War at a Distance? – Some Thoughts for Airpower Practitioners

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Based on research conducted at the Development, Concepts and Doctrine Centre in the process of producing Joint Doctrine Note 2/11 'The UK Approach to Unmanned Air Systems', this article looks at potential moral and ethical questions that may be faced in future warfare. As technology provides more ways of engaging lethal force from afar, the decision-making process will present future military and political leaders with new dilemmas as to how such systems may be used within the democratic way of war. The *legal* justification of such weapons is continually under review and is subject to much study, however, what is less discussed is the question 'Should we?' rather than 'Can we?' This article aims to identify potential areas for debate by examining the employment of unmanned aircraft in the future battlespace, with particular emphasis on growing autonomy. (Many of the principles discuss herein do, however, read across directly to other forms of remote warfare, including cyber). Whilst some of the ideas may initially appear somewhat conceptual, the author aims to show that a less than ethical approach can have a direct effect on campaign outcomes; a modern airman must have a clear awareness of the ethical and moral issues involved in remote warfare and this article aims to identify potential areas for future discussion and debate.

1. *A robot may not injure a human being or, through inaction, allow a human being to come to harm.*

2. *A robot must obey any orders given to it by human beings, except where such orders would conflict with the First Law.*

3. *A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.*

Isaac Asimov – the 'Three Laws of Robotics'… Science Fiction!

Introduction

Over recent decades the 'western way of war' has involved the use of high technology and sophisticated firepower as an alternative to committing large numbers of troops on the battlefield. Conscious of the 'body bag' effect on public opinion in the latter stages of the US war in Vietnam, western powers have since sought to sacrifice expensive weapons systems to achieve their aims, rather than the lives of their citizens. Notwithstanding the apparently contrary lessons of the current COIN conflict in Afghanistan, recent developments have seen a proliferation of unmanned systems on the battlefield and, along with the advent of cyber warfare and new directed energy weapons (DEW), the means of achieving a military effect, remotely, are proliferating widely. The legal justification of such weapons is continually under review – indeed, every new weapon system, or change of use of a weapon system, must undergo a full legal review before it is fielded – but what is less discussed is the question 'Should we?' rather than 'Can we?' This article, based on research conducted at DCDC during the preparation of Joint Doctrine note 2/11 *'Unmanned Aircraft Systems; a UK Approach,'* aims to tackle some of the ethics - and morals-related questions of remote warfare by examining the employment of unmanned aircraft in the future battlespace, with particular emphasis on growing autonomy. Many of the principles discuss herein do, however, read across directly to other forms of remote warfare, including cyber. Whilst some of the ideas may initially appear somewhat ethereal and conceptual, a less than ethical approach can have a direct effect on campaign outcomes; a modern airman must therefore have a clear awareness of the ethical and moral issues involved in remote warfare.

Emotive language, particularly in media reporting, has engendered much speculation and discussion, often not well-informed, on the wider issues of operating unmanned aircraft in today's conflicts. Beyond the, unlikely, nightmare of a 'Terminator'-style killer robot running amok, there are some fundamental questions that must be addressed as we integrate increasingly autonomous weapon systems into the battlespace. Will the advent of increasing autonomy raise complex dilemmas centred on the moral and ethical justification of our actions? For instance, will future wars be fought remotely, at least initially, with little or no

loss of friendly human life? Is human nature such that the next arms race will seek to pitch increasingly complex unmanned systems against other unmanned systems or humans?

