Liquid warfare as a challenge to international order

Revisiting Zygmunt Bauman's thoughts on liquid modernity in the context of the "new Western way of war"

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Abstract

This paper examines military interventions by precision strikes from a distance as a means to avoiding ground combat with own troops. A prominent strand of the literature argues that this is a particularly Western phenomenon; a consequence of the casualty aversion of democratic states and their risk-averse political leaders. In contrast to this line of argument, this paper argues that precision-strike warfare is not a particularly Western phenomenon, but that it follows from the proliferation of precision-strike technologies prompted by military modernization processes *and* the transformation of power in what Zygmunt Bauman calls "liquid modernity". In liquid modernity, the major technique of power is the rejection of territorial confinement and the related responsibilities and costs of order-building. Based on these thoughts, this paper argues that we have to understand precision-strike warfare with its hit-and-run characteristics as *liquid warfare*: a way of war that shuns the direct control of territory, focussing instead on the destruction of enemy forces and/or infrastructure. A proliferation of practices of liquid warfare would have several consequences for international order. In particular, it could contribute to a further deterioration of a central principle of the international order: the territorial control by sovereign states.

Introduction

This paper is about modern warfare and the way it is evolving in light of the proliferation of cutting-edge military technologies, in particular those technologies that enable states to strike their enemies with precision and from a safe distance. The bombing campaign of several states against so called Islamic State (IS) by various states is the latest example of the attempt to conduct some kind of hit-and-run warfare from a safe distance without having to engage in ground combat with own troops. The basic concept of hit-and-run attacks as such is not a new military phenomenon at all. It was, and still is, a central tactic of guerrilla warfare. However, the hit-and-run attacks conducted nowadays over Iraq, Syria, or Yemen by means of modern aircraft, cruise missiles, or unmanned aerial vehicles (UAVs) are neither the resort to strategies of the weak nor a mere addition to a broader, more traditional military campaign.

Instead, precision-strike warfare seems to have become a, if not *the*, central feature of modern warfare and military interventions. It enables states to influence violent conflicts without bearing the risks that military interventions with other, more traditional means, i.e. the involvement of own ground forces, would entail. This very advantage—to avoid or to "transfer" the risks of war—has led to a significant body of literature that characterizes this way of war as a particularly Western, democratic, or liberal way of war. The casualty aversion of liberal societies and their democratically elected political leaders has led several observers to this conclusion.

It is a central argument of this paper that such an analysis, while it may not be wrong, does not provide us with the complete motivations and driving factors for this way of war. In addition to making war less risky, precision-strike warfare allows intervening powers to shun the costs and responsibilities that would otherwise come along with the control and administration of territory, as it was the case, for example, with the interventions in the Kosovo, in Afghanistan and in Iraq. This way of war is in line with the "prime technique of power" in what the sociologist Zygmunt Bauman refers to as "liquid modernity": "escape, slippage, elision and avoidance, the effective rejection of any territorial confinement with its cumbersome corollaries of order-building, order-maintenance and the responsibility for the consequences of it all as well as of the necessity to bear their costs" (Bauman 2000: 11). If power has become liquid in late modernity, we should not be surprised that warfare has become liquid, too. Following Bauman's thoughts, I call a warfare that does not aim to gain control over territory but aims to destroy the forces and/or infrastructure of the enemy by hit-and-run precision strikes, *liquid warfare*. I use this term in particular to underline the connection of this way of fighting with the problematic tendencies of liquid modernity as identified by Bauman, most importantly, the decoupling of power—in this case military power—and responsibility. This could have several consequences for the future evolution of international order. In particular, it could contribute to a further deterioration of the territorial control by sovereign states as a central principle of the international order.

The remainder of this paper intends to substantiate the arguments introduced here. It will start with a look at some recent developments in how Western states fight their wars. Then, it will elaborate on Bauman's thoughts on liquid modernity and deduce the principles of liquid warfare from them. From this follows a discussion of how 'Western' this way of war really is. The paper concludes with some thoughts on the potential future of military intervention and the problems and consequences of liquid warfare for international order.

Precision-strike warfare as the highpoint of the "new Western way of war"

Western states have shied away from using ground forces in their recent military interventions. This is, not least, the result of the unsuccessful and costly interventions in Afghanistan and, particularly, in Iraq. While its military superiority enabled the United States to defeat Saddam Hussein's army swiftly in 2003, the sobering experience in the aftermath of this war (and the wars in Afghanistan) has led to a change in US military doctrine that is reflected, for example, in the latest Strategic Defense Guidance of 2012 (The White House 2012) and the Quadrennial Defense Review of 2014 (United States Department of Defense 2014). The role of military counterinsurgency, in particular in the framework of long-term "stabilisation" operations, involving a significant presence of troops on the ground, is

significantly downgraded. Instead, military planning in this field focuses on the concept of "light footprint," involving special forces, drones, limited air strikes, and the support of allied groups with training and equipment (Overhaus 2015).

We could witness this shift in military strategy in 2011, when the United States led a coalition of several states that intervened in the Libyan civil war and helped to topple the Gaddafi regime. US-American and British naval forces fired over 100 Tomahawk cruise missiles, and the US, French and British air forces among others carried out air strikes against tanks and other vehicles of the Gaddafi forces. Unmanned aerial vehicles (UAVs), like the Global Hawk (for surveillance) and the Predator and Reaper (for striking targets on the ground) were also involved. Between April and late August 2011 (when Libyan rebels captured Tripoli), US Predator drones had launched over 90 strikes with Hellfire missiles (Ackerman 2011). With the exception of some special forces, there were no US, British, or French boots on the ground. Instead, anti-Gaddafi forces were supplied with weapons and equipment by France, the United States and other states.

