a gold crown and jewellery, heralding perhaps a past, present and future of black female power, Beyoncé positioned her pregnant body as Madonna, rebuking the exclusion of black women from and the degradation of the reproductive black body by the Western cult of motherhood.¹⁰ This not only recalls Halberstam's (1991) invocation of the fears of maternal reproductive power uncontrolled by racist or patriarchal forces; it also recalls Afrofuturism in its drawing upon black cultural life to imagine and enact possible future worlds, especially in terms of imagining less constrained modes of black subjectivity (see Womack, 2013, p. 9).

This example suggests that the feminine, racialised threat of 'becoming-insect' can be reappropriated and reconfigured without reproducing the racist, colonialist roots of the entomological sciences upon which Perkins and others draw. Octavia E. Butler's trilogy of novels known as *Lilith's Brood* (2000) similarly explores this possibility. Butler's work is also an example of Afrofuturist literature that reimagines themes from the transatlantic slave trade as alien abduction and uses this voyage and resettlement on earth to explore the question of what it means to be human. After the earth's population is almost extinguished by an exchange of nuclear weapons, Lilith Iyapo, a black woman, is rescued and held in stasis by an alien species, the Oankali. The Oankali are consensus-driven, with an interspecies kinship structure that mimics social insect formation, as well as queer interspecies sexuality (see also

⁸In his 2017 book, released as this piece was in final revisions, Bill Connolly (2017) also turns to the modes of movement, affectivity and communication in bees as inspiration for political action.

⁹Many thanks to an anonymous reviewer for suggesting the relevance of Beyoncé's work and celebrity in relation to this question.

¹⁰See 'Beyoncé's Grammys 2017 performance HD', video, <https://vimeo.com/203941448> [last accessed 30 March 2017].



Figure 2 Memo is wired into the global labour market (*Sleep Dealer*, 2008)

Source: Image courtesy of Alex Rivera

Cassel, 2016). They share some physical resemblance with both insects and molluscs, and initially elicit the same fear and disgust in Lilith that insects do. In both Butler's *Lilith's Brood* and her award-winning novella 'Bloodchild' (1996 [1984]), insectoid aliens use human bodies for reproductive purposes. However, Butler uses these figures to explore the idea that intelligence and hierarchical social organisation are not defining human characteristics, but rather fatal flaws. In the worlds that Butler creates, other beings exist and thrive outside of these characteristics and human interactions, with these 'alien' others changing human identity categories and desires.

Another such revisioning of 'becoming-insect' can be found in Alex Rivera's 2008 Mexican film, *Sleep Dealer* (2008). In a near-future dystopia, a swarm of drones, operated by an employee of a corporation, kills a man stealing water for his drought-stricken crops from a reservoir in Oaxaca. He is targeted on the basis of a radio receiver operated by his son—interpreted as 'terrorist activity in the area'. After his death, the man's son, Memo, travels to Tijuana to provide for his family and escape agrarian life. In Tijuana, Memo gets illegal implants, called 'nodes', from an intriguing woman (Luz), which enable him to obtain work (see Figure 2). The 'nodes' are considered a deviant bodily modification associated with sex and sex work, but one that allows many in Tijuana to survive in various forms of formal and informal employment.

The trailers—which externally closely resemble the trailers from where drones are operated at Creech Air Force, based outside of Las Vegas—consist of people hooked up via wires into the global economy (see

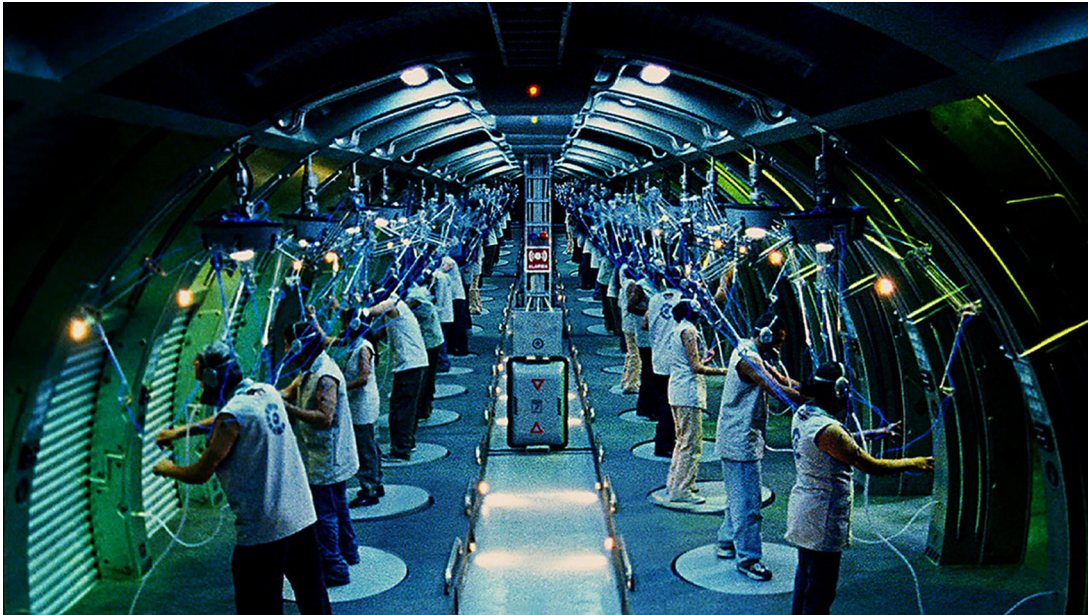


Figure 3 Pods for wired-in labour extraction (*Sleep Dealer*, 2008)
 Source: Image courtesy of Alex Rivera