The first area for consideration revolves around the potential that unmanned systems may completely remove one's own forces from the risk of death in future warfare. This raises a number of interesting areas for debate, not the least being the role of risk to self as a 'policy limiter' when decision-makers opt for the use of force to achieve policy aims. Does it follow that the ability to use unmanned systems will, without risk to a friendly operator's life, lead more readily to the rapid escalation to full-on technological warfare of what would previously been considered, and tackled as, a simple diplomatic problem? In 1862, after the Battle of Fredericksburg, Confederate General Robert E Lee said, "It is well that war is so terrible – otherwise we would grow too fond of it."[1] If the risk of loss of friendly troops, with its attendant media coverage of repatriations and grieving families, ceases to be part of decision-makers' calculations when considering crisis management options, does the use of armed force as a policy tool become more attractive? Will decision-makers resort to war as a policy option far sooner than previously? In *On War*, Clausewitz himself suggested that it is the role of policy to prevent the escalation of the brutality of war to its absolute form via a diabolical escalatory feedback loop[2] - one of the contributory factors in restraining aggressive policy is the risk to one's own forces… and oneself. We must therefore ensure that we, as practitioners of modern airpower, consider this issue and fully understand the appeal of remote, risk-free, warfare to policy-makers. It is up to us as military advisors to ensure that we have a clear understanding of the potential pitfalls of such systems and that, by removing some of the horror of war (to our own side, at least), or at least keeping it at a distance, we do not risk losing our controlling humanity and make war more likely. As a contemporary example, the recent extensive use of unmanned aircraft over Pakistan and Yemen may already herald a new era in warfare; that these activities are exclusively carried out by unmanned aircraft, even though very capable manned aircraft are available, and that the use of ground troops, or other personnel, in harm's way has been avoided, suggests that this use of force is totally a function of the fact that an unmanned capability exists - it is unlikely a similar scale of force would be used if this capability were not available.

The next area for discussion is centred around a notion of 'fairness' or more importantly how to prevail in the 'war of ideas' that is inherent in modern warfare. Whilst not necessarily advocating the view of the school of thought that suggests that for war to be moral (as opposed to just legal) it must link the killing of enemies with an element of self-sacrifice, or at least risk to oneself,[3] there is a clear possibility that, the use by the western nations of high technology unmanned platforms, offering no risk to their own personnel, may directly impact on the apparent legitimacy of their actions. Whilst notions of fairness are not necessarily appropriate in war, the UK, as a democratic nation 'cannot achieve long-term security and prosperity unless we uphold our values'.[4] We must consider the war of ideas inherent in all modern warfare, particularly counter-insurgency operations.[5] Legitimacy becomes a key battleground in this type of environment and, as David Whetham says in his book, *Ethics, Law and Military Operations*,

'winning the narrative of the situation is just as significant as winning any tactical engagement'.[6] In such operations, which tend to be enduring, the onus is on the counter-insurgent to maintain his legitimacy; the insurgent gains every time a mistake is made, be it a bomb landing in the wrong place or a potential war crime. The counter-insurgency operation must be perceived as ethically sound, above reproach, and the ill-considered use of armed unmanned aircraft offers an adversary a potent propaganda weapon. Remote killing from altitude, at zero risk to self, enables the insurgent to cast himself in the role of underdog and the West as a cowardly bully – a bully that is unwilling to risk his own troops, but is happy to kill indiscriminately from afar. To us, in the west, projecting lethal force from an air conditioned control cabin may be part of a 'limited conflict'… a 'war of choice'; to the adversary in the target area it is very much a war of survival – both personally and for his cause. There is much press coverage of 'Drone' attacks in Pakistan which stresses this effect. The New York Times reports that '…in Pakistan's cities there is a different impact: a sense that the gizmos, created to instil fear in America's enemies, only reveal the fears of Americans to take casualties themselves. There, a song of protest taunts the world's most powerful country for sending robots to do a man's job:

America's heartless terrorism
Killing people like insects
But honor doesn't fear power'[7]

The discussion thus far has mainly been somewhat biased towards the pitfalls of remote warfare. There is, of course a far more balanced argument to be made, and a number of areas exist where there may be a clear moral justification for the use of unmanned systems. There is obviously a moral responsibility on every commander to reduce loss of life - on both sides. As JDN 2/11 makes clear, there are a number of reasons why a commander may elect to use an unmanned solution, one of the main reasons being removal of the risk of loss of friendly aircrew. The use of unmanned aircraft is thus in itself morally justified. Bradley Strawser suggests that:

'it is wrong to command someone to take unnecessary potentially lethal risks in an effort to carry out a just action for some good; any potentially lethal risks incurred must be justified by some strong countervailing reason.'[8]

There is little objection, for instance, to the use of unmanned bomb disposal robots – why would you risk a human life unnecessarily when an automated alternative exists? As long as it can be clearly demonstrated that the current generation of armed unmanned aircraft are legal, and that targeting criteria are clearly mandated and followed, it is a relatively straightforward argument that the use of such systems is morally obligatory.