In the fight against so called Islamic State (IS), the United States and its coalition partners rely primarily on air strikes, too. To stop the advance of IS and to prevent further atrocities and massacres, the United States started with its air strikes against IS positions in Iraq on 8 August 2014. They were joined by France, the United Kingdom, Belgium, the Netherlands, Australia, Denmark, Canada, Morocco, and Jordan. In September 2014, the United States initiated air strikes against IS and the Al Qaeda-affiliated al-Nusra Front in Syria. While Saudi Arabia, Jordan, the United Arab Emirates, Bahrain and Qatar participated in the air campaign early on, Canada, Turkey, Australia, and France followed later. According to Airwars.org, a consortium of independent journalists, the international coalition had conducted 7,846 air strikes against IS in Iraq and Syria, 5,124 in Iraq and 2,722 in Syria by 2 November 2015. The United States had conducted the large majority of these strikes (69.8 per cent in Iraq, and 94.8 per cent in Syria).[1] Airwars.org considers it plausible that between 639 and 916 civilian non-combatants were killed.[2] According to estimates of the international coalition, 20.000 IS fighters were killed by the bombings. However, such numbers should be handled with extreme care, given that how such estimates are produced is highly disputable.[3] It is important to note this in order to avoid misunderstandings with regard to the term *precision-strike* that is uses in this paper to indicate that certain military technologies allow significantly more precision in hitting the target than it was the case earlier generations of weapons systems. But this does not per se legitimize the use of force, and it does not mean that the resulting casualties are negligible.

Precision-strike capabilities are indispensable when conducting such air-campaigns. The basis are precision-guided munitions (PGMs) like the GBU-12 Paveway laser-guided bomb, or AGM-114 Hellfire missile, in combination with real-time targeting networks.[4] In fact, a whole network of sophisticated military technologies is enabling the United States and its partners to intervene in violent conflicts via airstrikes. Commentators and analysts often refer to this network of technologies as a "system of system" that is the result of a Revolution in Military Affairs (RMA). Indeed, the RMA can be characterised as the integration of several

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[1] See www.airwars.org. Accessed on 03 November 2015.
[2] Ibid.
[3] For example, as the New York Times reported in 2012, the Obama administration adopted a policy of counting effectively all military-age males in a strike zone as combatants. See Jo Becker and Shane Scott (2012).
[4] For an overview and more background on precision-strike capabilities and their evolution, see Watts (2013).

technologies, including weapon platforms like modern ground attack aircraft or UAVs, precision-guided munitions, air- and space-based sensors, interlinked by modern communication technologies. The application of such a system of systems has led to a massive reduction in the so-called sensor-to-shooter gap and to a new way of warfare (Mutschler 2013: 27–28; Clarke 2001; Freedman 1998): A way of war that allows a military to fight from a distance, making it hard, if not impossible, for its enemies to strike back.

The most extreme and illustrative case is the increasing use of armed drones for targeted killings, a practice that had been initiated by the administration of George W. Bush, but that was significantly expanded by the Obama administration. Some refer to this extensive use of armed drones in combination with special forces as "Obama's Way of War" (Schörnig 2014: 231; Sanger 2012). According to data of the Bureau of Investigative Journalism, there were 180 reported US drone strikes in Afghanistan in 2015, killing between 775 and 1,157 people; 20-21 US drone strikes in Yemen, killing between 71 and 99 people, and 13 drone strikes by the CIA in Pakistan, killing between 60 and 85 people.[5] The Pentagon is planning to expand the number of US drone flights significantly over the years to come. The current number of 61 daily flights shall be raised to 90 in 2019 (Lubold 2015). While this indicates that the Obama administration seems to consider drone strikes as an effective tool, this policy is highly controversial. In addition to the highly problematic practice of generally counting military-age males in a strike zone as combatants,[6] there is the general criticism that these strikes are counterproductive in the "war on terror" inasmuch as they help militant groups with their recruitment by radicalising local populations in the areas where drone strikes are conducted (Zenko 2013: 10–11).

This particular approach to warfare is frequently characterised as a "new Western way of war," which implies that democratic institutions and values, in particular a high "casualty-aversion," are the central factors that have furthered this mode of warfare. Probably the most renowned representative of this line of argument is Martin Shaw (2005), who coined the term "new Western way of war." According to him, the new Western way of war can be called a "risk-transfer war," because it "[…] centers on minimizing life-risks to the military – and hence all-important political and electoral risks to their masters – at the expense not only of the 'enemies' but also of those whom the West agrees are 'innocent'" (Shaw 2005: 1).[7] This argument is based on the classical liberal thought, reflected in the democratic-peace literature,[8] that, in a democratic system, politicians respond to their citizens (their electorate) who are generally war-averse because they have to bear the costs of war—in terms of financial costs and the (potential) loss of life. Based upon this premise, Shaw formulates several "rules of risk-transfer war" (Shaw 2005: 71–97). For example, wars must minimise casualties to Western troops, be limited spatially to distant zones of war, and be strictly time-limited ("quick-fix wars"). According to Shaw, the Vietnam War in particular and the pullback in consequence of the massive protests at home taught this lesson to US-American policymakers. In consequence, so the argument, the United States and its Western allies prefer, whenever possible, airpower instead of boots on the ground as their weapon of choice.[9]

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[5] See www.thebureauinvestigates.com/category/projects/drones. Accessed on 18 December 2015.

[6] See footnote 3.

[7] The thesis that fighting wars is increasingly seen as an exercise of risk management is supported by Coker (2009).

[8] See for example Russet and Oneal (2001), or Brown et al. (1996).

[9] Cohen (2001) calls this "the new American way of war."

This particular way of war is highly problematic. By using the term "risk-transfer war," Shaw already points at what some authors would call the "dark side" or an "antinomy" of the democratic peace (Müller and Wagner 2007; Müller 2004): the transfer of the risks to those at the receiving end of the bombing campaigns. This transfer of the risks of war away from Western societies and policymakers lowers the threshold of gathering support for war as a means of foreign policy. It may even allow policymakers to bypass democratic decision-making procedures. A case in point was when the Obama administration did not ask Congress for the authorization of its military actions in Libya in 2011 under the War Power Act, with the argument that the military engagement in form of air strikes from a distance was limited and that there was no risk of own casualties. Frank Sauer and Niklas Schörnig (2012) make this case when they argue that "killer drones" constitute an antinomy of the democratic peace. While their use may result from the interests and norms of democratic systems (casualty aversion), the drones may make democracies more war-prone if they can transfer the risks of war via the use of drones.

There are several other problems of this particular way of war, and I will come back to them in the conclusion of this paper. Before that, however, the following sections argue that we have good reason to interpret precision-strike warfare not as a purely Western or democratic phenomenon.

Power and organized violence in "liquid modernity"

Zygmunt Bauman's thoughts on the role of power in what he calls "liquid modernity" (Bauman 2000: 9) provide an alternative reading to the "new Western way of war"-hypothesis. Accordingly, a way of warfare that prefers airstrikes over ground forces is not the result of democratic institutions and values, but stems from the general evolution of power, in particular the reduced significance of the conquest and control of territory to powerful, modern states.