Figure 3). Connected via spiderweb-like wires, the workers become wired-in zombies: they drive cabs, work on construction sites and perform other kinds of unskilled labour in the US via drones controlled with their plugged-in bodies. While the border remains an omnipresent feature in Tijuana, here the bodies of workers remain on one side of it, while their labour—enabled by robots they control—travels the world. Thus, the embodied sense of the operating of drones is made visceral. This image contrasts with the televised depiction of drone-swarm operators serving as policemen of the neo-liberal order: connected via permanent nodal fixtures in their bodies, they are featured on television in the world of *Sleep Dealer* as superheroes who kill ‘evil-doers’ by patrolling the region for those who would steal water from the corporations controlling the river, dam and reservoir. In *Sleep Dealer*, both worlds of the drone are brought together: the high-tech wars against ‘terrorists’ and the automation of low-skilled labour in the creation of networks of less-than-human bodies of precarious labour.

Meanwhile, Rudy, the ‘all-American’ drone pilot who after some hesitation launched the swarm of drones that killed Memo’s father, comes to have a crisis of conscious. A Latino from a family proud of its history of military service, Rudy’s experience of bombing the purported ‘aqua-terrorist’ is a prescient forerunner of drone pilots, such as Brandon Bryant,¹¹ speaking out and working to undermine the war system based on their experiences of witnessing the death and destruction in which they have participated. Using Luz’s downloaded memories, Rudy goes to Tijuana and locates Memo. Joining forces with Luz and Memo, Rudy ‘plugs in’ to the wires in Memo’s trailer and connects to the global network of information, labour and

¹¹Brandon Bryant was a drone pilot tasked with targeted killings and is now an outspoken critic of drone warfare. He has been featured in major exposés of the US’s use of lethal force in *Der Spiegel* (Abé, 2012) and *GQ* (Power, 2013), in Tonje Hessen Schei’s documentary *Drone* (2014), and also has testified at the United Nations.

violence. He pilots his drone swarm to the dam controlling the water supply to Oaxaca, and damages it to allow water to flow freely to Memo's village.

The nodes enable Rudy, Luz and Memo to connect directly to the global economy through their nervous systems. The same system that connects the corporate state's violence in Rudy's body allows Luz to download her memories of Memo, which allows Rudy to find Memo in Tijuana. *Sleep Dealer* ends with Memo and Rudy going their separate ways, each knowing they cannot return home again. Memo's final monologue, translated into English, suggests a hopeful future: 'a future with a past. If I connect. And fight'. *Sleep Dealer* presents a parable not only of the violence and repression of the 'drone swarm' and its roots in militarism and corporate control of resources, but also of the power of connection as enabling people, technologies and the land to create new relations and new configurations.

conclusion

Rather than serving as an inspiration for egalitarian feminist utopias, the metaphor and materiality of the swarm has been appropriated for distinctly dystopian war-fighting purposes. This form of 'homonationalism' (Puar, 2007), which uses queer, 'monstrous bodies' for the purposes of maintaining control in racialised, necropolitical empires, not only constitutes subjects as 'living dead' but also creates liminal figures such as the 'drone swarm' to maintain order. In considering the contemporary gender politics of the 'swarm,' Haraway's (1991) figure of the cyborg looms large for establishing the 'monstrous' body as both a product of power relations and a possible technology through which a feminist and/or queer politics may resist. Haraway's cyborg is essential but incomplete for theorisations of contemporary politics of gender, bodies and warfare; this is because, even when considering Haraway's (2007) later work on companion species, it fails to move beyond the human/machine nexus to consider a 'human/animal/machine' nexus, which a contemporary political violence centred on the figure of the 'swarm' demands. In order to address the political challenges of the dystopian worlds of drone surveillance and destruction, a more robust appreciation for the uses of the insect and the swarm at the forefront of militarised systems of control, and of their potential subversion for feminist/queer politics, is needed.

Like Memo in *Sleep Dealer* and Lilith in *Lilith's Brood*, we cannot go home again to our separate colonies of insect life as an alternative to masculine and heterosexual domination and racist, necropolitical worlds of violence; nor can we reject swarming figurations for prior models of liberal humanist agency. Perhaps we need not abandon the swarm as a useful figuration and inspiration from feminist utopias; its capacities for connections across borders, egalitarian modes of communication and coordination—not to mention the challenge it presents to heteronormative modes of sexuality and reproduction—serve as potential inspirations for confronting the necropolitical worlds threatened by these very swarm assemblages. The swarm forms a crucial figuration that informs both utopian and dystopian imaginaries. It remains for us to fight for futures enabled by the swarm, in its multiple and complex manifestations, to construct new possibilities for connection and world-building.

acknowledgements

Many thanks to the editors and anonymous reviewers for their insightful comments and support of this project. Thanks also to Stefanie Fishel and audiences at the 2015 International Studies Association (ISA) Annual Convention, the University of Cambridge Centre for Gender Studies and the SOAS Centre for Gender Studies for their critical engagement. I am grateful to Anne-Kathrin Weber for assistance in preparing the manuscript for publication, and I thank Alex Rivera for his permission to include images from his film *Sleep Dealer*.

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doi:10.1057/s41305-017-0071-x