The other area where unmanned aircraft may provide a moral or ethical advantage is in the quality of decision-making their inherent properties afford the operator. The situational awareness provided by the sensors on a persistent unmanned aircraft, observing the battlespace

for long, uninterrupted, periods enables much improved decision-making and, most likely, more appropriate use of force. The ability to observe patterns of life over an extended period and to build an awareness, maybe even a true understanding, of the local situation should ensure clearer, more accurate kinetic targeting with a reduced chance of unwanted effects. This may be enhanced by the fact that the decision-maker operating such a system is likely to be sitting in the relatively stress-free environment of an air-conditioned cabin, possibly based in the relative safety of a home base, instead of in a fast jet cockpit, under threat of attack from the ground, having launched from an FOB which itself is under threat. However, as a reprise to a previous paragraph, it must be stressed that the use of armed unmanned systems in the 'war of ideas' will need to be carefully managed – will a desire to maintain the moral 'high ground' become Strawser's 'strong countervailing reason' to risk life?

Thus far, this article has addressed issues that apply equally to current, remotely operated systems, systems with a human in the decision-making 'loop'. By far the most controversial debates with regard to unmanned aircraft are reserved for the future vision of fully autonomous systems where human input may not be required, or indeed desirable, for the effective operation of the system. Increasing autonomy in unmanned systems brings an even more extensive portfolio of moral and ethical dilemmas and, as press reports of 'killer drones' in Afghanistan[9] have shown, feelings are likely to run high as armed systems acquire more autonomy. It is perhaps appropriate at this stage to define what is meant by 'autonomy'. The descriptions 'automatic' or 'autonomous' unmanned aircraft are not clearly defined by either industry or in academic circles. In industry specifications and sales brochures the terms are often used interchangeably. JDN 2/11 notes that achieving agreement on clear definitions of these terms is required but that it is very difficult to achieve universal buy-in to any agreed lexicon. It offers MOD agreed definitions as follows:

> *'In the unmanned aircraft context, an* ***automated*** *or* ***automatic*** *system is one that, in response to inputs from one or more sensors, is programmed to logically follow a pre-defined set of rules in order to provide an outcome. Knowing the set of rules under which it is operating means that its output is predictable.'*

Conversely:

> *'An* ***autonomous*** *system is capable of understanding higher level intent and direction. From this understanding and its perception of its environment, such a system is able to take appropriate action to bring about a desired state. It is capable of deciding a course of action, from a number of alternatives, without depending on human oversight and control, although these may still be present. Although the overall activity of an autonomous unmanned aircraft will be predictable, individual actions may not be.'*[10]

Increasing autonomy is likely to be driven by both a desire to make systems more effective in performing increasingly complex tasks, and by the requirement to make manpower

savings – enabling one operator to oversee a number of unmanned systems simultaneously. Increasing autonomy also provides back-up options should control data links be disrupted. There is also an increasing body of discussion that suggests that the increasing speed, confusion and information overload of modern war may make human response inadequate and that the environment will be 'too complex for a human to direct'[11] and this has already been exemplified by the adoption of autonomous weapon systems in current operations in Afghanistan. For example, in the case of the Phalanx and Counter-Rocket, Artillery and Mortar (C-RAM) systems it can be clearly shown that there is insufficient time for a human initiated response to counter incoming fire. The potential damage caused by **not** using C-RAM in its fully automatic mode justifies the level of any anticipated collateral damage. We now see the role of the human in the loop, heretofore a legal requirement, as being eroded; what now is the role of the human from a moral and ethical standpoint in autonomous systems? Engaging and destroying an incoming Taliban rocket may be a suitable target for an automatic system - but what about an autonomous armed unmanned aircraft with a potential human target?