In his seminal work on "liquid modernity," Zygmunt Bauman (2000) uses the metaphor of "liquidity" to describe what he considers the present part of modernity. In contrast to solids, liquids change their form much faster and easier. They are moving faster; they are in flow. According to Bauman, it is the same with regard to power. Liquidity (or fluidity), the capability to move freely and, if necessary, out of reach of others in order to abdicate from one's responsibility, is the central feature of power in our time. Power has become exterritorial; it is no longer bound to a particular space. Those who are able to move faster and decide about the speed of activities rule. "Velocity of movement and access to faster means of mobility steadily rose in modern times to the position of the principal tool of power and domination" (Bauman 2000: 9). In a similar way, Paul Virilio (1986; 1983) has described speed as the new, and central, source of power in modern industrialized societies. Virilio (1983: 44–45) calls the industrial revolution a "*dromocratic* revolution,"[10] in which inventions like the steam engine and later the combustion engine led to a quantum leap in the fabrication of speed, and to the investment of power in acceleration itself.

Bauman refers to the concept of the panopticon to illustrate the changing form of power in modernity. Jeremy Bentham has conceptualized the panopticon in the late 18th century as a

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[10] From the Greek word "dromos" (race/running course).

prison in which the inmates can be watched from a central point, without being able to tell whether or not they are being watched. Michel Foucault (1977) employs the panopticon as the symbol for the modern exertion of power because it allows a single watchman to constantly control all inmates in an effective way. Yet, for Bauman, the panopticon was a useful instrument of power only in solid modernity. With the panopticon, the surveillant does limit the freedom of movement of the inmates, exercising control and power over them. But this form of exercising power comes at a cost. The surveillant's freedom of movement is limited by the physical characteristics of the panopticon, too. In addition, keeping the inmates in the surveilled place creates a number of costly and burdensome administrative tasks like the erection and maintenance of buildings or the hiring and payment of personnel. Furthermore, exercising control via the panopticon means taking responsibility for the general functioning of the place. In liquid modernity, power has become "post-Panoptical" (Bauman 2000: 11). Those in power are relieved from the territorial restraints of the panopticon and can escape their responsibilities.

> […] power has become truly exterritorial [emphasis by the author], no longer bound, not even slowed down, by the resistance of space […]. What matters in post-Panoptical power-relations is that the people operating the levers of power on which the fate of the less volatile partners in the relationship depends can at any moment escape beyond reach – into sheer inaccessibility (Bauman 2000: 11).

Bauman applies these thoughts to various fields of modern life, for example to the changing power relationship between capital and labour. While in "heavy capitalism," labour and capital were mutually dependent, this interdependence has dissolved in "light capitalism" under the conditions of globalization. Capital has become liquid; it travels fast and easily around the globe without much resistance from borders. Labour, in contrast, remains much less mobile. For Baumann, this difference is the basis of the contemporary dominance of capital over labour.

Bauman also applies his concept of power in liquid modernity to war (Bauman 2002, 2001, 2000). Accordingly, powerful states' warfare is becoming exterritorial. During the period of solid modernity, power and wealth were based to a large extent on the ability to exploit the resources of the land. Consequently, to conquer and then to control territory was a major goal of political leaders. Progress meant territorial extension. Bauman calls the conquest and possession of territory a "modern obsession" and solid modernity "the era of territorial conquest" (Bauman 2000: 114). This era reached its peak with the imperialist competition for colonization at the end of the 19th century. The situation has significantly changed in liquid modernity. The power of the late-modern state rests upon the capacities of its industry, not the size of its territory. Of course, this industry still depends on natural resources, but in today's era of globalization, access to them is via free trade rather than territorial conquest. "Ascendancy over a territory, and even more so the administration and the management of its population, has ceased to be the stake of the global power struggle […]" (Bauman 2001: 13). This does not mean that military might has no role to play in liquid modernity. According to Bauman, we can witness "globalizing wars" in which the goal is not to take over territory, but "to remove the obstacles on the road to a truly global freedom of economic forces […]" (Bauman 2001: 16). Referring to the famous dictum of Clausewitz, for Bauman (2000: 12), today's wars look like the "promotion of global free trade by other means".

This perception of today's wars as the "promotion of global free trade by other means" is much too simple. As critics of Bauman correctly point out, the reasons for the use of organized violence are much more complex, and in many violent conflicts, territorial claims still play an important role (Malešević 2008). Cleary, territory has not become irrelevant. However, when we look at the recent cases where industrialized states engage in violent conflict, we find that they usually have a variety of goals and motivations for resorting to the use of violence that go beyond the crude dichotomy of conquering territory vs asserting trade interests. One goal of organized violence might be to establish temporary safe- or no-fly zones out of humanitarian concerns. Depending on whether a regime is either considered a friend or a foe, another goal could be to violently topple or to support that particular regime Another example of organized violence can be found in the form of targeted killings when the targeted individual or the group of individuals is considered an enemy in the "war on terror". This list is not exhaustive, but it illustrates that the reasons for modern states to go to war are manifold.

For a long time, it has not been possible to achieve such political ends without establishing direct control over territory with ground forces that were to be deployed on the respective territory. With the advent of the Revolution in Military Affairs and the military options provided by precision-strike capabilities, direct control over territory has lost much of its relevance in military-strategic terms. When battle tanks and infantry were the principal military means, a large territory provided the defender with room for manoeuvre and rearguard action, while the long distances posed a formidable challenge to the attacker. However, for an attacker equipped with precision-guided munitions and all the systems necessary to put them to use, these tenets of military strategy no longer apply. To the contrary, being bound to a particular space has become a disadvantage, because it exposes you to the force of your enemy. While this is less of a problem in a symmetric situation when this exposure holds for all parties in a similar manner, the situation changes dramatically when one side is able to move freely and, if necessary, out of the reach of the other and when it can decide on the speed of its activities.

From the perspective of Virilio, these changes in the conduct of warfare are the logical consequence of the "dromocratic revolution." Speed has replaced space as the essential dimension of warfare. He calls these developments a shift "from geo- to chrono-politics: the distribution of territory becomes the distribution of time" (Virilio and Lotringer 1983: 115). Bauman, more bluntly, speaks of "hit-and-run" warfare (Bauman 2000: 186–189), taking NATO's bombing campaign against Serbia as its prototype. However, while this might be considered an adequate description for the NATO air strikes against Serbian troops and infrastructure, the picture changes significantly when we look at the aftermath of this conflict and in particular at the responsibilities that NATO member states accepted when they set up and led the Kosovo Force (KFOR) mission tasked to provide a secure environment in the Kosovo. In September 2015, 4,800 KFOR troops were still present in Kosovo.[11] So, with the presence of their troops on the ground in Kosovo, and in a similar manner after the Western military interventions in Afghanistan and Iraq, we might say that the intervening powers, set up the panopticon and installed themselves as watchman. Consequently, they had to bear the costs that come with this way of exercising power. Intervening powers had to invest significant resources—in terms of money and of manpower—in these missions and additional support measures. NATO's International Security Assistance Force (ISAF) mission in

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[11] http://www.nato.int/cps/en/natolive/topics_48818.htm. Accessed 04 November 2015.

Afghanistan, for example, involved over 30,000 troops form 48 nations in October 2014 (NATO 2014); a few months before it was replaced in January 2015 by the Resolute Support Mission (RSM) with a total strength of 12,905 (as of December 2015), that is tasked with training, advising and assisting the Afghan security forces (NATO 2015). This constant presence on the ground limited the freedom of movement of the intervening forces and made them vulnerable to attacks in the form of ambushes, improvised explosive devices (IEDs), suicide attacks, and the like.

One reaction to this situation was increasing "bunkerization" (Duffield 2012); i.e. the retreat of troops (and other personnel) to fortified compounds and the minimization of exposure to the world outside of these compounds. Furthermore, intervening states reacted to these attacks by increasingly shying away from the burdens of controlling and administrating territory (as I have shown in the previous section). In line with the principles of liquidity, they now seek to relieve themselves from the territorial restraints of the panopticon. They do this, by copying a central element of the guerrilla warfare of their opponents: hit-and-run tactics. Being unable to defeat a regular army, such hit-and-run attacks, where small and highly mobile groups attack larger, regular troop formations, trying to inflict as much damage as possible, and then quickly withdraw to avoid the likely defeat in regular combat, are among the essential means of guerrilla warfare. By avoiding decisive battle and relying instead on sabotage and ambush has transformed the face of war.[12] Carl von Clausewitz already notes this in what he called "people's war" in chapter 26 of the sixth book of his seminal *On War*:

> According to our idea of a people's war, it should, like a kind of nebulous vapoury essence, never condense into a solid body; otherwise the enemy sends an adequate force against this core, crushes it, and makes a great many prisoners; their courage sinks; everyone thinks the main question is decided, any further effort useless, and the arms fall from the hands of the people. Still, however, on the other hand, it is necessary that this mist should collect at some points into denser masses, and form threatening clouds from which now and again a formidable flash of lightning may burst forth. (Clausewitz 1997: 312).

By copying this tactic and combining it with the means provided by cutting-edge military technologies like drones and precision-guided munitions, late modern armies try to regain the sovereignty over the decision, when and where to attack.

In sum, we can observe the *liquidation* of organized violence, or what I call *liquid warfare*. In liquid warfare, mobility and speed trump sheer mass. It is a way of war that does not aim to control territory, but aims to destroy the forces and/or infrastructure of the enemy in order to break his will. To decide when and where to attack, striking the opponent with high precision while being inaccessible oneself is the dominant method of liquid warfare. Its central motivation is the avoidance of responsibilities and costs that come along with the control over territory.

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[12] On the methods and the history of guerilla warfare, see for example Max Boot (2013) or Charles Townshend (2005).

How Western is the "new Western way of war"?

In contrast to the concepts of a particularly "Western" or "liberal" way of war, liquid warfare is not directly related to a particular political system. While Zygmunt Bauman has developed his thoughts on war in liquid modernity on the basis of Western states' conduct of war, too (see above), there is no Western or democracy bias in his argument. Instead, Bauman's thoughts beg the question whether the "new Western way of war" is a way of applying organized violence that is reserved for Western states only. While for authors like Shaw (2005) or Coker (2009), the reduced role of ground forces in favour of air-strikes is explained as an exercise in risk-management by democratically elected governments, for Bauman, it is the result of a liquid operating mode of power, in which engaging in ground combat is useless or even counterproductive (Bauman 2000: 11–12).

If this assessment of Bauman is correct, we should see practices of liquid warfare by non-Western states, too. Of course, this can only be expected of such states that have cutting-edge military technologies at their disposal. In other words, it is not a prerequisite to be a democratic, Western state for conducting liquid warfare, but it is necessary to have a military that is modernized to such a degree that it can conduct precision-strike missions. While Western military powers, in particular the United States, are leading in this field, the respective technologies are not *per se* Western or non-Western, liberal or non-liberal. In the same vein, modernisation does not necessarily equal Westernization/ democratization (Delanty 2007; Joas 1999). The rise of authoritarian capitalism in states like China and Russia (Gat 2011, 2007) that brings with it the modernization of the civil industry and of the armed forces, testifies to this.

Military modernization is a consequence of the rise of the general level of technological capabilities. This finding is at the centre of what Barry Buzan considers to be an important factor for the spread of military technology and what he called the "technological imperative" (Buzan and Herring 1998; Buzan 1987). The general advancement of technology exercises pressure upon political decision-makers to make use of new technologies for the military. While the literature on arms control reminds us that states do not always make use of the full spectrum of technological possibilities (Mutschler 2013), the process of military technological advance is embedded in the commitment of modern industrial societies to the pursuit of technological innovation. According to Barry Buzan and Eric Herring (1998: 50–51), this commitment is probably strongest in capitalist societies in which technological innovation is seen as engine of economic growth. As Alvin and Heidi Toffler (1993: 2) conclude, "the way we make war reflects the way we make wealth."

This does not mean to deny the role that casualty aversion did play as one driving factor that promoted the development of military technologies, in particular in the field of robotics and automated weapon systems. It is very plausible that casualty aversion was and still is an important factor in this regard. However, as the new military technologies being developed and used effectively (from the military technological point of view), why shouldn't non-Western states—for which, by the way, casualties among their troops are not beneficial, either—forego the potential military option that such technologies bring?