Most work on this area focuses on the unique (at the moment) ability that a human being has to bring empathy and morality to complex decision-making. To a robotic system, school bus and tank are the same - merely algorithms in a program - and the engagement of a target is a singular action; the robot has no sense of ends, ways and means,[12] no need to know **why** it is engaging a target. There is no recourse to human judgement in an engagement, no sense of a higher purpose on which to make decisions, and no ability to imagine (and therefore take responsibility for) repercussions of action taken. This raises a number of questions that will need to be addressed before fully autonomous armed systems are fielded. Whilst the majority of public debate on autonomous weapon systems is emotive, negative, and emphasises the more frightening aspects of robotic warfare, it is easy to forget that there could easily be a positive aspect. As just mentioned, robots themselves cannot be emotive, cannot hate. A target is a series of ones and zeros, and once the decision is made, by whatever means, that the target is legitimate, then prosecution of that target is made mechanically. The robot does not care that the target is human or inanimate, terrorist or freedom fighter, savage or barbarian. A robot cannot experience the 'red mist', it cannot be driven by anger or desire for revenge to carry out illegal or unethical actions such as those at My Lai;[13] in theory, therefore, autonomy should enable more ethical and more legal warfare. However, we must be sure that clear accountability for the processes by which systems arrive at the targeting decision, often anthropomorphized as 'robotic thought', exists. This in itself raises a number of difficult debates. Is a programmer guilty of a war crime if a system error or coding fault leads to an illegal act? Can a robot commit a 'war crime' - where is the intent required for an accident to become a crime? Who is responsible for the death of human beings in a robot attack – Robot?.. Commander?.. Manufacturer?. The pace of technological development is accelerating and the UK must establish, quickly, a clear policy on what will constitute acceptable machine behaviour in the future; there is already a significant body of scientific opinion, supported by an increasing number of activists, that advocate the banning of autonomous weapons - and any research that may lead to such weapons – outright.[14] There is also a growing acceptance in many

other areas that lethal autonomy is inevitable and must be managed and directed in an ethical way. There are no clear answers; technology may drive us in many different directions and it is impossible to forecast when and where developments will lead us – and the ensuing ethical dilemmas that may arise. The important thing is to have the debate, to discuss possible issues and to at least identify the main potential areas for concern. As Christopher Coker says in his treatise on Ethics in 21st Century War:

> *'We enter a new century knowing all too well that our ethical imagination is still failing to catch up with the fast expanding realm of our ethical responsibilities. Robots are taking us even further away from the responsibilities we owe our fellow human beings.'*[15]

This article will now step back from the edge of science fiction to address an issue that is very much in the here and now… issues surrounding the human aspects of remote operators of armed unmanned aircraft. Kinetic operations being controlled from several thousand miles away, such as those in Afghanistan currently being conducted from the continental USA, raise a number of novel areas of concern. The concept of 'fighting from barracks', as it has been termed, raises a number of interesting areas for debate. Is the Reaper operator walking the streets of his home town, after he has completed a shift in the control cabin delivering ordnance in Helmand province, a legitimate target for enemy sympathisers as a combatant? Would an attack, for instance, by a Taliban sympathiser be an act of war under international law - or murder under the statutes of the home state? Does a person who has the right to kill as a lawful combatant whilst in the control cabin cease to be a combatant that evening on his way to a PTA meeting or offspring's soccer match?

More broadly, we must also fully understand the psychological effects on remote operators of conducting war at a distance. In the first instance it is important to examine the stress caused by the contrast between home life and warfare on a daily basis. It has been suggested that an examination of the lives of WWII RAF bomber crews based in the UK may provide an insight – or even the experience of the 1999 Bruggen-based Tornado wing, operating from their home base whilst attacking targets in Kosovo – although with the 20,000 remote *Reaper* hours milestone only recently passed we should have a fair body of relevant, contemporary evidence on which to base opinion. Perhaps current operators could be persuaded to comment in this Journal? A well known opponent of autonomous weapons, Prof Noel Sharkey of Sheffield University raises another psychological concern, which he terms Moral Disengagement. Sharkey quotes a number of sources indicating that remote operators may suffer disengagement from the enormity of the act of killing, adopting what he terms a 'Playstation mentality' and becoming more careless about decisions to kill.[16] He recognises that there is little more than anecdotal evidence to support his assertions and more detailed studies of the stresses on remote operators needs to be carried out. Whether this detachment is any more pronounced than that of a bomber crew or modern fighter pilot remains to be seen, and the character and training of our professional crews will continue to be a major driver in ensuring the legal, moral and ethical use of our remotely piloted aircraft.