In addition to the military capability, states must have the political will to intervene in conflicts outside of their own territory. This might seem trivial, but a state that defines its security interests purely in terms of defending its borders and territorial integrity against any

foreign power, might well have the technological basis to develop precision-strike capabilities, but might still consider battle tanks and a mass mobilization army the better investment in its security. In reality, of course, things are not as straightforward, because the applications of military technology are much more complex, and a clear-cut distinction between "solid" and "liquid" weapons—as between offensive and defensive weapons—is not possible. But technological capability and political motivation must fall together for states to practice liquid warfare. Whether the political motivation originates from liberal humanitarianism and the subsequent aim to stop mass atrocities or to overthrow the regime responsible for them, or whether the intervention is motivated by the interest to support such a regime for the sake of helping an ally and securing zones of influence, matters if we want to judge such interventions from a normative perspective; but both reasons can explain why a particular state might be willing to intervene in armed conflict.

In the following, I will present several examples that illustrate the point that precision-strike hit-and-run warfare is no longer a particularly Western concept and practice.

Several Arab states participated in the air campaign in Libya in 2011. While Qatar and Jordan participated only with fighter aircraft in the implementation of the no-fly zone, the United Arab Emirates (UAE) Air Force with six F-16 Fighting Falcon and six Mirage 2000 fighter jets conducted air strikes against targets on the ground. Particularly interesting in this context, Arab military intervention in Libya did not stop after 2011. Reportedly, in August 2014, there were several attacks conducted by UAE Air Force with F-16 aircraft on Islamist-held targets in Tripoli, using Egyptian airbases. While the ongoing turmoil in Libya is of concern to Egypt, its government does not seek any direct involvement in the conflicts across its western border with own ground forces. Still present are the memories of the disastrous Egyptian military intervention in Yemen (1962–1967), and there is no consensus in the Arab League about building a larger coalition. In this situation, limited air strikes against Islamist bases in Libya, with the help of the UAE, that is seeking a more active foreign policy in the region, seemed to be a viable option for the Egyptian government (McGregor 2014).

The participation of Saudi Arabia, the United Arab Emirates and Jordan, among others in air strike campaigns against so-called Islamic State, was made possible because these states imported modern Western military technology. The Royal Saudi Air Force, for example, uses Eurofighter Typhoon combat jets and Paveway IV precision-guided bombs, developed by Raytheon in the United States and the United Kingdom, to strike so-called IS targets (Chuter 2015). Due to exports, mainly from the United States and the United Kingdom, the Saudi Air Force has at its disposal F-15 and Tornado jets, too. With the help of these weapons systems, Saudi Arabia it is not only attacking IS targets in Iraq, but is also leading an air campaign against the Houthi rebels in Yemen in order to restore the Hadi government. While the targets of the air strikes that started on 26 March 2015 include military bases, weapons, or fuel depots of the Huthi forces, according to Amnesty International, the attacks also destroy civilian homes, result in scores of civilian deaths and injuries as they fail to distinguish between civilian and military objects and are also disproportionate and indiscriminate (Amnesty International 2015a). Saudi Arabia would not be able to conduct such an air campaign on its own. It not only relies on Western military technology, but also on support from the United States as regards intelligence and surveillance images for target selection (DeYoung 2015). This illustrates the sophisticated network of various technologies that is necessary to conduct liquid warfare. Furthermore, it illustrates that commercial arms exports play a significant role for the proliferation of these technologies.

The situation is completely different with regard to states like Russia or China. Over the last years, Russia has placed particular emphasis on the modernization of its military, which is in "transition from mass mobilisation army to modern combat force" (Klein and Pester 2014). This reform process was initiated after the 2008 war with Georgia, which had exposed several deficits of the Russian military. Russia's military reform means significant changes with regard to organisation, concepts, personnel and weaponry. Rapidly deployable, smaller, more professional and more agile brigades are to replace the mass mobilisation army. Joint operations of the services is one of the key goals. Russia has set up a Special Operations Command to be able to intervene rapidly in local conflicts and to counter terrorism, drug trafficking and insurgency. Another central element of the reform is to improve the military's equipment and weaponry. This includes the procurement of precision weapons, new aircraft and automated command systems in order to close the gap on the United States with regard to network-centric operations (Klein and Pester 2014).

In December 2014, Vladimir Putin signed a new military doctrine, in which Russia asserts its claim to power in the post-Soviet space. It considers the establishment of regimes in Russia's neighbourhood that are detrimental to Russian interests a danger. In preventing such developments, Russia seems to be willing to engage in, what is called "hybrid warfare," including the use of special forces, irregular armed groups and private military companies (Klein 2015). Russia's military involvement in the fighting in Eastern Ukraine can be considered the prototype of this kind of warfare that is, possibly closer to the concept of liquid warfare than one might think in the first instance. While Russia's actions against Ukraine at first glance seem to contradict the thesis of the loss of importance of territory and fighting on the ground, at a second glance, the picture is more nuanced. While Russia did conquer and occupy the Crimea with its own (although disguised) troops, it uses a different practice in Eastern Ukraine where it supports rebel forces in a less direct manner. It is important to note in this context, that the absence of Russian air strikes in its support of the pro-Russian forces in Eastern Ukraine was not the result of a lack of capability to do so, but rather the result of Moscow's denial of involvement in the conflict (Baev 2015: 19). In any event, the central point is that, although there is much speculation about Russia's motives, it seems plausible, that Russia is much more interested in de-stabilizing Ukraine to gain (re-)leverage over Ukrainian politics, than in conquering Ukrainian territory. As Wojciech Konończuk (2014) puts it: "Russia probably calculates that, thanks to its largely unchallenged influence in Crimea and possibly in other regions, it will be able to obtain effective and long-term leverage over Ukraine's main strategic decisions, including future moves on European integration."

The Russian aim in Syria is not related to the conquest of territory, either, but is quite different from that in Ukraine. Russia's military activities in Syria are not motivated by the desire to destabilize a certain regime. To the contrary, the Russian goal is the stabilization of the Assad regime, which it considers to be its closest ally in the region. In order to achieve this goal, Russia uses its most modern military technology to destroy forces and infrastructure of those groups that it labels as "terrorist". While this does include so-called IS, the majority of the Russian air strikes are aimed at other groups. While Russia seems to be using largely unguided bombs in these attacks (Barrie and Dempsey 2015), in September 2015, six Su-34 fighter-bomber aircraft arrived at Latakia airport in Syria to attack forces opposing the Syrian government. This enables Russia to conduct precision strikes from an altitude of over 5,000 metres, by using state-of-the art precision-guided bombs and missiles. According to Russian Defence Minister Sergey Shoigu, as of Mid-December 2015, the Russian air force has flown

about 4,000 sorties since the start of its aerial intervention and has destroyed over 8,000 pieces of military infrastructure (Bodner 2015). What the minister does not say is that these air strikes have killed hundreds of civilians, in particular in residential areas (Amnesty International 2015b). Russia has also launched several of its new Kalibr cruise missiles, also known as 3M-14s at targets in Syria. This new Russian cruise missile, similar to the American Tomahawk, is reported to have a much longer range than older Russian models, perhaps reaching 1,550 miles. This enabled Russia to launch them from warships in the Caspian Sea at targets in Syria (Lyons 2015).

China is not only modernizing its economy but its military, too. It has several, rather traditional concerns when it comes to security policy. One may think of the longstanding conflict over Taiwan or the various conflicts with Japan or the Philippines over territorial waters and islands. However, as the world economic power it has become, China relies increasingly on the import of commodities and the export of manufactured goods and, hence, on the safety of and access to international trade routes. Safeguarding China's "development interests" has become a major goal of its security and defence policy and is mentioned in one breath with national unification and territorial integrity in its most recent White Paper on Military Strategy (The State Council Information Office of the People's Republic of China 2015). Accordingly, piracy, terrorism, regional turmoil, threats to its overseas interests (i.e. access to energy and resources as well as the security of Chinese personnel and assets abroad) are presented as major threats to China's security. In order to meet these threats, China is modernizing its military. The Peoples Liberation Army (PLA) has steadily reduced its personnel as well as old and obsolete equipment and is investing in the procurement of modern systems. "China [is] on the road to becoming a modern military power" (Cordesman 2014: 2). Chinese military experts and planners have realized the value of military technologies like long-range, precise, stealthy, and unmanned weapons systems, and they are including them into their procurement planning and military doctrine. Mobility and flexibility play an important role in this regard. For example, the PLA Air Force is supposed to shift the focus from its traditional task of territorial air defence to other missions like air strike, airborne operations, strategic projection and comprehensive support (The State Council Information Office of the People's Republic of China 2015).

These examples are not to say that the liquidation of warfare is a one-way street and that in the future, all organized violence will take the form of liquid warfare. It is much more plausible that we will be able to observe, what Ernst Bloch (1985), in another context, called the "simultaneity of the non-simultaneous". Liquid warfare will be only one among several other, more traditional ways of warfighting that might persist in parallel to each other. However, based on the thoughts presented so far, we could hypothesize that the share of liquid warfare will increase with the proliferation of modern military technologies able to conduct precision strikes.

Conclusion: Liquid warfare and international order

A proliferation of liquid warfare could have several consequences for the future of military intervention and international order. While some authors conclude that the sobering experiences in Afghanistan and/or Iraq will lead to a "post-interventionist era" (Kümmel and Giegerich 2013) in which there will be less military interventions by Western governments,

others consider it more likely that we might be heading towards a "neo-interventionist era" with much smaller, clandestine and more focused interventions in which modern military technologies, in particular armed drones play a crucial role (Schörnig 2013). The arguments in this paper, in particular the indication that liquid warfare is not a particularly Western phenomenon, support the latter view. Not all states that have the military option to practise liquid warfare will do so, but overall the likelihood that governments will intervene in hit-and-run manner is likely to increase with the proliferation of modern military technology. If it is not only the casualty aversion of democratic governments and their quest for a "clean" use of violence, but also the general functionality of long-distance precision-strike warfare as a "post-panoptical" instrument of power, then it seems quite plausible to expect such a "neo-interventionist era", characterized by military interventions that do not aim to establish territorial control but aim to subdue the enemy by the destruction of his forces and/or infrastructure from a distance.

Such developments would further increase the blurring of the boundaries between war and peace—or rather between war and non-war (if we subscribe to a broader conception of peace, going beyond the absence of direct violence). Several authors point out that the military interventions by the United States and its allies, under the label of the "war on terror", have taken on the character of an "endless war" (Keen 2006), an "unending war" (Duffield 2007), or of a "forever war" (Filkins 2009). They criticise that war has achieved a state of permanence without any end in sight. With his term "everywhere war", Derek Gregory (Gregory 2011), adds a spatial dimension to the temporal one. "[T]he conventional ties between war and geography have come undone" (Gregory 2011: 239). Violence cannot only erupt at any time, but also at any place; be it in a poppy field in Helmand or on a commuter train in Madrid, as Gregory wrote in 2011. With liquid warfare spreading, the blurring of the boundary between war and peace will increase further, in its temporal *and* its spatial dimension.

If it becomes a common practice of powerful modern states to intervene in conflicts in other states with methods of liquid warfare—whether in their neighbourhood or globally—this might, over time, contribute to changes in the normative order, too. Studies on the role of international practices suggest a close relationship between states practices and international order (Adler and Pouliot 2011; Reckwitz 2003). Practices are "the dynamic material and ideational processes that enable structures to be stable or to evolve, and agents to reproduce or transform structures" (Adler and Pouliot 2011: 6). In the case at hand, this would mean that the practices of liquid warfare could influence the way that the international norms and rules that govern the use of force evolve.

For example, liquid warfare has the potential to contribute to the erosion of the norm of territorial sovereignty. Janosch Prinz and Conrad Schetter (2014; 2012), for example, argue that the concept of "ungoverned territories" decouples territorial sovereignty and the legitimate use of force, thereby legitimizing external military intervention in those territories. By using drone strikes within so-called "kill boxes"—a concept developed by the US Army in 2005—the United States does not aim at (re-)establishing territorial control but seeks to conduct selective strikes against an undefined enemy. This results in the creation of "fluid, target-oriented spaces of violence", and replaces a central principle of the international order—territorial control by sovereign states—with the principle of *security*. The power of definition of what *security* means in this context lies, of course, with the United States and its Western allies. However, in future scenarios in which not only the United States and its

Western allies, but also powerful non-Western states increasingly apply military force in a similar way in order further *their* security interests (whatever they may be), the decoupling of the legitimate use of force and territorial sovereignty would get an additional boost.