This article may have appeared somewhat of the 'Lily-livered liberal' variety to the majority of air power practitioners at whom this Journal is aimed. However, as the media frenzy accompanying the web-publication of JDN 2/11 demonstrates,[17] this is an emotive topic and the use of armed force to further policy must reflect the society driving that policy. We must satisfy our public that our actions are in keeping with the standards and values they expect. This is not just a philosophical issue; it could prejudice campaign success. As another DCDC publication posits,[18] the western high tech advantage is likely to be eroded as key military technologies proliferate – potential adversaries are almost certain to acquire autonomous systems. Different cultures may have very different views on what is perceived as ethical and moral; in addition, many adversaries may not have the transparent society or all-pervasive media attention that we in the west enjoy. It is possible therefore that we may face an adversary in the future whose freedom of action, with regard to autonomy, for instance, is considerably greater than our own. Careful and wide-ranging consideration of the emerging ethical issues is, therefore, required, so that an informed and convincing case may be argued for our use of the remote, and potentially autonomous, weapon systems of the future, in order to prevent our operations being unduly restrained in the face of a determined, unrestrained, foe.

Unmanned, and increasingly autonomous, weapons systems are likely to play and increasing part in modern warfare and unmanned aircraft will form an ever higher percentage of the air power contribution. Whilst the advantages of such systems are many, and increasing as technology evolves, there are a number of wider ethical issues involving their use that will need to be addressed if we are to utilise such systems to their full potential. This article has attempted to suggest some of the main areas for consideration in an effort to stimulate interest in the area and to start debate. Such debate is essential – a failure to properly justify remote warfare may severely constrain the use of otherwise war-winning systems, particularly against adversaries that may have a much greater freedom of action. Air Power Journal is a good place to tackle these issues…. Get writing!!

Notes

[1] James McPherson, *Battle Cry of Freedom*, (OUP: Oxford, 1988) p551.
[2] Carl Von Clausewitz, *On War*, trans. and ed. by Michael Howard and Peter Paret, (Princeton NJ:Princeton University Press, 1989) p606.
[3] See discussion in P W Singer, *Wired for War*, Penguin: London, 2009, page 432.
[4] William Hague, Foreign Secretary, 'Britain's values in a networked world', Speech at Lincoln's Inn, London, 15 Sep 10.
[5] PW Singer, *Attack of the Military Drones*, in Brookings, June 2009. **http://www.brookings.edu/opinions/2009/0627 - drones_singer.aspz?p=1** accessed 10 Jan 2011.
[6] D Whetham (Ed), *Ethics, Law and Military Operations* (Basingstoke: Palgrave Macmillan, 2011) p19.
[7] *The Downside of Letting Robots Do the Bombing*, **http://www.nytimes.com/2009/03/22/weekinreview/15MAZZETTI.html?fta=y** last accessed 18 Apr 11.
[8] Bradley Jay Strawser, 'Moral Predators: The Duty to Employ Uninhabited Aerial Vehicles' in *The*

Journal of Military Ethics, Vol 9, Issue 4, 2010. p344.

[9] For instance see the following **http://www.guardian.co.uk/uk/2011/jan/16/drones-unmanned-aircraft** last accessed 21 Feb.

[10] Joint Doctrine Note 2/11, *The UK Approach To Unmanned Aircraft Systems*, dated 30 March 2011.

[11] P W Singer, *'Robots at War:The New Battlefield'* in The Wilson Quarterly, Winter 2009. **http://wilsonquarterly.com/article.cfm?aid+1313** accessed 10 Jan 2011.

[12] See discussion in Christopher Coker, Ethics and War in the 21st Century, (Routledge: Oxon, 2008). p151.

[13] The **My Lai Massacre** was carried out by US Troops in South Vietnam on 16 Mar 68. An unknown number (estimates range from 347–504) of unarmed civilians, the majority women and children, were killed. For a discussion see P Tripodi "Understanding Atrocities" in D Whetham (Ed) *Ethics, Law and Military Operations*, (Basingstoke: Palgrave Macmillan, 2011) pp173-188.

[14] For instance, The International Committee for Robot Arms Control, **www.icrac.co.cc**.

[15] Coker, p152.

[16] Noel Sharkey, 'Saying 'No!' to Lethal Autonomous Targeting' in *Journal of Military Ethics*, Vol 9, Issue 4, 2010.

[17] For instance, see **http://www.guardian.co.uk/world/2011/apr/17/terminators-drone-strikes-mod-ethics?INTCMP=SRCH.**

[18] DCDC Publication *The Future Character of Conflict*.