Another example for a norm evolution is the normative framework of the responsibility to protect (R2P). It is usually the *responsibility to react* (responding to compelling human need, for example with sanctions, but eventually with military intervention) that receives most attention, in particular when there is broad media coverage of gross human rights violations and mass atrocities. However, the R2P consists of three responsibilities altogether. The additional two are: the *responsibility to prevent* (address root causes of violent conflict), and the *responsibility to rebuild* (provide assistance to states and societies recovering from violent conflict). David Chandler (2015) argues that meanwhile, military intervention has been successfully separated from the R2P and that we can observe this already in the 2011 intervention in Libya, and most recently in the campaigns against so-called IS in Iraq and Syria. According to Chandler, the concept of R2P as a doctrine with all its three pillars, positing a "continuum from sovereign responsibility to international responsibility" (Chandler 2015: 3) was already dead before the Libya intervention, as Western states had started to bow out of the transformative agenda of liberal peacebuilding. From this perspective, Western powers did intervene in Libya, Syria and Iraq only *because* they could unshackle themselves from the responsibility for the outcomes of the intervention.

A proliferation of the capacities to practice liquid warfare would further this trend to focus on *reaction*, rather than on *prevention* and *rebuilding*. Precision-strike warfare offers low-cost reactions and does provide the necessary tactical flexibility for significant military interventions without own boots on the ground. It does not, however, provide sustainable strategies to cope with root causes of violent conflicts. While it might be instrumental to destroy a particular order, it is of no help when it comes to the process of rebuilding order. In particular, such processes of rebuilding structures of war-torn societies usually involve a significant presence on the ground and the acceptance of administrative costs. It is exactly this responsibility that is shunned by the very idea of liquid warfare – a form of organized violence that uncouples the use of military power from the responsibilities of territorial control and administration.

This is not to say that liquid warfare will inevitably lead to a complete dissolution of the boundaries between war and peace and the erosion of all norms on the use of force. Making such a claim is far beyond the scope of this paper—its aim is rather to point at some of the potential negative consequences of liquid warfare, to highlight the demand for further studies of this phenomenon, and, most importantly, the demand for a critical reflection on the proliferation of precision-strike warfare.

References

Spencer Ackerman (2011) *Libya: The Real U.S. Drone War*, http://www.wired.com/2011/10/predator-libya/, accessed 14 December 2015.

Adler, Emanuel and Pouliot, Vincent (2011) 'International Practices: Introduction and Framework' in Emanuel Adler and Vincent Pouliot (eds.) *International Practices*, Cambridge, New York: Cambridge University Press, pp. 3–35.

Amnesty International (2015a) *"Bombs Fall from the Sky Day and Night". Civilians under Fire in Northern Yemen*. London.

Amnesty International (2015b) *'Civilian Objects Were Undamaged'. Russia's Statements on Its Attacks in Syria Unmasked*. London. Amnesty International (ed.).

Baev, Pavel (2015) *Ukraine: a Test for Russian Military Reforms*. Paris. Institute Français des Relations Internationales (ifri) (ed.). Russie.Nei.Reports (19).

Douglas Barrie and Joseph Dempsey (2015) *Something Old, Something New. Russian Air-Delivered Weapons in Syria*, http://www.iiss.org/en/manama%20voices/blogsections/2015-f60f/russian-weapons-in-syria-5916, accessed 10 February 2016.

Bauman, Zygmunt (2000) *Liquid Modernity*. Cambridge, UK, Malden, MA: Polity Press; Blackwell.

Bauman, Zygmunt (2001) 'Wars of the Globalization Era', *European Journal of Social Theory* 4 (1): 11–28.

Bauman, Zygmunt (2002) 'Reconnaissance Wars of the Planetary Frontierland', *Theory, Culture & Society* 19 (4): 81–91.

Becker, Jo and Shane, Scott (2012) 'Secret 'Kill List' Proves a Test of Obama's Principles and Will', *The New York Times*, 29 May.

Bloch, Ernst (1985) *Erbschaft dieser Zeit*. Frankfurt/M.: Suhrkamp.

Bodner, Matthew (2015) 'Putins Orders His Military to be More Agressive in Syria', *DefenseNews*, 11 December.

Boot, Max (2013) *Invisible Armies. An Epic History of Guerrilla Warfare from Ancient Times to the Present*. New York: Liveright Pub. Corp.

Brown, Michael E., Lynn-Jones, Sean M. and Miller, Steven E. (1996) *Debating the Democratic Peace*. Cambridge, Mass.: MIT Press.

Buzan, Barry (1987) *An Introduction to Strategic Studies. Military Technology and International Relations*. London: Macmillan.

Buzan, Barry and Herring, Eric (1998) *The Arms Dynamic in World Politics*. London: Lynne Rienner.

Chandler, David (2015) 'The R2P Is Dead, Long Live the R2P. The Successful Separation of Military Intervention form the Responsibility to Protect', *International Peacekeeping* 22 (1): 1–5.

Chuter, Andrew (2015) 'Saudi Typhoons Use Paveway IV Bombs on ISIS', *DefenseNews*, 17 December.

Clarke, Michael (2001) 'The Implications of the Revolution in Military Affairs for Arms Control, Non-Proliferation and Disarmament', *Disarmament Forum* 2 (4): 5–10.

Clausewitz, Carl v. (1997) *On War*. Translated by J. J. Graham, revised by F. N. Maude. Hertfordshire: Wordsworth.

Cohen, Eliot A. (2001) 'Kosovo and the New American Way of War' in Andrew J. Bacevich and Eliot A. Cohen (eds.) *War Over Kosovo. Politics and Strategy in a Global Age*, New York: Columbia University Press.

Coker, Christopher (2009) *War in an Age of Risk*. Cambridge: Polity.

Cordesman, Anthony H. (2014) *Chinese Strategy and Military Power in 2014. Chinese, Japanese, Korean, Taiwanese and US Perspectives*. Lanham: Rowman & Littlefield.

Delanty, Gerard (2007) 'Modernity' in George Ritzer (ed.) *The Blackwell Encyclopedia of Sociology*, Malden, MA: Blackwell.

DeYoung, Karen (2015) 'Officials: Saudi-led Action Relied on U.S. Intelligence', *The Washington Post*, 26 March.

Duffield, M. (2012) 'Challenging Environments. Danger, Resilience and the Aid Industry', *Security Dialogue* 43 (5): 475–492.

Duffield, Mark R. (2007) *Development, Security and Unending War. Governing the World of Peoples*. Cambridge: Polity.

Filkins, Dexter (2009) *The Forever War*. New York: Vintage Books.

Foucault, Michel (1977) *Discipline and Punish. The Birth of the Prison*. New York: Pantheon Books.

Freedman, Lawrence (1998) *The Revolution in Strategic Affairs*. Oxford, New York: International Institute for Strategic Studies (IISS).

Gat, Azar (2007) 'The Return of Authoritarian Great Powers', *Foreign Affairs* 86 (4): 59–69.

Gat, Azar (2011) 'The Changing Character of War' in Hew Strachan and Sibylle Scheipers (eds.) *The Changing Character of War*, Oxford, New York: Oxford University Press, pp. 27–47.

Gregory, Derek (2011) 'The Everywhere War', *The Geographic Journal* 177 (3): 238–250.

Joas, Hans (1999) 'The Modernity of War. Modernization Theory and the Problem of Violence', *International Sociology* 14 (4): 457–472.

Keen, David (2006) *Endless War? Hidden Functions of the "War on Terror"*. London, Ann Arbor, MI: Pluto Press.

Klein, Margarete (2015) *Russlands neue Militärdoktrin. Nato, USA und "farbige Revolutionen" im Fokus*. Berlin. Stiftung Wissenschaft und Politik (ed.). SWP-Aktuell (12/2015).

Klein, Margarete and Pester, Kristian (2014) *Russia's Armed Forces on Modernisation Course. Progress and Perspectives of Military Reform*. Berlin. Stiftung Wissenschaft und Politik (ed.). SWP Comments (9/2014).

Wojciech Konończuk (2014) *Russia's Real Aims in Crimea*, http://carnegieendowment.org/2014/03/13/russia-s-real-aims-in-crimea/.

Kümmel, Gerhard and Giegerich, Bastian (eds.) (2013) *The Armed Forces. Towards a Post-Interventionist Era?* Wiesbaden: Springer.

Lubold, Gordon (2015) 'Pentagon to Sharply Expand U.S. Drone Flights Over Next Four Years', *The Wall Street Journal Online*, 16 August.

Lyons, Patrick J. (2015) 'Russia's Kalibr Cruise Missiles, a New Weapon in Syria Conflict', *The New York Times*, 8 October.

Malešević, Siniša (2008) 'The Sociology of New Wars? Assessing the Causes and Objectives of Contemporary Violent Conflicts', *International Political Sociology* 2 (2): 97–112.

McGregor, Andrew (2014) 'Egypt, the UAE and Arab Military Intervention in Libya', *Terrorism Monitor* 17 (7): 7–10.

Müller, Harald (2004) 'The Antinomy of Democratic Peace', *International Politics* 41 (4): 494–520.

Müller, Harald and Wagner, Wolfgang (eds.) (2007) *Schattenseiten des demokratischen Friedens. Zur Kritik einer Theorie liberaler Aussen- und Sicherheitspolitik*. Frankfurt, M., New York: Campus-Verl.

Mutschler, Max M. (2013) *Arms Control in Space. Exploring Conditions for Preventive Arms Control*. Basingstoke/New York: Palgrave MacMillan.

NATO (2014) *International Security Assistance Force (ISAF): Key Facts and Figures*, http://www.nato.int/nato_static_fl2014/assets/pdf/pdf_2014_10/20141014_141006-ISAF-Placemat-final.pdf.

NATO (2015) *Resolute Support Mission (RSM): Key Facts and Figures*, http://www.rs.nato.int/images/media/PDFs/RSM/151210_placemat.pdf.

Overhaus, Marco (2015) *Die Verteidigungspolitik der USA. Grundlegende Trends und ihre Auswirkungen auf ddas transatlantische Verhältnis*. Berlin. Stiftung Wissenschaft und Politik (ed.). SWP-Studie (11/2015).

Prinz, Janosch and Schetter, Conrad (2014) 'Das Ende der Souveränität? Über die Entstehung neuer Gewalträume im Krieg gegen den Terrorismus', *Die Friedens-Warte* 89 (3-4): 91–110.

Reckwitz, Andreas (2003) 'Grundelemente einer Theorie sozialer Praktiken. Eine sozialtheoretische Perspektive', *Zeitschrift für Soziologie* 32 (4): 282–301.

Russett, Bruce M. and Oneal, John R. (2001) *Triangulating peace. Democracy, Interdependence, and International Organizations*. New York: Norton.

Sanger, David E. (2012) *Confront and Conceal. Obama's Secret Wars and Surprising Use of American Power*. New York: Crown.

Sauer, Frank and Schörnig, Niklas (2012) 'Killer Drones: The 'Silver Bullet' of Democratic Warfare?', *Security Dialogue* 43 (4): 363–380.

Schetter, Conrad and Prinz, Janosch (2012) 'Intervention Light. Konstruktion von Gewalträumen im Zeitalter bedingter Souveränität', *Geographische Rundschau* (2): 26–33.

Schörnig, Niklas (2013) 'Unmanned Warfare. Towards a Neo-Interventionist Era?' in Gerhard Kümmel and Bastian Giegerich (eds.) *The Armed Forces. Towards a Post-Interventionist Era?*, Wiesbaden: Springer, pp. 221–235.

Schörnig, Niklas (2014) 'Die "neue westliche Kriegsführung" wirft mehr Probleme aus als sie löst' in Werkner, Ines-Jacqueline et al. (ed.) *Friedensgutachten 2014*, Münster: LIT, pp. 226–238.

Shaw, Martin (2005) *The New Western Way of War. Risk-Transfer War and its Crisis in Iraq*. Cambridge: Polity.

The State Council Information Office of the People's Republic of China (2015) *China's Military Strategy*, http://news.usni.org/2015/05/26/document-chinas-military-strategy, accessed 23 June 2015.

The White House (2012) *Sustaining U.S. Global Leadership. Priorities for 21st Century Defense*, http://www.defense.gov/news/Defense_Strategic_Guidance.pdf, accessed 10 August 2015.

Toffler, Alvin and Toffler, Heidi (1993) *War and Anti-War*. New York: Warner Books.

Townshend, Charles (2005) 'People's War' in Charles Townshend (ed.) *The Osford History of Modern War*, Oxford: Oxford University Press, pp. 177–197.

United States Department of Defense (2014) *Quadrennial Defense Review 2014*, http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf, accessed 10 August 2015.

Virilio, Paul (1986) *Speed and Politics. An Essay on Dromology*. Los Angeles, CA: Semiotext(e).

Virilio, Paul and Lotringer, Sylvère (1983) *Pure War*. Los Angeles, CA: Semiotext(e).

Watts, Barry D. (2013) *The Evolution of Precision Strike*. Washington, DC. Center for Strategic and Budgetary Assessments (ed.).

Zenko, Micah (2013) *Reforming U.S. Drone Strike Policies*. New York. Council on Foreign Relations (ed.). Council Special Report (65).